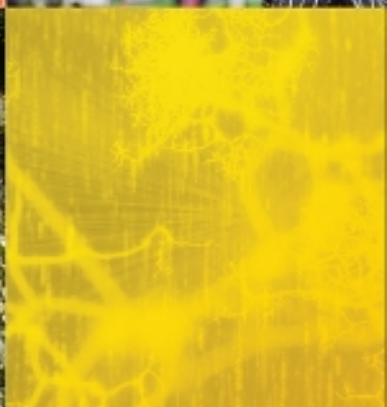




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The Routledge Handbook of Emotions and Mass Media

Edited by Katrin Döveling, Christian von Scheve,
and Ely A. Konijn

The Routledge Handbook of Emotions and Mass Media

The impact of mass media on individuals and society is to a great extent based on human emotions. Emotions, in turn, are essential in understanding how media messages are processed as well as media's impact on individual and social behavior and public social life.

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This compelling and authoritative *Handbook* is an essential reference tool for scholars and students of media, communication studies, media psychology, emotions, cultural studies, sociology, and other related disciplines.

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First published 2011
by Routledge
2 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

Simultaneously published in the USA and Canada
by Routledge
270 Madison Avenue, New York, NY 10016

This edition published in the Taylor & Francis e-Library, 2010.

To purchase your own copy of this or any of Taylor & Francis or Routledge's collection of thousands of eBooks please go to www.eBookstore.tandf.co.uk.

Routledge is an imprint of the Taylor & Francis Group, an informa business

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British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data

The Routledge handbook of emotions and mass media / edited by
Katrin Döveling, Christian von Scheve, and Elly A. Konijn.

p. cm.

Includes bibliographical references and index.

ISBN 978-0-415-48160-1 (hardback)

1. Emotions—Social aspects. 2. Mass media. I. Döveling, Katrin, 1970- II. Scheve, Christian von. III. Konijn, Elly, 1959-

BF531.H36 2010

302.23—dc22

2010008215

ISBN 0-203-88539-2 Master e-book ISBN

ISBN 13: 978-0-415-48160-1 hbk

ISBN 13: 978-0-203-88539-0 ebook

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1 Emotions and mass media

An interdisciplinary approach

Katrin Döveling, Christian von Scheve, and Elly A. Konijn

Falling in love with Lara Croft, shedding tears on Jack's final cry of 'Never let go, Rose' before sinking under icy waters (*Titanic*, 1997), cheering on Barack Obama's election, shouting out loud to soccer player Ronaldo who fails to score, going over the moon while watching Jackson's *This is it* – these examples are all about characters we almost exclusively know via the media, whom we have never met in real life, yet, we are clearly moved by them emotionally. In fact, many such characters, events, and narrations often are fictional constructions. This is considered a most intriguing phenomenon of today's mass media – the potential to 'play' with our emotions while in fact nothing 'real' needs to be going on. Mass media are technically construed means to convey messages, yet they do not 'have' emotions themselves.

This is – in principle – not a new phenomenon and holds for almost all different kinds of 'aesthetic' emotions – for example, in literature, music, the visual and performing arts (e.g., Mar and Oatley 2008). What is most striking, however, is that mass media reach millions of people simultaneously and have at their disposal a vast array of technical opportunities to portray, broadcast, and potentially elicit emotions, thus, on an unprecedented large scale. Moreover, the mass media are a social system in and by itself, serving specific functions and creating a reality by its own, or as Niklas Luhmann (2000) famously put it: 'What we know about our society, or indeed about the world in which we live, we know through the mass media' (p. 1).

Today, the mass media have become an integral part of human life – it is almost impossible to think of a life without television, radio, newspapers, magazines, video games, and all kinds of internet-based communication media – at least in Western societies. For many people, a day without email, chat, a digital video game, or watching television is highly improbable and more often than not leaves a feeling of having missed something. Contemporary mass media have a wide-reaching and sometimes even global impact – for example, regarding programs on global health risks, political elections, royal weddings, armed conflict, financial crises, and natural or man-made disasters. Hollywood movies are blockbusters not only in the United States, but also, for example, in Germany, South Africa, or Japan – their release being tightly synchronized across the world. Corporate commercials of major brands are increasingly internationalized to reduce costs and serve the tastes of a globalized world, supposedly persuading and affecting people in Brazil in much the same way as in, say, Australia. Reports of the assassination of John F. Kennedy, the funeral of Pope John Paul II, or the memorial service for Princess Diana are broadcast live and witnessed by a global audience at the very same time.

These examples provide us with a good picture of mass media's potential to arouse and shape emotions – locally as well as globally. In doing so, they have one thing in common: they not only convey knowledge and information about people, events, or products – fictional or factual – but they also make us feel frightened, sad, anxious, angry, or happy about these phenomena. Thus, the rationale behind developing this *Handbook of Emotions and Mass Media* might be best grasped by adding a dimension to the famous Luhmann quote above: how we feel in and about our society, or indeed about the world in which we live, is affected by our experiencing this world through the mass media.

While further developing our rationale behind this *Handbook of Emotions and Mass Media*, a number of challenges strengthened our belief to adopt an interdisciplinary approach. First, to cover the broad range of options and perspectives that should go under the heading of *Emotions and Mass Media* and to compile them into one handbook, it required combining the profound expertise of several interrelated disciplines. Trying to understand the emotions-and-mass-media-nexus solely on a mono-disciplinary basis would neglect important aspects of this complex relationship. Hence, bringing together neighboring disciplines involved in this intricate relationship of emotions and mass media research seemed crucial to us. This almost automatically raised the question of whether this was going to be a handbook on the mass media with a focus on emotions, or vice versa. We have decided that this question can in fact be neglected, because taking position for one or the other side would reinforce disciplinary distinctions rather than making them more permeable – the latter one being one of our aims with this book.

Second, research on emotion received a huge increase in scholarly attention, starting in the 1980s with a steep increase in psychological studies and theoretical analyses of human emotions (Frijda 1986), gradually spreading to related fields such as sociology, political science, anthropology, communication and cultural studies, among others (see Lewis et al. 2008). Especially in the emerging field of media psychology, studying the role of emotions in mass media has become an important topic and gradually increases our more in-depth insights into mediated communication processes (Nabi and Wirth 2008; Konijn and ten Holt this volume). Furthermore, in political analyses and sociological perspectives on understanding media's influence, studying emotions increasingly plays a vital role (Grossberg et al. 2006; Lull 1995; see Part III of this volume). Moreover, emotions are increasingly studied by engineers and computer scientists, not only to design emotionally responsive interfaces (e.g., Picard 1997; Prendinger and Ishizuka this volume) but also to model, imitate, and better understand the human emotion system (e.g., Petta and Gratch 2009; Gratch this volume). Overall, the amount of research on emotion in the different interrelated disciplines is hard to categorize into a coherent framework. Hence, we faced the task of adequately representing different schools and paradigms of emotion research. Thus, this handbook covers many of these disciplines, yet, we do not pretend to provide an exhaustive overview. For similar reasons, we have invited scholars representing the different interrelations of emotions and mass media from all over the world to contribute to this handbook.

Third, we faced the challenge that some might say it hardly makes sense to devote an entire volume to emotions and mass media, because the term *emotion* is more often than not used ambiguously and incoherently and in fact only refers to lay-people's intuitions about a compound of psychological states – and not to a scientifically viable

category (Griffiths 1997; Barrett 2006; Barlett and Gentile this volume; Lang and Ewoldsen this volume). Even in scientific publications, it is hard to find consensus on definitional criteria. The question ‘What is an emotion?’ has proven to be almost as difficult to resolve as the emotions have been to master (Solomon 2008: 3). Be that as it may, ‘emotions’ have been subject of scientific inquiry for ages, using the term to cover a broad range of affective phenomena, including moods, feelings, affects, and related concepts. Likewise, in studying emotion and the mass media, the contributors to this handbook all deal with a variety of such affect-related concepts. Throughout the book, discussions of emotion-related conceptual issues can be found from specific disciplinary perspectives, each contributing to understanding how mass media convey messages, how they are understood by audiences, or how they impact the individual and society.

In part, the difficulties in studying emotion, also in mass media contexts, are due to the various domains in which major discussions in emotion and emotion-related research take place. For readers of a *Handbook of Emotions and Mass Media*, we believe it is helpful to very briefly sketch some of these major discussions in at least four domains, which we find to be of particular interest: (1) questions concerning the ontological status of emotion, (2) the elicitation of emotion, (3) various modes of emotion expression, and (4) the social and cultural construction of emotion.

(1) Questions concerning the *ontological status* of emotions are inevitably tied to the age-old question of what emotions are and how they affect human behavior. This is of particular importance when it comes to emotions in one or another way portrayed in the mass media and elicited by being exposed to mass media, or emotions as motivators for specific media use. Generally, ontological questions most often seem to converge with debates on the issue whether emotions are biological substrates of discrete and clearly discernable emotions such as anger, fear, disgust, or happiness. The assumption that emotions are substrates is fueled by evolutionary and animal research that has identified emotional or ‘affective’ reactions in some animals that seem to resemble certain emotions in humans (Panksepp 1998). Fear is a case at hand, anger or rage as well. Throughout the history of research in the field, such emotions have been named ‘basic emotions’ (Solomon 2002).

This position has been challenged almost since it first emerged. The main argument against this model of emotions as ‘natural kinds’ or ‘basic’ is simply that the available evidence seemingly fails to confirm it (Barrett 2006; Ortony and Turner 1990; Russell 2003). The position defended by critics of the basic emotion approach largely holds that there are no corresponding ‘natural kinds’ to our (lay) psychological concepts of emotions. Instead, critics maintain that the available evidence points to a couple of basic affective processes that are best characterized along, for example, valence and arousal dimensions. One of the major emotion models in this respect is Russell’s (2003) model of ‘core affect’ suggesting that what can be universally shown in all cultures and even some animals are basic affective processes that match the mentioned criteria but can only hardly be mapped onto everyday conceptions of ‘basic’ emotions. Rather, such basic emotions come into being only as an outcome of socially and culturally framed processes of attribution and interpretation.

Dealing with ontological perspectives on emotions in a mass media context, the perspectives taken largely depend on the aims and goals of each of the research agendas represented in this volume. Several of the following chapters thus employ different conceptual approaches, focusing on affect, emotion, feeling, mood, or

related concepts. Barlett and Gentile (this volume), for example, explicitly address the definitional issue by laying out the differences between these concepts as understood in today's emotion research before presenting their own stance. Schwab and Schwender (this volume) address the ontological perspective in considering that human environments have changed dramatically through the development of media, while the make-up of human brains has not. In applying the Darwinian framework, they discuss what constitutes the functional aspects of emotions and mass media.

(2) Issues concerning the *elicitation* of emotion are a major area of investigation in many of the contributions to this volume. Media analyses for quite some time mainly focused on cognitive aspects such as recall, learning, thoughts, and cultivation, and only recently included emotion as a major area of study (Zillmann 2003). However, in reviewing recent decades of emotion research, dissent is mainly found over the question to what extent cognition is involved in the elicitation of emotion. Some have argued that 'preferences need no inferences' (Zajonc 1980), that is, that affect is elicited without the involvement of (higher) cognitions and, thus, is primarily a physiological process. Others have stated that there are no emotions without cognitions, 'even if simple ones' (Frijda 1994). The former position is usually mounted to support the 'natural kind' view, in that it assumes more or less fixed, universal links between certain stimuli and emotions. The latter, however, claims that only by accounting for cognitions can the tremendous social and cultural variations in emotions be explained. This – mainly semantic – controversy has in recent years dissolved in favor of conceptual 'component' models of emotion and 'appraisal' processes of emotion elicitation (cf. Moors 2009; Scherer 2001).

In view of appraisal theories, emotions are defined as comprising several distinct components. Most of the approaches today agree on the involvement of cognitions and feelings as well as motivational, physiological, and motor components (cf. Moors 2009; Frijda 2007). Furthermore, there is increasing consensus that, in one way or another, appraisal processes are key in eliciting emotions. Appraisal theory assumes that, in essence, emotion elicitation is the outcome of some sort of evaluation of an internal or external stimulus event in view of one's personal motives, concerns, or coping potential (Frijda 1986; Lazarus 1991). These evaluations – 'appraisals' – refer to different stimulus properties and properties of the appraising agent, making it an 'inherently relational' process (Smith and Kirby 2001: 124). The appraisal perspective on emotion elicitation is reflected in varying degrees throughout this *Handbook of Emotions and Mass Media*. For example, some of the contributions highlight the involuntary dimensions of emotion elicitation (e.g., Buck and Powers this volume; Detenber and Lang this volume), whereas others focus on cognitive and reflective components (e.g., Cupchik this volume). Zillmann (this volume) analyzes how various modes of media entertainment elicit mechanisms of emotional reactivity. Konijn and ten Holt (this volume) discuss how recent developments in psychological emotion research support studying how emotions are key in processing information from media messages. Oliver and Woolley (this volume) argue that appraisal processes play a key role in understanding why we appreciate tragic and poignant emotions in media fare, while Raney (this volume) illustrates the role of moral evaluations in media entertainment.

(3) The actual experience of an emotion should be discerned from how emotions are elicited as well as from how emotions are *expressed*. Human emotion is expressed in a wide variety of modalities – for example through language, vocal

intonation, gestures, body posture, physiological reactions such as sweating or blushing, or through facial expression – which all are relevant for analyzing emotion expression in a mass media context. Ever since Charles Darwin's (1872) seminal work on *The Expression of the Emotions in Man and Animals*, the expressive component has been a vital area of research. In particular with regard to the 'natural kind' approaches to emotion, the idea that internal affective states are unambiguously expressed to other people in *social interaction* has been and still is a matter of debate (e.g., Manstead et al. 1999; Döveling and Sommer 2008; Fridlund 1997). In view of the different modalities of expression, the question is whether specific emotions have corresponding discrete and unique patterns of expression modalities that make emotional states easily identifiable in social interactions. This is of particular importance when investigating emotions and the mass media, both from the portrayal and from a reception side.

Evidence for unique and universal components of emotional expressivity is mainly associated with facial expressions and the work of Paul Ekman (1972, 2003). His cross-cultural research indicates that specific patterns of facial expression can be universally recognized and attributed to specific discrete emotions across many different cultures. Ekman has taken this as evidence not only for fixed links between the experience and the expression of emotions, but also for the universality of basic emotions (Matsumoto et al. 2008).

Critics counter that the available data hardly warrant the conclusions drawn by the proponents of the 'universality' position. First, existing studies mainly target the decoding of emotion expressions – studies decidedly aiming at the encoding of expression are surprisingly rare (Russell et al. 2003). Second, they mount contrasting evidence suggesting that facial expressions are highly dependent on cultural, social, and situational factors (Zaalberg et al. 2004; Hess and Thibault 2009; Elfenbein et al. 2007). Alternative models rather suggest that certain components of facial expressions, for example a smile or lowered eyebrows, may be sufficient to infer certain dimensions of emotion, in particular valence and arousal. Inference of discrete emotion categories, however, presupposes familiarity with the social and cultural background and the current situation. A clear concept in view of adapting facial expressions to specific socio-cultural settings is that of 'display rules' (Hochschild 1983). Display rules refer to (implicit) social norms notifying what kind of facial expressions are appropriate in which circumstances, thus regulating emotional expressions in almost any social interaction.

Several contributions in this *Handbook of Emotions and Mass Media* reflect how emotions are engendered through mass media – for instance Cantor (this volume) in studying fear reactions in response to the mass media. The expressive components of emotion in relation to their individual and social functions are analyzed by, for example, Bucy (this volume) from a political perspective and by Turner (this volume) from a persuasion perspective. Knowledge of the precise nature of emotion expressions, either verbal or non-verbal, fosters an understanding also of the functions (and dysfunctions) that are associated with emotions in a mass media context, as is expressed in Müller and Kappas (this volume). Detenber and Lang (this volume) and Unz (this volume) describe how specific modes and features of mass media's presentations may affect emotional responses. How facial expressions can be analyzed automatically is discussed by Ahn, Bailenson, Fox, and Jabon (this volume).

(4) The fourth domain of analysis addresses questions concerning the *social and cultural construction* of emotion, which is clearly intertwined with debates on the ontological status, the elicitation of emotion, and their expression. Scholars dealing explicitly with the socio-cultural construction of emotion have been apt to stress the inherently social nature of emotion; their elicitation in terms of social objects, norms, interactions, and social structure; and their expression as guided by socialization and internalized norms of expression and experience (Hochschild 1983). Earlier social constructivist approaches held that emotions bear almost no physiological underpinnings and are the sole outcome of interpretative cognitive processes (Armon-Jones 1986). More current approaches seem to have recognized the importance of physiological and psychological processes in emotion and have developed emotion theories explaining how social and cultural dimensions impact and shape these processes, in specific situations as well as in ontogenesis and during socialization. Appraisal theories of emotion have been extended to cover processes of social and cultural appraisal on different dimensions (Scherer 1997). A vast amount of research has investigated the social and cultural construction of emotion expression, indicating that processes of facial mimicry, audience and in-group effects, and social norms all play a decisive role in expressing emotions (e.g., Zaalberg et al. 2004; Elfenbein et al. 2007).

The issue of cultural constructionism points, amongst others, to the question of whether experience and functions of emotions can be assumed to be universal across different media and different audiences. Knowledge of audience and in-group effects, of emotion norms, and other socio-cultural practices that have an impact on emotions is important in view of the role of mass media as a facilitator of the social and cultural construction of emotions. Several contributions in this volume address these issues from different points of view. For example, Bucy (this volume) highlights the malleability of emotion with respect to the individual reception situation, while Buck and Powers (this volume) focus on the role of the media in shaping and constructing emotion on a national or even global scale. Nabi, So, and Prestin (this volume) discuss how social influences may play a role in media consumption, while Oliver and Woolley (this volume) introduce the concept of meaningfulness as a central gratification in explaining how we come to enjoy 'negative' emotions such as sadness in sad and tragic media fare, as for example in the case of 'tear jerkers.' Altheide (this volume) shows how political regimes may employ different communicative strategies to elicit specific emotions in a population in order to achieve political goals.

The four conceptual domains described above only reflect a small subset of the theoretical issues in more general emotion research that are relevant for investigating emotions in a mass media context. Other perspectives are equally important and will be encountered in the following chapters, such as issues relating to the subjective experience of emotions, to their social and individual functions, their cognitive and psychophysiological consequences, or to their influence on action and behavior. The four domains we have highlighted most profoundly reflect the various layers on which the discussions and research into the role of emotions within a mass media context seem to take place. They should thus form a suitable theoretical framework in which the chapters of this handbook can be placed. The theoretical issues and debates summarized here are recurrent themes in emotion research in a general sense as well as in the various strands of research on emotions within the context of the mass media.

For a coherent organization of the more than twenty chapters in this handbook, however, we opted for a different guiding principle. We focused on established fields of research within communication and media research, in which the various theoretical issues are discussed throughout. The chapters are therefore organized into five sections, each of them reflecting current research in the respective areas of communication studies and neighboring disciplines. Part I reflects broad perspectives on emotions and the mass media from evolutionary, theoretical, and methodological standpoints, while Part II more specifically focuses on entertainment experiences engendered through media. Part III centers on news media, political and persuasive messages, while Part IV elucidates various perspectives on the effectiveness of different message features. Finally, Part V focuses on new media technology.

Part I. Emotions and mass media: from motives and consequences to meanings and measurements

Part I represents work laying down evolutionary, ontological, psychological, and methodological foundations for an understanding of emotions in a mass media context. Frank Schwab and Clemens Schwender first offer a conceptual analysis of the characteristics of mediated emotions. They focus on evolutionary thinking in emotion research, discuss current challenges, problems, and merits and highlight recurring ambiguities. Following their analysis, Elly Konijn and Jelte ten Holt discuss how the role of emotions in mass media research has changed from being considered ‘noise’ in the reception of mediated messages to one of the nuclei of current media research. They illustrate how recent developments in psychological emotion theories match recent advances in communication and media research. Then, Christopher Barlett and Douglas Gentile describe how mass media may influence viewers’ emotional experiences, drawing on evidence from primary research and theory. They address definitional issues of global and specific affective states, discuss differences between emotions, moods, and affects, and present evidence on the emotional consequences of playing violent video games, highlighting several key issues in the debate on media violence effects. Finally, Annie Lang and David Ewoldsen discuss emotions prevailing as a content feature in media messages as well as residing in media users. As there has been remarkably little standardization of concepts or measurement in the field, they review methodological issues involved with both assessing emotion as a content feature and measuring emotion as a response to media messages. Strengths and limitations of various approaches are discussed.

Part II. The entertaining experiences of emotions through mass media

Part II proceeds to examine emotional experiences in relation to media entertainment, a vast and growing area of research. First, Dolf Zillmann addresses the question why real emotions can be evoked by events that are known to be unreal. In doing so, he touches on the untenability of the identification concept and introduces a new conceptualization of emotional reactivity. Herein, empathy serves as an essential emotion-eliciting mechanism including counter-empathic hostile emotions and moral appraisals. Furthermore, Zillmann addresses emotional intensity and persisting uncertainties in our understanding of emotional reactivity to media environments.

Next, in examining the emotional benefits and pitfalls of media consumption, Robin Nabi, Jiyeon So, and Abby Prestin introduce the concept of media-based emotional coping. They argue that media messages serve not simply as stimuli for arousing or regulating emotion. Based on extant research, they show that emotional depictions in the media have the potential to contribute to the socialization of emotional responses, the ability to cope with negative emotions, the likelihood of experiencing the benefits of more positive mental states, and the formation of more cohesive social relationships. They also address potential pitfalls within each of these domains. In what follows, Mary Beth Oliver and Julia Woolley consider various explanations for the appeal of ‘sad’ or ‘tragic’ entertainment media. Several of such explanations seem consistent with hedonic concerns. In addition, they discuss ‘meaningfulness’ as a dimension of gratifications that individuals may experience. The authors also provide an overview of the phenomenology of meaningfulness in relation to media enjoyment. Joanne Cantor then provides an in-depth examination of fear responses to the mass media and elucidates how fear effects are studied. She explicates the frequency with which fright effects to media are experienced and how intense and enduring these reactions can become. Furthermore, she lays out developmental differences in what frightens children but also what attracts them in frightening media. She then addresses which coping strategies are most effective and highlights findings in neuroscience to help explain some of the longer-term effects. Finally, Arthur Raney examines the role emotions play in the formation of dispositions toward media characters. He explains how moral judgment forms these affiliations and examines the ways in which subjectively held systems of moral judgment influence the formation and maintenance of emotional affiliations with media characters. Moreover, he reveals how such affiliations influence media enjoyment.

Part III. Mass media, politics, persuasion, and public emotions

Part III grasps the role of mass media and public emotions, either in general, in political evaluations, disaster news, or persuasion and risk communication. In the first chapter, Ross Buck and Stacie Renfro Powers relate research in emotion communication to Marshall McLuhan’s classic analysis of media. They discuss the thesis that the kinds of holistic perceptual or cognitive processing strategies that McLuhan had identified with electronic media do not stem from vague changes in sense ratios, but rather from a lessened relative role of symbolic communication and an expanded role of spontaneous emotional communication that electronic media afford. Next, Erik Bucy argues how the emotional appropriateness of presidential communications can be an important determinant of political support. He reveals how televised nonverbal behaviors of political leaders, especially visual depictions omnipresent in broadcast news, offer a reliable basis on which candidates are evaluated beyond the substance of their policies, pronouncements, or issue positions. Bucy further theorizes how nonverbal displays function as efficient carriers of emotional states and communicative traits that require little conscious effort and expertise to effectively integrate into global assessments and long-term memory. Subsequently, Mervi Pantti examines how the media, in particular news journalism, contribute to the emotionalization of public life by investigating the reporting of ‘man-made’ national disasters in British newspapers. In employing a cultural

approach to mediated emotions, in particular compassion and anger, she shows how these emotions have been mobilized in British disaster coverage over a period of seventy years and how they are used as a means to establish social solidarity and express criticism toward political authorities. In the next chapter, Monique Turner addresses research on the role of emotion and persuasion in mass media. She argues that while people try to make 'rational' decisions, they are subject to emotion-oriented influences that exert an impact on decision-making processes. Turner illuminates the impact that emotions may have on persuasion through message-irrelevant and message-relevant emotions as well as through incidental and integral emotions. Finally, David Altheide analyzes how fear is routinely used in the mass media and what consequences this usage has for public policy. He argues that the use of the word 'fear' has increased in news reports and popular culture, which is due to the widespread use of an organizational entertainment format for presenting information. Altheide examines a 'discourse of fear,' that is, the communication, awareness, and expectation that danger and risk are central features of everyday life. He holds that this discourse links emotions of everyday life to organizational control and surveillance, and that political leaders rely on the politics of fear in order to achieve certain goals.

Part IV. Emotions beyond the message: features, forms, and functions

Part IV considers features and forms of the mass media with respect to emotions as they in fact are constructed beyond the message, such as in form features, visuals, presentation attributes, and editing principles, among others. Benjamin Detenber and Annie Lang raise the question of how noncontent features of media independently influence media message processing. They argue that the influence of such media features can be distinguished from those elicited solely by media content, although conflicting research findings are reported. Likewise, they discuss various theoretical mechanisms regarding independent influences of structure and content on information processing, amongst others the limited capacity model of motivated mediated message processing (LC4MP). Next, Dagmar Unz focuses on presentation features and changes in camera work that can affect the emotional framing and processing of TV news. Unz highlights the interaction of content and presentation and reveals that presentation modes and editing may serve as cues for emotional processing and trigger appraisal processes in the sense of 'emotional framing' or 'fine tuning.' Following her analysis, Marion Müller and Arvid Kappas explore the complex relationship of emotions and visuals from the disciplinary perspectives of emotion psychology and visual communication research. They present overviews on research from both fields, exploring how emotions are elicited, how the psychological theory of appraisal is related to meaning-attribution processes, and what role visuals play in these processes. Furthermore, they examine findings about emotional depictions in art and mass media suggesting that certain emotional 'depiction rules' influence visual communication processes. Finally, Gerald Cupchik distinguishes two different modes of aesthetic engagement: a reactive and a reflective mode. In a reactive mode, viewers select programs which resolve needs and alter mood states. In a reflective mode, viewers become deeply engaged in programs that relate to personal life experiences in accordance with the principle of 'emotional elaboration.' Cupchik addresses

the complementary roles played by action and experience accounts of emotion in general as well as in relation to mass media. He discusses a minimal set of concepts and principles sufficient to account for these complementary processes.

Part V. Emotions and next generation media

Part V brings together the most recent perspectives on emotions and new media in electronic environments and future media. First, Sun Joo Ahn, Jeremy Bailenson, Jesse Fox, and Maria Jabon propose a model for automatically detecting and analyzing facial expressions of emotion. They highlight several advantages of using computers to classify emotions and to predict behavior based on raw facial feature data. They propose an original methodology of coupling automated facial expression analysis and machine learning to automatically detect emotion in facial behavior and predict specific behaviors. Following their analysis, Jonathan Gratch reviews recent technological advances that are creating the building blocks for a transformation in mass communication, enabling computers to recognize, understand, synthesize, and respond to human emotions. He illustrates implications with a focus on re-envisioning how we teach, entertain, and communicate in the twenty-first century and discusses the possible consequences of this 'emotional revolution.' In the final contribution, Helmut Prendinger and Mitsuru Ishizuka introduce research on virtual interface agents, that is, computer-generated anthropomorphic characters that emulate several aspects of human face-to-face communication. They highlight a physiology-based approach to evaluating affective interactions with these life-like agents and argue for several advantages in using human physiological responses in this respect.

In concluding, we believe that with this volume we have compiled an exciting overview of a broad diversity of perspectives on emotions and mass media, while not pretending to be exhaustive. Each chapter presents a unique point of view that complements other views. We are delighted that so many contributors from such a broad range of disciplinary fields and different perspectives were willing to share their newly developed thoughts, insights and authentic scholarship with us and the readers of this handbook. We hope the reader is equally delighted in finding so many perspectives cross-fertilizing one another in a single volume, enriching the reader's horizon on the many ways to emotion-related research in mass media. This *Handbook of Emotions and Mass Media* clearly expresses the challenges that lie ahead in increasing interdisciplinary and multidisciplinary research efforts to further explore and understand the key role emotions play in conveying messages via the mass media. Therefore, we expect this handbook to serve as an inspiring source and reference manual for anyone interested in studying emotions in a mass media context.

Acknowledgments

As editors, we found the work on this handbook a true pleasure and it has certainly broadened our scope and understanding of other viewpoints. However, this project would not have been possible without the help of many people towards whom we would like to express our sincere gratitude. Clearly, this volume is the result of

combined efforts of many scholars, universities, and editors. We are especially thankful to all authors who so generously have put a lot of time and effort in writing and revising their manuscripts and who were willing to cross disciplinary boundaries. In particular, we would like to thank our editor, Gerhard Boomgaarden, for his initial confidence in the project and for his continued support. The efforts, cooperation, and patience of our editorial team at Routledge made this a most enjoyable endeavor, thank you Jennifer Dodd and Miranda Thirkettle.

Each chapter in this handbook received at least two peer reviews accompanied by an editorial review. Most of the contributing authors to this handbook also served as reviewers for other chapters, complemented with the support of a number of colleagues in reviewing, copy-editing, and proofreading. Therefore, we are very grateful to (in alphabetical order): Cornelia Bergner, Helena Bilandzic, Cornelia Colzman, Wilco van Dijk, Volker Gehrau, Lutz Hagen, Tilo Hartmann, Christina Holtz-Bacha, Johan Hoorn, Barbara Krahé, Marie Louise Mares, Sascha Martinović, Juliette Walma van der Molen, Thomas Petersen, Paolo Petta, Barry Richards, Peter Roelofsma, and Monika Suckfüll. Last but not least, we would like to thank 'Freunde der Publizistik, e.V.,' Berlin, for their financial support.

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Part I

Emotions and mass media

From motives and consequences to
meanings and measurements

2 The descent of emotions in media

Darwinian perspectives

Frank Schwab and Clemens Schwender

Why do humans devote so much of their time and energy to the media and bring such enormous resources to bear making up and telling stories? They go to the movies, watch television, listen to the radio, and read books and comics. Even in societies with little or no access to mass media people spend countless hours listening to and telling stories, singing and dancing together, acting out and laughing together over fictional events (cf. Konijn this volume). The emotional involvement in such stories is often as intense as that of real events. The perception of anger, sorrow, fear, and hate, not to mention pleasure and joy, is immediate and direct. It would appear that an essential function of the mediation of real and fictional stories is the generation of this emotional component. Medially mediated entertainment, having no other apparent purpose than amusement, is seemingly dysfunctional in nature, as it prevents people from attending to presumably more important things in life. The function of emotion in the perception of media is therefore essential for an understanding of media and the role of media in society today.

From an evolutionary point of view, the emotional response represents a spontaneous, perceptual appraisal. This innate appraisal mechanism can be triggered by real or imagined events – including those that are medially mediated. The role of the evolved emotion mechanism in dealing with media is a primary topic of discussion with respect to evolutionary considerations in the communication sciences (Schwender 2006) and media psychology (Schwab 2007b).

In the following, we introduce the fundamental assumptions behind evolutionary psychology, consider those aspects that distinguish the evolutionary perspective from the conventional social sciences, and outline a scientific approach to testing the various assumptions made. Following this introduction, we examine the evolutionary view of emotions as a mechanism of adaptation; we also consider media and emotions as elements in an evolutionary psychology approach to media. Examples of entertainment provided by fictional stories and the media mediation of information as news allow us to examine more closely the role of emotions from an evolutionary perspective. What we refer to collectively as ‘media’ today is essentially the use of new technology to convey old content. Fairy tales and legends, as well as rumor and gossip (Dunbar 2004), are phenomena that have been around far longer than technologies such as the computer, play console, film, television, radio or even print, all of which – that is, the thesis of evolutionary psychology – simply repackage ancient subjects and themes.

Such archaic and phylogenetically ancient subject areas as survival and death and love and jealousy are particularly relevant in this respect. In addition to the content

of media entertainment, the skillful presentation of such content in the various media forms is also of interest in the development of evolutionary theory and various approaches are described. Finally, we consider the question of why the reception and use of emotionalizing media entertainment rewards users and recipients with such a multitude of positive emotions and conclude with a brief look at prospects for further research.

In this chapter we develop an evolutionary perspective on emotional media reception, and in the case of medially mediated aesthetic entertainment, look at these aspects in greater detail. By aesthetics we are here referring in general to the appraisal of sensory perceptions.

Media reception through Darwin's eyes

Bizarre somersaults. If we were to come across an animal sniffing along the ground like a dog, it would hardly surprise us. Presumably the creature is following the trail of a scent or searching for food. But then if it would suddenly stop and turn a somersault? – ‘What was *that*?’ Such behavior, seemingly devoid of any functional purpose, demands an explanation (Dennett 2004).

If we then look at the immense appetite for media and the human inclination to satisfy emotional and aesthetic needs and desires through the use of media, we would have to admit that at first glance this, too, seems biologically absurd. Evolutionary psychologists are continually amazed by these ‘somersaults’ that occur in human behavior. Beyond those biologically essential functions, such as mating, rearing our young, feeding, and avoiding being fed upon, what possible benefit could derive from this strange, extravagant, and frequently elaborate human behavior?

Media events induce emotions in the recipient or user through the presentation of emotional topics and events within an emotionalizing dramaturgy (Schwender 2006). Since the beginning of the earliest media – cave painting, theater, and pictorial and written notation – but even prior to this, almost all human cultures have expended significant resources on the emotional engagement of its members (Zillmann 2000). Through the use of emotionalizing, generally entertaining, media, recipients thereby fulfill their desire to experience a multitude of diverse emotions. But just why do recipients invest such a vast amount of time and money in entertainment and artistic amusement? And in the context of evolution, what prerequisites have humans evolved that make it possible to enjoy these emotionalizing media offerings? What are the evolved mechanisms that allow them to perceive and understand media?

The evolution of emotions. Darwin, in his book *The Expression of the Emotions in Man and Animal* (1872/2005), particularly emphasized the role of emotions, characterizing some as being innate and universal in nature. Current findings indicate that primates demonstrate comparable emotional expressions, that various cultures express certain emotions in similar ways, and that the activities of specific areas in the brain – among these the amygdala and orbitofrontal cortex – are linked to specific emotions. Such findings suggest an evolutionary basis for human emotion. Emotion researchers such as Nesse (1990), Fredrickson (1998), and Ekman and Davidson (1994) all assume evolved biological functions for specific emotional states. From an evolutionary perspective, negative emotions, for example, serve to prepare the

individual mentally and physiologically to deal adaptively with adverse circumstances (cf. Cantor this volume). Positive emotions, on the other hand, appear to stimulate the expansion of human mental capability. Fredrickson (1998: 218) described this as ‘broaden[ing] our mindset.’ The evolutionary perspective thus supplements conventional, that is, proximate, current genetic and ontogenetic approaches to emotion theory with ultimate and thus phylogenetic explanations (Cosmides and Tooby 2000). Nevertheless, it is also necessary to determine how the respective emotional mechanisms arose. Their structural development – that is, the central assumption of evolutionary psychology – accordingly determines their design and this, in turn, their functionality. Media events target these evolved emotional mechanisms (e.g., moral indignation, jealousy, pride, success, shame, and guilt), and media recipients react to the contents in accordance with their evolved mental emotional architecture. This – that is, the hypothesis – motivates user behavior and influences the cognitive processing of the media content.

Looking at psychology through Darwin’s eyes

Charles Darwin rather cautiously only hinted at the possibility of extending the theory of evolution to the human species:

In the future I see open fields for far more important researches. Psychology will be securely based on the foundation already well laid by Mr. Herbert Spencer, that of the necessary acquirement of each mental power and capacity by gradation. Much light will be thrown on the origin of man and his history.
(Darwin 1859/2008: 283)

Today it is evolutionary psychology that has adopted Darwin’s course. If sensory perception and communication make up key elements of the human entity, then an examination, from an evolutionary psychology perspective, of modern methods of communication by means of film, television, internet, and the mobile phone, and their effects, is not only possible but even advisable.

For the evolutionary psychologist, the human mind is first and foremost an ‘adaptive toolbox’ (Gigerenzer and Selten 2002) that our early ancestors could use in learning to adapt to their environment. Thus the human mental architecture would appear to be, at least in part, a sort of intellectual fossil. Evolutionary psychologists refer to this as the mismatch of evolutionary design (Workman and Reader 2008) and make the following assumptions: in the course of human evolution we find multigenerational adaptive problems whose solution has yielded certain selection advantages. For this purpose, area-specific evolved psychological mechanisms (EPM) have arisen; these can be conceptualized as information-processing structures. An analysis of such EPMS always includes the question of their ultimate and proximate biological functions (Workman and Reader 2008). Thus the main thesis of evolutionary psychology: modern humans, in their aptitude and in behavior, are very much the result of an evolutionary process of adaptation. The body, like the brain, has developed by means of adaptation to its natural, social, and perhaps even sexual environment (Cosmides and Tooby 1992). Initial efforts to integrate evolutionary theory and psychology mainly utilized evolutionary ideas as a conceptual framework. Not until the 1970s do we find the first approaches that can be ascribed

to evolutionary psychology in the strict sense. Michael Ghiselin's approach ('Darwin and evolutionary psychology'), which appeared in 1973 in the journal *Science*, can be considered the starting point for the current discussion. In 1992, the first (and still today, primary) work was published that draws together the fundamental ideas and concepts behind the theory. *The Adapted Mind* (Barkow et al. 1992) explores approaches, theories, and explanations of the brain as an instrument adapted to specific environmental conditions. Two further surveys of the field, *Handbook of Evolutionary Psychology* (Crawford and Krebs 1998) and the current *Evolutionary Psychology* (Workman and Reader 2008), carry on this effort.

Evolutionary psychology is not a further psychological discipline, but rather a new paradigm within the field of psychology, a theory on the development of the human mind. It is a new perspective on the various psychological disciplines. It criticizes the supposition, widely disseminated in the cognitive psychology and communications sciences, that a small number of domain-spanning all-purpose mechanisms, such as learning and rationality, provide the basis for human psychological functioning.

Evolutionary psychology methods derive from evolutionary biology and experimental and cognitive psychology. Hypotheses are developed based on presumed conditions in early evolutionary history. Assumptions about phylogeny aid in the construction of the hypotheses and are not intended as either *ex post facto* speculation or explanatory luxury. Hypotheses on evolved mechanisms are tested by means of standardized experiments; these, however, sometimes must be carried out in various cultures in order to be able to make universally valid – culture-independent and thus anthropological – statements.

This is made impressively clear in the work of Tooby and Cosmides (1992) on the Wason selection task. The experiments test for correct logical conclusion. Even when the inner logic remains unaltered, the results of this test change systematically when the domain changes. The Wason selection task is a task that can be completed using logical reasoning; however, the number of correct answers increases if the task is not presented in the abstract but rather contextually and increases even more when it involves the detection of cheating (Cosmides and Tooby 1992). Humans, it would seem, are not equipped with a fully flexible domain-nonspecific decision-making disposition; instead, specific, contextually oriented mechanisms have evolved in the brain.

Although evolutionary psychology can be described as the fusion of cognitive psychology with Darwinian thinking, a pre-eminent role is given to emotion. Thus it is worth looking briefly at the key aspects of evolutionary thinking with respect to human emotionality; in doing so, the main focus will be on the perspective of the Santa Barbara school (e.g., Cosmides and Tooby 2000; for an overview of further prominent evolutionary emotion psychology approaches see Meyer et al. 1997; Schwab 2004, 2006; Workman and Reader 2008).

Evolutionary psychology and emotions: Darwin's perspective as an 'eye-opener'

Why is the evolutionary perspective key to an analysis of emotions? Computer gamers are attracted to Lara Croft; female filmgoers react with delight to George Clooney and fear for Gandalf's life. Yet surely it is clear to us all that film and television images

are merely moving dots of light and that the written word by itself is more than sufficient to trigger these emotions. Explanations of such phenomena are not easily accessible by means of a purely rational–cognitive approach – indeed, they appear extremely unreasonable. The logic of the heart and thus of emotion, is primarily an evolutionary one.

In evolutionary psychology, emotions have been characterized as being the band leaders of a ‘cognitive orchestra’ (Cosmides and Tooby 2000). These various emotional directors – meta-programs – each recognize specific situations (even when they are being medially mediated); each seeks to influence in own fashion the various cognitive subprograms and subroutines.

Emotions choose adaptive tool combinations and apply these to the solution of adaptive problems. Emotional meta-programs, however, are evolved approximations and by no means infallible. Even so, in the long term, emotions have contributed to an increase in the net lifespan reproductivity of the human organism; emotions thus offer far more than short-term strategies for problem-solving.

Emotions as adaptations: how does research into emotions profit from an evolutionary perspective? The presumed relationship between past environment and the structure of emotions makes the evolutionary approach particularly fruitful for emotion researchers. Knowledge of earlier evolutionary aspects of the environment allows them to make assumptions about the architecture of emotional mechanisms. Emotional adaptation involves the following criteria:

- 1 An evolutionarily reoccurring situation or condition.
- 2 An adaptive problem.
- 3 Motivational stimuli.
- 4 Situation-detection algorithms.
- 5 Priority-allocation algorithms.
- 6 An internal communication system.
- 7 Specific reaction algorithms of the cognitive subroutines that need to be controlled.

Emotional meta-programs can influence goals, motives, conceptual and interpretational contexts, perception, memory, attention, physiology, communication, and expression. A further important function is to be found in their recalibration function with respect to past, emotional decisions. Along with the ability to utilize fantasy and media-conveyed fiction, *Homo sapiens* (the modern human) is able to access the much more flexible and risk-free evolved wisdom provided by emotions. Humans use media in order to experience the subjective emotional significance of the most diverse media narratives; instead of the need to experience and thereby gain maturity from a real relationship crisis, they are able to test emotional reactions to medially mediated problem relationships without repercussions. By watching, the individual learns how others gain experience and transfers this knowledge to his or her own situation.

Media and emotions: an evolutionary perspective

An explicit involvement with media is rather rare among evolutionary psychologists; Barkow, in ‘Gossip and Social Stratification’ (1992), addresses the perception of subjects and persons in the mass media. The hypotheses he develops provide a

theoretical foundation for the model of parasocial interaction (Horton and Wohl 1956; Nass and Shyam Sundar 1994; Schramm 2008). Steven Pinker (2002: 521) formulates fundamental assumptions about the functions of fiction, humor, art, and entertainment in his chapter 'The meaning of life.' Currently two contributions making reference to evolutionary theses can be found in the volume edited by Bryant and Vorderer, *Psychology of Entertainment* (2006). Vorderer et al. develop some fundamental concepts with respect to our motivation to let ourselves be entertained (see also 'Entertainment is Emotion,' Tan 2008); Ohler and Nieding (2006) write about entertainment from an explicitly evolutionary perspective. Most recently, the *Zeitschrift für Medienpsychologie* (Journal of Media Psychology) devoted a special issue to the topic of evolutionary psychology (Schwab 2007b).

Media events are produced by people for people. They are geared to human needs, motives, emotions, intentions, and cognitive processes. The use of these terms in the psychological literature, however, varies greatly; thus we first need to define them. Drawing on Bischof (2008: 323–35), *needs* refers to those things an organism requires for its preservation and ongoing growth and development – for example, nourishment, sexuality, affiliation, security. A *motive*, that is, an impetus, arises when such a need is not spontaneously fulfilled. Emotions are the means by which a motive, coming up against a barrier in the environment, can appeal to the cognitive system for a solution. The so-called negative emotions signal a malfunction. Positive emotions indicate the success of an effort and send the all-clear. This all suggests – as a product of evolution – a particular behavior and can contribute to specific, subjective *feelings*.

Media psychology is the discipline that attempts to describe and explain human experience and behavior with respect to media. The media user in a modern information society functions, from an evolutionary psychology perspective, primarily in accordance with the evolved structural traits of the human mind. Evolutionary media psychologists are above all interested in those aspects of human function dealing with media that have arisen by means of natural and reproductive selection forces.

For example: the selection of media as well as the attention given to media content and its perception and interpretation – we assume – are influenced by evolved mental processes (Schwender 2006). From an evolutionary perspective, such selection processes are not exclusively the result of current learning processes and ontogenetic experiences. The fundamental motives and needs of the media user are products of human evolution; these evolved, genetically based motives and needs are experienced not as biological imperatives, but rather as an emotion or mood; they do not determine behavior but appear instead to function as an appeal for corresponding behavior, an emotionally tinged interpretation of the environment. Emotions have thus been described as 'the whispering of the genes' (Schwab 2003: 295). The 'uses and gratifications' approach (Blumler and Katz 1974) does emphasize this needs orientation of media activities but it assumes that these emotional appeals are always consciously accessible and communicable. Zillman's treatment (1988) of emotion and mood-oriented selection of media (Zillmann and Bryant 1985; Knobloch et al. 2002; Oliver 2003; Schramm 2005), however, is more closely in line with evolutionary reasoning.

Brief summary: the evolutionary foundation of media and emotion

The inclination to satisfy emotional and aesthetic needs using media may seem biologically absurd, yet it is exactly such bizarre behavior that the evolutionary

perspective addresses. Evolutionary psychology looks at how emotional mechanisms arise, and thus extends the conventional focus of psychology on purely proximate, ontogenetic, and current genetic lines of questioning to a phylogenetic, ultimate perspective, supporting the theory and allowing for construction of hypotheses. Thus human emotions, with respect to both psychological make-up and behavioral consequences, are also the result of evolutionary processes of adaptation. The human genetic configuration, physiology, and brain have all developed in adaptation to the environment. It therefore seems rather unlikely that – as assumed in cognitive psychology and the communication sciences – only a small number of inter-domain, multipurpose mechanisms such as learning and reasoned decision-making have developed as the basis of human psychological functioning (Sherry 2004). Evolutionary psychology (Cosmides and Tooby 2000; Fredrickson 1998) emphasizes the central role of emotion: emotions help humans to make decisions in highly relevant situations. Media producers utilize these connections in the production of emotion-invoking media content. As media recipients, we are influenced by these evolved emotional mechanisms in the selection of media, attention paid, perception, and interpretation of emotional content – so the assumption. Emotional media content fits like a key in the lock of the evolved emotional mechanism of the media user or recipient.

Entertainment from an evolutionary perspective

What is the evolutionary benefit of entertainment? Evolutionary psychologists (Buss 2008; Workman and Reader 2008) are inquiring into the functional and adaptive value of various behavioral patterns and capabilities. Humans have acquired through evolution the ability to test hypotheses about the world in a sort of mental simulation – a virtual rehearsal of the mind; they are thus able to explore a situation without having to incur the risks present in the real world. Both the virtual rehearsal via the imagination (internal), as well as the sandbox, play kitchen, etc. (external), offer a protected space in which to test the dos and don'ts of the human existence. Films, novels, radio plays, online role-playing games, etc. are in this sense nothing more than medially recorded propositions for such rehearsals. Social selection pressures assume a key role as the formative force in the phylogenetic development of this capability. Through parasocial relationships (Horton and Wohl 1956; Giles 2002; Gleich 1997; Horton and Strauss 1957; Bente and Otto 1996; Vorderer 1998) and the observation of media figures, media recipients are able to explore their emotional, interpersonal, and social problems – the situations, hence the assumption, that humans experience as particularly stimulating and entertaining. Media events and figures serve as human mock-ups and function much like a scarecrow (Schwender 2006), whose shape and form are specifically intended to deceive a bird's perceptual processes; the features trigger specific evolved mental processes and thus target a specific element of the bird's social environment – in this case, an enemy. The effect of media is in many aspects very similar. Visual and aural stimuli trigger emotions and thus evolved emotion mechanisms. Media recipients are moved to laugh and cry over fictional persons and events; they interact parasocially with the characters and form long-term, even parasocial, relationships with them. Media content that is entertaining should furthermore take greater precedence, because of its evolutionarily relevant and therefore emotional content.

As media recipients, we are first and foremost interested in social content (Schwender 2006): How do I establish and preserve a sexual relationship? How do I find and maintain cooperation partners? How do I present myself in a positive light? How do I get rid of rivals? How do I protect myself from harm? How do I protect my loved ones and my offspring? According to Barkow (1989), all fundamental goals are biologically determined, but subgoals and complex plans are open to cultural negotiation. Today, some of these social negotiations are carried out in the media. Establishing and preserving a relationship with a sexual partner is a fundamental goal for most humans. The question of whether this is best done at a party, via the personals, or Web 2.0, and how to go about it is an essential component of many media offerings.

Among the topics dominating media content one finds self-aware moral emotions such as shame and guilt as well as critical emotions such as anger, loathing, and contempt (Rozin et al. 1999; see also the contribution from Unz this volume). These emotions evaluate social behavior. Talk shows, political affairs programming, crime thrillers, stories of everyday heroes and superheroes – time and again we find issues of morality: standards and rules of behavior and the infringement of such rules in reciprocally altruistic groups, the exploitation of a group or a group member, and defense against such exploitation (Cosmides and Tooby 1992; Schwab 2004; Schwender 2006; Trivers 2002). Emotions that play a role here include sympathy, pride, sorrow, contempt, shame, guilt, strife, and moral indignation. These emotions are a part of the mental architecture developed during ontogeny. They are shaped by the respective society (see also Döveling 2005). Media perform in part the fine-tuning of our sense of morality (Schwab 2004; Schwender 2006). In a rapidly changing cultural environment, films and television programs offer opportunities for discussions of good and evil. Humans have the capacity to imagine all kinds of different situations. These mental rehearsals offer preventative strategies for problem-solving, and media depictions are their audiovisual representation.

Such inner rehearsals need not only deal with one's own behavior but are also equally valid for critically exploring the thoughts and deeds of others. Media recipients transplant themselves into the inner worlds of their media figures and thus are able to fathom their motives. The borders are quite wide open here – even the visualized representations of psychotics (*Repulsion*, Polanski, UK 1965), perceptions altered by drugs (*Easy Rider*, Hopper, USA 1969), and dreams and nightmares (*Mulholland Drive*, Lynch, USA 2001) may acceptably be explored as behavioral and experiential possibilities.

According to the supernormal conversation hypothesis (Nettle 2005), humans are most interested in the fate of fictive persons when a problem of biological fitness, for example, personal gain or loss, or a threat to reproductive possibilities, is presented in an intensified form (bigger than life).

The basic themes of media entertainment thus seem to be closely connected to the evolved motive and emotion system, which is primarily organized around social problems. Motives and emotions are the perennial 'whispering of our genes,' appeals from the human phylogeny (Schwab 2003: 295).

Emotions in the media thus are almost exclusively associated with fitness-relevant issues; however, the involvement with media content not only triggers emotional reactions, but, at the same time, humans also become emotionally motivated to a critical involvement with the media content itself. Tan describes this thus:

The main engine in support of engaging in activities such as entertainment, play, and aesthetic activities is the emotion of interest (Izard 1977; Rathunde 1993; Sansone and Harackiewicz 1996; Silvia 2006; Tan 1995, 1996, 2000). Darwin (1895/2005) classified interest together with curiosity as one of the 'intellectual' emotions that forms the basis of the development of all intellectual powers. A contemporary label is 'epistemic' emotions (e.g., Keltner and Shiota 2003).

(Tan 2008: 35)

The goal of epistemic emotions accordingly is knowledge gain. In this, emotions and aesthetic reactions have something in common – in both cases a spontaneous appraisal of the human sensory perception occurs; neither is necessarily accessible by means of a rational explanation. Aesthetic perception elicits feelings that amount to a judgment. Such feelings directed early humans, for instance, to environmental features offering a greater opportunity for survival. Organisms capable of guiding its movements through the environment must have mechanisms to make predictions about future events (Barkow et al. 1992: 551): 'Where should we go to? Where will be food or shelter?' or 'Will this person be a good father for my offspring?' Since no one can predict the future there are only gut feelings. The answer is given in form of like and dislike. This aesthetic feeling is therefore of great importance in the appraisal of perceptions. These feelings or responses are not set in stone, but rather vary according to the different need structures. This feeling has two advantages: it is the basis for decisions in uncertainty and it can be expressed and discussed.

Evolutionary psychology characterizes the enjoyment of art and entertainment as being either a byproduct of evolution (Pinker 1997) or else a consequence of adaptation (Schwender 2006). Presently it is not possible to make a well-founded decision for either of these competing explanatory approaches. In their book *Media Equation*, Reeves and Nass (1996) proposed that humans instinctively deal with and react to media entities, even those of fictional characters, computers, and robots, in the same way they would treat a real person (Krämer 2008). The authors were able to demonstrate in experiments that social patterns could also be observed in contact with media. Among other things, we as humans deal courteously with computers: when a computer performing a task asks for an evaluation, the assessment we give is better than that given by another computer (cf. Prendinger this volume).

Pinker (1997: 526) characterizes the entertaining, aesthetic aspects of the reception of media narratives as being the futile tickling of the human pleasure center. Among the adaptive explanations given for entertainment and art – covered in the following in greater detail – is Miller's 'ornamental mind' theory (2000), which identifies partner selection as the purpose and goal; the 'making special' theory (Dissanayake 2000), which emphasizes social cohesion; and the theories on learning in organization mode, which characterize training and learning as the goal of entertainment activities (although the fine calibration of emotions and the training of emotional mechanisms are also assigned a special role).

Entertainment as art

Why do we value aesthetic entertainment? Why does artistic entertainment play such a central role in the success story of the human species? To answer these questions we

first must look at various influential considerations on the evolution of art (Boyd 2005). It should be noted that evolutionary psychologists work with a broad concept of art, one oriented on everyday human life. Our interest thus extends far beyond the so-called fine arts and includes the various applied art forms found in everyday design, fashion, and media products, including advertising, film, and computer games (Pinker 1997, 2002; Miller 2000).

Intellectual cheesecake – art as a byproduct. Steven Pinker (1997, 2002) identifies art and explicitly music, theatre, design, and media narrative as a byproduct of natural selection. Art and entertainment utilize evolved cognitive and emotional mechanisms to – as he puts it – produce ‘cheesecake’ for the brain (Pinker 1997: 534). Methods having no other purpose have thus developed that are able to stimulate the pleasure centers of the brain. Even though we may assume that the mind has been shaped by natural selection, one can argue that art is not an adaptation but rather only a byproduct of the complexity of the human brain. Pinker (1997, 2002) assumes that no evidence is to be found that would suggest the intellect exhibits a specific design with respect to the production and reception of art.

Pinker likewise assumes that the creation and telling of stories has an adaptive function in that it allows us to create scenarios for the purpose of testing various options for action and their consequences without the risk of any real danger (Pinker 1997; Bischof 1985). Art, on the other hand, merely tickles the human fancy. Such predilections, however, did not arise primarily to permit us to experience aesthetic feelings, but are secondarily utilized by the artist for the ‘cheesecake effect.’ In the same way that the development of technologies for cooking and baking food to better prepare it for digestion has also led to the arts of gourmet cooking, dining, and baking, technologies have arisen that address our cognitive fondness for rich acoustic, visual, and social content in the form of theatre, film, and PC games. Modern societies are able to support an enormous art and entertainment industry; artistic products, such as cheesecake, are thus readily available without great expense. Yet, in most societies in the past, artistic endeavors were associated with enormous expense; thus, the cheesecake metaphor does not really explain why such outlays would have been worthwhile.

After all, if entertainment and art serve no purpose, why have selection pressures not worked against such time and energy-wasting activities? Why would those groups having no preference for art not have taken the place of those with such an affinity?

The fact that various forms of art have arisen in all known societies (Dissanayake 2000) suggests that evolutionary advantages do exist and that these are strong enough to dispose the human mind to art and entertainment and their integration in its development. Of significance in Pinker’s cheesecake theory is the aspect that art and aesthetic entertainment can be maladaptive, much like our obsession with sugar and fat, an adaptation acquired in meager times that today threatens many people with overweight and the diseases of civilization.

On the basis of content analyses, Johnson (2005) argues in his book *Everything Bad is Good for You* for a training effect of current fictional media narratives. Above all, television series such as *Emergency Room*, *Dr. House*, and *Seinfeld* seem to create stories with content that is richer and increasingly more complex in form, thus challenging the viewer to a sort of ‘intellectual jogging.’ Yet this does not explain the enthusiasm for the creation of extravagant, complex, and even profligate media and artistic products.

The peacock's tail – art as a product of sexual selection. Miller's approach to sexual selection (2000) emphasizes the role of mate selection in the evolution of the human predilection for entertainment and aesthetic offerings: entertainment and art can be just as iridescent, ostentatious, and unnecessary as the peacock's plumage. Darwin was already convinced that in humans as in other living creatures, 'high cost, apparent usefulness, and manifest beauty usually [indicates] that a behavior [has] a hidden courtship function' (Miller 2000: 60–1). He even dared to speculate that music evolved 'for the sake of charming the opposite sex' (Darwin 1895/2005: 572) and that bodily ornament represented the beginning of the fine arts (Pinker 1997). Miller assumes that sexual selection is the driving force behind the development of the human intellect and human behavior. The human mind is 'entertaining, intelligent, creative, and articulate far beyond the demands of surviving on the plains of Pleistocene Africa' (Miller 2000: 4). It would therefore be wrong, he continues – as is customary in psychology – to characterize the mind as merely a problem-solving computer; instead, it is more like an 'entertainment system that [has] evolved to attract sexual partners' (Miller 2000: 29).

The irresistible rhythm – directing our attention and social cohesion. Attention and its influence are at the center of Dissanayake's work (1988, 1995, 2000). The regulation and management of human attention are key aspects of her examination of the effect of spectacular artifacts, as well as her investigation of creative, artistic processes. The primary function of art, according to Dissanayake, is to manufacture social cohesion (see also Döveling 2005).

But if art is an adaptive behavior, what is its function? Dissanayake (1988, 1995, 2000) describes art as 'making special' – a behavior demonstrating a proximity to behavioral patterns that one can also observe in other species: play and ritual. Play includes behavior outside of the directly functional, indicated by means of specific forms of movement and expression. It is experienced as something joyful in and of itself and thus as an end in itself. Ritual represents a key concept of animal behavior. It consists of formalized and fixed behavior that for the purposes of communication is generally elaborated, exaggerated or repeated – as becomes clear in mating rituals (see Schwab 2004).

While Miller (2000) views art as a result of sexual selection, a behavior intended to attract sexual partners, Dissanayake localizes the origin of art in parental behavior, particularly in the intimate contact between mother and child. She refers to this interplay as 'attunement' (Dissanayake 2000: 36). The pre-speech conversational exchanges between babies and adults form the starting point of the human capacity for art. Such multimedia performances are finely drawn, rhythmical, coordinated interactions and elaborated exaggerations, full of repetitions and surprises (Dissanayake 2000: 7, 29; Stern 1977: 39; Tomasello and Call 1997: 405).

Emotions in a test run – mind organization. Tooby and Cosmides (2001) emphasize the role of the imaginative faculties for the expansion of our mental abilities with respect to thinking, feeling, and fantasizing. More complex organisms, particularly when aspects of social behavior are involved, no longer respond to information by means of simple reactions. By first making a detailed analysis of such information, humans are capable of a more deliberated response to information and stimuli. Rehearsal, planning, and consideration draw on an inner model of the general social reality. Neurophysiologically, it is the neocortex that analyzes behavior patterns and allows for this differentiation in the behavior repertoire (Lurija 1998).

Tooby and Cosmides initially viewed art as an evolutionary byproduct, but more recently have proposed an adaptive explanation of the phenomenon of art (Tooby and Cosmides 2001). Expanding on their investigations of the human psyche, they are primarily concerned with fictional narratives, but have their sights set on no less than an *Evolutionary Theory of Aesthetics, Fiction, and the Arts* (Tooby and Cosmides 2001: 6). They make their case for the adaptive nature of fictional narratives by means of a series of findings:

- 1 Fiction integrates the emotion system into the reception, while the action system remains largely inactive.
- 2 Humans are capable of distinguishing between factual and fictional information in such a way that memory is not influenced. These distinctions are achieved with an ease that distinguishes all evolved mental mechanisms (see also *Realitäts-Fiktions-Unterscheidung* by Schreier and Appel 2002).
- 3 The ability to ‘pretend play,’ a pre-adaptation for dealing with fictional narratives, does not develop in autistic persons. Here the dysfunction of a cognitive system points to a specialized cognitive design.
- 4 The mind should favor accurate information. In light of the human preference for fiction over fact, the reasonable expectation that humans should have developed a hunger for truth turns out to be a disappointment. This unlikely behavior, however, delivers a generally better clue to functional design as an expected correlation.
- 5 By no means, however, does the mind remain indifferent to the factual content of information. A communication that is intended to be accepted as true is carefully inspected to verify that it is indeed error-free.

According to Tooby and Cosmides (2001), cognitive adaptations can work in two distinguishable modes: the *functional mode* – normal operation – or in *organizational mode* – a sort of test or training operation. Playing, learning, and possibly dreaming are examples of the organizational mode, which serves the development and expansion of the mind. Art – particularly narrative fictional entertainment – seems to be a fourth form of the organizational mode. Organizational modes are apparently active outside of periods of high stress, during times when one is feeling secure and satiated (Schwab 2004; Früh 2002).

In the case of a spontaneously arising dangerous situation, a prolonged analysis makes little sense. Here, above all, so-called ‘negative’ effects have shown themselves to be the more suitable analytical instruments, in the form of rapid heuristics. In situations allowing time to plan, on the other hand, various behavioral patterns can be tried out (see also Bischof 1985; Dennett 1995; Gigerenzer et al. 1999).

Medially mediated rehearsal

Literature and art can trigger ideas textually and verbally as well as by means of static and moving images. They can be employed to bring social ideas and ideals into a form that is more easily grasped, remembered, and communicated. With respect to their communicative function, they can be seen as a form of behavioral rehearsal that utilizes historically developed patterns such as genre and style to examine, explore, and socially fabricate reality as virtual possibility. As in a

rehearsal, (most) anything can happen. Violations of the law of gravity are accepted by many recipients as easily as are biological or physical impossibilities – the talking animals in *Dr. Doolittle* (Thomas, USA 1998), a pregnant man (*Junior*, Reitman, USA 1994), modern-day dinosaurs (*Jurassic Park*, Spielberg, USA 1993), or time travel (*The Time Machine*, Pal, USA 1960 and Wells, USA 2002), for example. Media-fictional representations need not be based upon physical reality or limited by the underlying laws of thermodynamics. ‘Beam me up, Scotty’ (*Star Trek*) provokes no resistance as long as the motivations and emotions of the actors remain understandable and believable. In both media and internal rehearsals, the task is to run through and test various scenarios – including the unforeseeable. Past events are not only recalled, but also rewritten (‘What if I had ...’) in order to draw on past errors and derive the optimized behavior for future occurrences. We run through these in our mind (‘What would happen if tomorrow I would ...’) in order to prepare ourselves for various possibilities and, if necessary, to enable us to take immediate action without first having to work through endless new variations.

We have thus seen that the capability of medially mediated rehearsal derives from the inner capacity for virtual rehearsal. Subjective concepts and fantasies thus become explicable, fixable, and socially negotiable ideas and fantasies – blueprints and outlines for possible action. In the process, however, it would appear that it is less physical relationships and more so emotions and the accompanying motives, intentions, and inner worlds of our media actors that are relevant (Schwender and Schwab 2007: 69).

Humans are concerned not only with information that is applicable to our species but also with that which might be (Tooby and Cosmides 2001). Fictional stories aid in the development of the core functionality of the mental architecture: making judgments that must deal with factual contradictions (‘there is no Easter bunny’).

Communication of fictional emotional stories. How does one talk about entertainment? Tastes and aesthetic preferences differ, and the debates about them seem to be rather important. What fictional and real stories have in common is their narrative structure – motivations for action and their accompanying emotions. Drawing on the theory of evolutionary psychology, Barkow (1992) worked out the topics for the social exchange of information. These include not only topics for gossip in the social network, but also the topics of fictional treatments. A key aspect is that the reports are morally critiqued and thus take on a controlling function in the community (Döveling and Eckstein 2009). Whether exchanging gossip about real persons or media characters, we appraise the plots and motives (Schwender 2006). Public discourse – as diffuse as it may seem at the individual level – directs human action and sets rules about what may and may not be done emotionally (e.g., feeling rules, display rules; Buck 1988; Hochschild 1990; Döveling 2005).

Some of the mental prerequisites for the perception of media are thus explained by the phenomena that already have been described. But there are questions that still remain unanswered. For instance, why the passionate and joyful involvement with art and fiction? Such a preoccupation with things that do not exist seems somehow inappropriate. A number of media psychology approaches define entertainment in the context of positive emotionality (Früh 2002; Früh and Stiehler 2003; Schwab 2001, 2004; Vorderer 1996; Winterhoff-Spurk 2004). But what do emotions – particularly positive emotions – have to do with media entertainment? (See Wirth and Schramm 2006 for an overview on the subject of emotions and the media.)

Entertainment as a positive emotion

Why do we enjoy being scared out of our wits (at the movies)? The experience of media entertainment is accompanied by positive feelings of pleasure, interest, and contentment. This induces a mental state receptive to the acquisition of new behavior and knowledge. A meta-study by Hullett (2005) confirms that recipients of persuasive messages seem motivated to seek and maintain a positive mood. A survey of current research by Crano and Prislin (2006) supports this relationship.

Experiencing entertainment. The majority of psychological investigations and theories deal with negative emotions – for example, anger, fear, and loathing (for an overview see Fredrickson 1998). These are described as emergency reactions that limit the range of thought and behavior in an effort to cope with a threat. But what then is the purpose of positive emotions, such as joy, interest, and contentment? What function do they serve? Fredrickson (1998) is of the opinion that positive emotions serve to expand the potential for thought and behavior and thus establish the prerequisites for the acquisition of new capabilities and the expansion of existing ones. Under the influence of positive emotions new, creative, and untested ideas can be admitted for information processing and manipulation. Amusement and entertainment ease the restrictions surrounding the cognitive processes and allow humans to acquire new physical, manipulative, and socially affective capabilities and skills. One can thus assume that the medially mediated experience of entertainment is determined in part by the positive emotions of joy, interest, and contentment (Fredrickson 1998; Schwab 2001, 2004).

Joy and *amusement* occur in secure and not particularly relevant or challenging contexts. Free activation is accessible and flows into diverse activities. As humans, we playfully allow ourselves to be drawn into various aspects of our respective environments. We play computer games, follow a story, surf the Web, and whistle along while playing MP3 tracks on an iPod.

Interest likewise arises in situations of security – situations, however, brimming with possibility, change, and mystery and waiting to be explored. Such challenging environments are viewed as important, and we thus react to them with greater concentration and increased effort. Interest and curiosity serve the development of knowledge and know-how. (Intellectually) curious, we investigate our environment and integrate new information. The emotional themes offered in literature, theatre, and film stimulate human curiosity and thus contribute to our emotional education (Buck 1988; Tan 1996).

Contentment deals with cognitive changes. Events and skills are integrated into an expanded self-concept and world view. Vorderer (1998: 691) refers to this form of entertainment reception as ‘ego-emotional media use’ or ‘working on one’s identity.’ Through parasocial relationships with characters in the media, viewers are able to re-evaluate their own self-perception.

Recalibration function of emotional media reception. Processes of re-evaluation and adaptation can also be triggered and directed by other emotions. Cosmides and Tooby (2000: 109) describe a recalibrating function of emotions. Some emotions start so-called ‘recalibrating machines,’ which subject the contents of the human memory to a re-analysis; these produce new appraisals of past behavior and occurrences. Sorrow and depressive conditions, for example, cause us to reflect on past decisions; we begin to brood and contemplate.

Melodramas seem to offer a form of contemplative entertainment. They stimulate self-reflection: they prompt viewers to engage with and reflect on their identity and question life goals and past experiences. It is possible that processes discussed in the context of terror-management theory also come into play here (Solomon et al. 2004). Apparently there is a relationship between a depressive mood and melodramas or sad films (Baron-Cohen 1997; Cosmides and Tooby 2000; Murphy and Stich 2000). By triggering introspection and reflection, this medially mediated emotional induction is more likely to lead to processes of insight. Computer games, films, music, books, paintings – all convey to the recipient or user not only the emotions described but frequently also a sense or feeling of aesthetic pleasure.

Outlook and open questions

The difficulties of dealing with Darwin's ideas. The psychology of the past century can be characterized as an attempt at the 'debiologization' of the human mind (Schwab 2004, 2007b). In recent decades, however, new concepts in evolutionary biology have developed that derive provable explanations for human behavior from Darwin's theory. These evolutionary explanations lead more often than not to misconceptions – evolution is not the bloody claws of nature; nor is the reproach of genetic determination valid (Schwab 2007b): evolutionary psychologists do not lightly attribute each and every psychological phenomenon to adaptation and then think up some 'just-so' story on the phylogeny of the adaptation. The criteria are clear (Buss 2008); strict standards, introduced by Leda Cosmides and John Tooby, evolutionary psychologists at the University of California, Santa Barbara (1994), govern the extent to which a developmental trait can legitimately be considered an adaptation for the implementation of a specific function X:

- 1 The trait must be species-specific.
- 2 The function X must address an adaptive problem (the problem must be present across numerous generations, and its solution must bring a reproductive advantage).
- 3 The developmental trait must reliably develop in the environment for which it is adaptive.
- 4 It must be demonstrable that the trait expressly implements function X and is not a byproduct of another adaptation or a law of physics.

In contrast to conventional assumptions, however, the following aspects are valid:

- 1 A large degree of heritability of the trait is not necessary.
- 2 Variations in the environment may influence the development of the trait.
- 3 Learning can also play a role in its development.

At the same time, evolutionary psychologists assume (see Buss 1999) that:

- 1 There are many, distinguishable adaptive problems.
- 2 The solutions to one problem can be differentiated from those of another.
- 3 Successful solutions are dependent on age, gender, context, and individual circumstances.

Naturalistic fallacies are a common reaction to evolutionary explanations: adaptation (e.g., men respond more aggressively to violent media content than do women) becomes justification (men are morally entitled and even obligated to respond with aggression). Finally, by no means does an evolutionary explanation stand in the way of efforts to find cultural explanations. The evolutionary perspective represents rather a ‘culture by nature’ approach. Cultural capabilities are a part of the evolved human nature.

Imagine – sketching out emotional places of action in the mind’s eye by means of media. Evolutionary psychologists (Workman and Reader 2008, Buss 2008) are continually questioning the functional and adaptive value of a great variety of human behavior. In the case of media reception, this is by no means a purely cognitive perception process by which merely external stimuli are depicted (Unz 2008). Media reception demonstrates a close relationship to the ability to imagine and integrate new ideas and actions into human internal behavioral rehearsals, that is, to test them in the virtual reality of the mental simulation. This ability to imagine, to sketch out places of action in the mind’s eye, is a key skill that was acquired in the course of hominization – the evolutionary process of becoming human. In mental simulations, it becomes possible to test hypotheses about the world without having to risk life or limb in the real world (Dennett 1995). The medially mediated mental rehearsal offers a secure space in which to observe and assess the outcomes of various do’s and don’ts of the human existence. In so doing, it is primarily due to social selection pressure that the contents of these imaginary rehearsals are predominantly of a socio-emotional nature. Media recipients, by means of parasocial relationships and identification (Horton and Wohl 1956) with media characters, are therefore able to efficiently process emotional and social problems and experience these as especially stimulating. The audiovisual media take advantage of these abilities – for example, in the design of shot–countershot visual montages and the staging of suspenseful film sequences (Schwender 2006). But it is not only with respect to its formal structure that film follows the evolved mental architecture; the contents, too, are clearly recognizable as a product of phylogeny.

I will survive – the emotional content of media information. Traditional entertainment is not the only area of media interest that can benefit from an evolutionary perspective. The interest in news may likewise have its origin in the workings of an evolved ‘surveillance module.’ The newscaster represents, in a manner of speaking, the Pleistocene social informant. Evolved ‘cheater and risk detectors’ are highly sensitive to media content; a false alarm may be a nuisance but is harmless. Emotions that arise in response to the news and media information function evolutionarily according to the principle of ‘better safe than sorry.’ A threat not recognized in time can be deadly and produce immense costs. ‘Good news must therefore necessarily be many times “better” than bad news is “bad” before it becomes newsworthy’ (Voland 2007: 13). Humans are thus primarily interested in fitness-threatening information that directly endangers life and limb or the social balance. In these cases the response, even to information programs, is highly emotional. In such situations we are less interested in exploiting a piece of information, but rather more so in ensuring the status quo (Unz and Schwab 2004).

To boldly go ... – on the challenges and opportunities offered by an evolutionary perspective. With respect to the phenomenon of emotional media reception, the evolutionary views presented here represent uncharted territory. Buss (1999: 407) likewise

emphasizes that many of these ideas are still highly speculative, but notes that there is already some empirical evidence in support of them. Thus he insists: '[such] patterns require explanation.' Clearly evolutionary psychology is still in a pioneering phase of development, even more so the considerations with regard to evolutionary media psychology presented here.

Viewed from an evolutionary perspective, it is human emotions that direct the cognitive orchestra and thus serve to influence cognitive processes. Evolutionary psychologists are convinced that there exists a formative relationship between specific details of the past environment and details of the structure and functionality of emotions. Core aspects of emotional functioning will therefore become more easily understood when viewed as a product of the formative forces of the human evolutionary past. Thus with respect to the interplay between media and emotions, the evolutionary approach appears particularly promising for future research. Evolutionary psychology offers important and useful scientific tools and research strategies, linking media psychology to the life sciences. It takes a different perspective on media-psychological phenomena and thus enriches not only theoretical considerations within the discipline but also the resources upon which media psychologists can draw. The investigation of emotional media phenomena in particular – at first glance seemingly irrational, as the example of entertainment demonstrates – can profit from an evolutionary perspective.

Among the initial topics to be approached from an evolutionary psychology perspective are fundamental questions about media reception. In psychological tests subjects are shown pictures or asked to view a film in order to trigger emotions; inferences about real situations are made. But whether and how the brain distinguishes between a media presentation and reality is not yet clear. If evolutionary psychology can provide explanations for medially triggered emotions, it will likely have consequences for the way such triggers are defined – leading to new definitions of genre. The same is true for news production. The news values theory (Venables 2005) makes predictions about how an event becomes news. Under the premises of evolutionary psychology, however, new classifications will become necessary as attention and relevance take on a quite different emphasis.

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Movies

- Repulsion* Polanski, R. UK 1965
- Easy Rider* Hopper, D. USA 1969
- Mulholland Drive* Lynch, D. USA 2001
- Dr. Doolittle* Thomas, B. USA 1998
- Junior* Reitman, I. USA 1994
- Jurassic Park* Spielberg, S. USA 1993
- The Time Machine* Pal, G. USA 1960 and Wells, S. USA 2002

TV-Shows

- Star Trek*
- Emergency Room*
- Dr. House*
- Seinfeld*

3 From noise to nucleus

Emotion as key construct in processing media messages

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In the early days of communication research, emotions were seen as ‘noise’ – they were hardly studied as key concepts in research concerning the reception process of media messages. The emphasis was largely on cognitive aspects such as recall, learning, thoughts, and beliefs. Understandable, since theories such as those of the ‘hypodermic needle’ effects of mass media ruled, in which scholarly attention for the individual processing of mass media messages was limited (Katz and Lazarsfeld 1955). Hypodermic needle and related ‘sender–receiver’ theories resembled behaviorist theorizing such as stimulus–response models and ignored ‘black boxes’ such as inner feelings that were conceived of as not relevant to study. Serious messages worth studying conveyed through mass media could therefore not deal with affect, feelings, or emotions (cf., Bryant and Miron 2004; Zillmann 2003). Such affective aspects were reserved for entertainment media, where affect was mostly studied in an understanding of processes of emotional involvement and gratifications. Nowadays, the borders between entertainment, news as well as information fare become blurred and emotion research is growing in importance. Although still in its infancy, there is a growing number of media effect studies showing the important role of emotions and affect in influencing how media messages are perceived (Nabi 2009; Nabi, So, and Prestin, this volume). Interestingly, these developments run in parallel to certain developments in psychology – the main discipline of today’s emotion research.

Until the 1980s, emotion research in psychology was dormant and behaviorist theorizing with S–R models dominated the field. A number of emotion psychologists – drawing on insights from Jean-Paul Sartre, Magda Arnold, and Richard Lazarus – coined the idea that emotions fulfill important functions for the human kind. Namely, that they serve as signals to inform individuals what is relevant for them. Emotions warn of threats and dangers, and point at benefits to one’s well-being. That is, emotions tell us what is relevant and what is not (Frijda 1986). Thus, functional theories on emotions emerged and caused a boost in emotion research in recent years. Important improvements in research methodology (e.g., fMRI) further helped to develop the field. Interestingly, psychologists seemed to hold the belief that mass media should not be part of psychology. ‘Real psychologists’ – it seemed – should study people and mass media were not people. Although media are created and consumed by people, clearly affect people and have been steadily growing in importance to people, media are not ‘people’ as such and thus seemed of little interest to mainstream psychology. However, with the recent realization that mass media and psychology most certainly have things in common, the amount of

research into mass media by psychologists seems to have proliferated. As mass media becomes ever more sophisticated, it becomes more and more skilled to tug at the heart strings. For the present chapter, therefore, developments in the area of psychological emotion research are of special interest, especially in view of the increasing interest in the role of emotions on media's impact. As emotion-related research in communication and media studies begins to flourish, it may greatly benefit from recent developments in emotion psychology. Similarly, emotion psychologists may enrich their insights by embracing emotion research related to media.

Thus, the present chapter deals with the psychology of emotions in processing media messages, assuming that emotion processes in media reception do not differ fundamentally from those in everyday communication. In the following, we provide an overview of several recent advances in emotion research that appear of particular interest to studying emotions and media. We do not pretend to be exhaustive here; instead we selected some recent research lines that are of special interest for media-related emotion research. First, we will briefly discuss how theories on emotions in mass media evolved. Recent conceptualizing of 'multileveled' emotions in response to media exposure led us to connect to recent theorizing on emotion regulation, which we cover under the next heading. Furthermore, we focus on positive emotions, which have largely been ignored in psychology until recently. Psychology's general focus on negative emotions and events is illustrated in theories such as Terror Management Theory (TMT), which has also been applied to explain media effects. Finally, recent developments in neuroscience bring new insights in how emotions play an important role in processing media messages. Obviously – as the final section describes – plenty of directions for future research in emotions and mass media are open in which psychology and media effects research should fruitfully join forces.

Mass media, emotions, and meta-emotions

When it comes to theorizing on emotions and affect in relation to mass media, the main theories for a long time were based on ideas very similar to Aristotelian catharsis (from his famous *Poetics*), such as championed by Feshbach (1955, 1956). Catharsis concerned the idea that by engaging in – for example – aggressive behavior or the observation of aggressive behavior, people could get release from their anger or aggressive feelings. Despite its appeal, cathartic theory does not agree with observed scientific evidence, which sometimes even shows the opposite. For example, a recent meta study (Anderson and Bushman 2002) shows that those who engage violent media are on average more aggressive than people who do not or do to a lesser degree (also Barlett and Gentile, this volume). Likewise, identification with a character enhanced rather than reduced aggression in adolescents (Konijn et al. 2007).

Theories emerged that challenged cathartic notions, such as role modeling and imitation models (e.g., Bandura 1962, 2001). Likewise, cultivation theory (Gerbner et al. 2002) stated that mass media's alternative environment to the real world would not offer a release from emotions such as aggression, but instead would twist people's perception of reality. That is, mass media offered uniform messages to which people would adjust their real-world beliefs. Nevertheless, cathartic-based theories further flourished in concepts of identification and empathy with characters,

especially within entertainment media (cf., Cupchik, this volume). Mood management theory (Zillmann 1983; Knobloch-Westerwick and Alter 2006) also emerged, stating that people selectively expose themselves to particular media programs in order to manage their moods, to keep up or restore pleasant states or to avoid negative affect.¹ While being exposed, people get aroused by what they see or read, experiencing suspense, excitement, fear for the hero, etc. The relief of such arousal when the dramatic conflict is resolved causes a pleasant state. *How* people would get aroused by what they see or read was explained by disposition theory (Zillmann 2000; also Raney, this volume). Disposition theory proposes that people naturally empathize with the sufferings of others and therefore feel fear and distress on behalf of likable heroes and when the heroes triumph they enjoy their victory.

A big chunk of the theories that dealt with emotions and mass media are concerned with people becoming involved with the character represented in the media. Notable exceptions are probably to be found in persuasion research such as fear appeals and humor studies (see Konijn 2008; Nabi and Oliver 2009). A drawback of most of such character-based theories is that they cannot explain the liking for bad characters or villains in movies and video games. Problematic here is that most of this theorizing supposes that more involvement means more enjoyment, which would imply that if you did not like the character, you would not like the program. This is obviously not true, though, as numerous programs and stories have dislikeable – even abhorrent – characters, but are still very involving. In the television series *Heroes*, for example, the serial killer *Sylar* is an essential and intriguing part of the story arch. Currently, research into negative affects in media and bad villains and abject characters is falling short. After all, entertainment does not always display or evoke emotions that we would normally consider entertaining, with such films as *Requiem for a Dream* and *American History X* offering up an emotional rollercoaster ride that certainly leaves us affected and just as certainly leaves us a little worse for wear when it is all done. A game such as *Manhunt* or a movie such as *Funny Games* has an impact that can still be felt many years after initial exposure (cf. Cantor this volume). Curiously, the feeling is pretty negative (filled with fear, thrilled, tensed, sometimes even literal nightmares), yet we highly appreciate the experience, the movie or game, though we may feel very distant from the bad characters. Why do we enjoy media that we know will expose us to negative emotions, or why are we thrilled by identifying with a bad murderous main character in a video game? Such questions still remain unanswered.

In an attempt to overcome this lack of knowledge, scholars have pointed at the notion of mixed or multileveled emotions and parallel processing of positive *and* negative affects. Liking, enjoying or appreciating a character may then be defined as a trade off between involvement (e.g., empathy) and distancing (e.g., abhor) (Konijn and Hoorn 2005). Thus, we may admire Hannibal Lector for his smart wittiness, yet abhor his murdering deeds. Likewise, in *wishful* identification a character may be liked for some desirable feature(s) which viewers regret not possessing themselves. Thus far, most identification conceptualizations only considered similarity as constituent for liking or enjoyment and focused on one-leveled emotions. Traditional theories saw negative affects or emotions as opposed to positive ones. Thus, in drawing on insights from emotion psychology (e.g., Cacioppo et al. 1999), we are able to gain a better understanding of how we may like the so-often negative feelings that are stirred by the mass media.

The notion of multileveled emotions and parallel processing of emotions is also found in the paradox of enjoyment of sad movies (Oliver 1993) and the concept of meta-emotions (Bartsch et al. 2008). Meta-emotions conceptualize emotions and thoughts *about* emotions (cf. Rorty 1978), which allow people to experience a similar base emotion as a media character – such as sadness at the death of a protagonist – yet, also experience different emotions in reflection on these character-based emotions (e.g., pride on being able to empathize). Thus, the emotion in direct response to media exposure might be negative, while the meta-emotion can be positive. The concept of meta-emotion can be criticized for, among others, not actually referring to an emotion but rather to an appraisal.² Very much like primary and secondary appraisal as described by Lazarus (1966), secondary emotions as coined by Rorty (1978), reactive and reflective responses as described by Cupchik (1994), or appreciation as in Konijn and Hoorn (2005; also Oliver and Bartsch 2010). This way, many viewers could highly appreciate the shedding of their own tears while watching the dying scene of *Titanic*, whereas losing one's loved one usually is not appreciated in real life. Such notions of multileveled experiences in response to media exposure resemble recent theorizing in psychology regarding emotion regulation.

Emotion regulation and media use

The regulation of emotion, at least in Western culture, generally works to control the (anticipated) unpleasant effects of negative emotions – such as with anger, fear, and sadness (Gross et al. 2006). Emotion regulation broadens the conception of emotion-focused coping as proposed by Lazarus (1993), which is very much focused on the process of minimizing or alleviating negative affects from a stressor. However, negative emotions may also be regulated for social and other reasons. Furthermore, positive emotions may need regulation on occasion. For example, unregulated temptation can get you into trouble, rejected, or accused of harassment. Furthermore, though regulation is generally downwards, it can also be used to actually increase emotion intensity, such as when we share good news and thus prolong the emotional effect (Langston 1994), or when bill collectors try to increase their anger in order to do a better job (Sutton 1991; cf. emotion work, Hochschild 1979). Emotion regulation can also be used to sacrifice the short term for the long term, such as when we postpone gratification.

Emotion regulation is difficult to define as it depends on the definition of emotion and defining emotion is – as discussed in previous chapters – a challenge in and of itself. To complicate matters further, emotion regulation can be interpreted to imply that emotions themselves are regulated or that emotions regulate something else (such as believability and memory). Gross (2008) defines these two forms as regulation *of* emotions and regulation *by* emotions, respectively. In this section, we will be looking at the first definition as regulation *of* emotions connects to the notion of multileveled emotional experiences in response to media exposure. Regulation *by* emotions will be discussed later.

Gross has defined five different points in an emotion situation at which we can emotionally regulate. The first is *Situational Selection* – where we try to emotionally regulate by influencing what situations we are exposed to. For example, we may avoid an emotion-arousing encounter by going elsewhere, but media use may also

play an important role here. To what extent do we regulate our emotions by selectively exposing ourselves to, for example, a video game or horror? Mood management theory (Zillmann 1988; Oliver 1993) predicts that we selectively expose ourselves to media fare that enhances positive moods. However, is it not possible that we seek the confrontation in media to replace real-life situations? For example, to regulate our real-life anger by substituting it by playing a game aggressively? Or, to learn from it? For example, how to cope with sadness caused by a broken relationship? A concept that Nabi, So, and Prestin (this volume) discuss for TV use. Or, perhaps, even to get prepared, just in case of not being able to avoid the real-life encounter, which is suggested by Knobloch-Westerwick and Alter (2006).

The second is *Situational Modification* – where we attempt to influence the nature of the situation, so as to modify the emotional impact it has on us correspondingly. We may, for instance, reduce the importance of particular situations such as an examination and feel less stressed. Related to media, this type of regulation comes in when we ‘see’ ketchup in the movie instead of ‘blood.’ Koriat et al. (1972) successfully employed such a procedure in having participants either focus on technical aspects of the movie or empathize with the character, while they were watching a bloody accident.

The third technique to regulate our emotions is *Attentional Deployment* – which is where we focus our perception. We can, for example, distract ourselves if we want to down regulate an emotion, or we can ruminate if we want to up regulate an emotion. This technique is clearly illustrated with children covering their eyes or moving away from the screen in order to *not* see what upsets them (see Cantor, this volume). However, emotional expressions and emotion-arousing pictures in the media clearly draw our attention – whether we like it or not (Müller and Kappas, this volume). Research into differences between attentional deployment for positively and negatively toned media is scarce.

The fourth regulation technique is *Cognitive Change* – where we reinterpret an emotion event in a way that makes it less emotionally loaded, through a joke about it, for instance. It changes the emotional intensity by altering one’s perspective. Emotion-arousing events may be cognitively changed in advance or retrospectively (cf., deep acting and surface acting in emotion work, respectively, Grandey 2000). This may well apply to the generally limited effects of fear appeals (Witte and Allen, 2000 for a review), where people may reinterpret how relevant the related risk is to them (for example, ‘my grandfather is ninety and he smokes’). Emotion regulation in terms of cognitive change may also apply to the concept of meta-emotions, as discussed above, where we reinterpret the emotion that was initially aroused by something in a movie, game, a news item, or other media exposure. For example: ‘The dying scene in *Titanic* made me cry, which shows how empathetic I am.’ Or: ‘Because I am competent and tough, the blood and gore in horror movies don’t make me feel sick.’ Clearly, cognitive change takes place when we attribute the label ‘not real’ or ‘this is plain fiction’ to media fare that arouses us.

The fifth emotion regulation technique is *Response Modulation* – which is focused on physiological, experiential, or behavioral responses directly. Thus, it might involve active emotion suppression. In daily life this occurs when one attributes one’s increased heart beat and trembling to having drunk too much coffee. Response modulation during media exposure is almost constantly illustrated by behavior inhibition; action tendencies of emotions, such as the tendency to shout

when angry, usually do not develop into overt behavior when watching a movie or reading a book. However, with playing video games, this may change (at least for some).

Apparently, people rely on different forms of emotion regulation. However, why they pick one or the other kind of regulation and how they connect to specific media use has not yet been studied enough to present conclusive results. An interesting idea, however, is that it might be due to the beliefs held by individuals who are regulating. People used different techniques depending on whether they thought emotions were malleable or fixed. Those that thought that emotions were malleable were more likely to use cognitive change, as well as emotion regulation in general (Tamir et al. 2007). These findings suggest a role for the media in emotion regulation with our beliefs about emotion regulation possibly being influenced by the media. For example, the media present examples and role models who use different emotion regulation strategies, as well as beliefs about whether emotion regulation works. Furthermore, research has suggested that the media could also play a role training people's emotion-regulation capacities, as older people are better at emotion regulation than young people (Scheibe and Blanchard-Fields 2009). However, research also showed that older people might be more motivated to regulate their emotions (Knight et al. 2007).

Often, the media may help us to learn *how* we may regulate our emotions, especially today with both a more explicit focus on emotions in graphically rich media environments (e.g., on the world wide web, in video games, in news broadcasts) and a more explicit attention for emotional display and regulating our emotions in society. As Buck (1999) asserted, the media may play a significant role in acquiring emotional competence. If true, this is especially important as research has demonstrated that people higher in emotional intelligence are more capable of learning from emotional setbacks and bounce back more quickly from negative events (Salovey et al. 1999). Thus, media may serve as a learning experience (Steen and Owens 2001). Entertainment media in particular offer an opportunity to safely engage in emotionally loaded situations – both positive and negative – which might well make us better, or at least think we are better, at coping with the real thing (cf., Nabi et al. this volume). The interactive nature of video games may further enhance media's potential for acquiring skills for emotion regulation (Konijn and Nije Bijvank 2009; Ritterfeld 2009). How people acquire emotional competence and emotion regulation skills from media is largely underexplored.

A counter intuitive idea in current theorizing on emotion regulation is the idea that emotion regulation can happen automatically. Usually, we think of emotions as being automatic and regulation to be a conscious effort, but research has demonstrated that emotion regulation can be primed (Mauss, Cook, and Gross 2007). An experiment that lent further support to this idea was an individual difference study. Participants that implicitly had a positive association with regulation became less angry when provoked, and they exhibited a more adaptive challenge response (Maus et al. 2006). This is also significant for media use, because it means that regulation can unconsciously be influenced with people just taking their emotion regulation cues from their (media) environment.

Although ego depletion is about self-regulation, which is not emotion regulation, the two concepts have some overlap. Ego depletion is the concept that individuals have something comparable to 'will power,' which – much like endurance – is a

limited resource. Baumeister et al. (2007; a review) coin the analogy of a muscle, which can get worn out with overuse in the short run, but can get stronger with training. Therefore, ego depletion may also play a role in emotion regulation related to media, which has already been shown in case of impulse buying (Vohs and Faber 2007), yet may also apply to other areas. Thus, media that are emotionally demanding and ask for emotion regulation from its audience might reduce their short-term emotion regulation, but help them train their regulatory 'muscles.'

As said, emotion regulation generally pushes us away from negative emotions and toward positive emotions. Interestingly, research into positive emotions more or less matched the increased attention for emotion regulation. The urge for human beings to feel good (i.e., hedonistic motivations) is a universal, basic need of people (Frijda 1986) yet has largely been ignored by psychologists until recently.

Positive emotions

Traditional psychology – as well as many studies in mass media – mainly focused on negative emotions such as anger, sadness, and fear rather than on positive emotions, such as happiness, delight, and love (Fredrickson 1998). Among various reasons, a significant one is that psychology has largely focused on solving problems and positive emotions are rarely a problem. Furthermore, Fredrickson and Branigan (2001) argue that it was hard for psychologists to figure out what has been the purpose or function of positive emotions.

Negative emotions could be understood as they focused the mind on something (usually some obstacle to be removed). For example, anger and fear focused the mind on something that was thwarting one's goal, with the difference being that anger has a large amount of certainty while fear has a large amount of uncertainty (Smith and Ellsworth 1985). Positive emotions, on the other hand, seem to do no such thing, which is not too surprising since positive emotions are largely there to tell us that nothing is thwarting our goals (note that emotions are seen as motivating goal-driven behavior). Instead they seem to imply the opposite; namely, that goals have been achieved, perhaps even earlier than expected, or there are rewards to gain.

As said, positive emotions were largely relegated to the sidelines until recently. However, circumstances have changed. We now even have a 'happiness professor': Martin Seligman is considered the father of positive psychology (Goldberg 2006). In his view, positive psychology is a response to the systematic bias in psychology's emphasis on mental illness rather than on psychological well-being. Positive psychology is the study of optimal human functioning. Likewise, Fredrickson (1998) came up with a new interpretation of positive emotions, suggesting that since positive emotions seem to be provoked by the opposite of what provokes negative emotions, perhaps they also do the opposite. Where negative emotions narrow attention down to one specific problem, positive emotions might instead broaden our attention to take in more of the world around us (Fredrickson 1998). Recent research supported the 'broaden and build' effect of positive emotions. People have demonstrated greater creative thinking, better trouble solving abilities, more thoroughness in decision making, and improved critical thinking (for review see Isen 2008).

The question remained, however, what might positive emotions be good for? And what is their evolutionary basis? Fredrickson reasoned that positive emotions

may serve to let us build up reserves – or a buffer – for when times become rough. This should work in three ways. First, it allows people to build up the physical resources they might need in times of strain. Second, positive emotions might allow us to cultivate the social connections to give us the necessary help when times turn bad. And third, it might actually help us mentally, with research having demonstrated that more resilient people use positive emotions to bounce back from negative experiences (e.g., Tugade and Fredrickson 2004). This model is thus quite aptly called the ‘broaden and build’ model (for a review, see Fredrickson and Cohn 2008).

Clearly, such a ‘broaden and build’ perspective links together well with media use. Many people may use media to rebound from negative emotions more quickly, as well as help them build up a buffer to guard them when stress once again rises. As such, we may enrich our theorizing on media enjoyment – we do not just enjoy media for leisure and being entertained as such, but rather we are engaged in serious efforts to restore our resources (cf. Nabi et al. this volume; also Oliver this volume). Yet, how can we restore our resources while confronting ourselves with the suffering of others? Social comparison theory (Suls and Wheeler 2000) suggests that the suffering of others might actually make us feel good in comparison, since it makes our own lives appear better. Recent studies from a media entertainment perspective applied this perspective to viewers of *Idols* who enjoyed the ‘suffering others,’ which is called malicious pleasure or *Schadenfreude* (cf. Van Dijk et al. 2005). However, whether they subsequently restored their resources is not yet known.

The idea that positive emotions help people to think more globally, retain more general information, and engage more actively with their environment provokes some interesting ideas about how to effectively spread certain messages. For example, research by Tamir and Robinson (2007) has demonstrated that one’s emotional state also determines what aspect of a message one focuses on, with people in a ‘bad’ emotional state being more likely to focus on threats and people in a positive emotional state being more likely to focus on rewards. This finding compares to an older study: Isen et al. (1978) demonstrated that memories are organized by affect. Therefore, the mood we were in when we stored information is stored together with the information and is thus more accessible when we are in a similar affective state. This suggests that media would do well to not just focus on what they are trying to tell, but also on what emotions they evoke while spreading a message.

They have actually been doing this, but ironically the focus on the ‘how’ has largely been toward negative emotions (as with warning labels and fear appeals), especially in the aftermath of 9/11 and the atmosphere of fear and anxiety that it engendered. The event of 9/11 and the following several-year-long media frenzy about terrorism exposed us to levels of fear and uncertainty that we had seen previously during the cold war and the McCarthy period with one interesting difference; namely, that this time we actually had a theory that offered us an explanatory basis for what was going on. This theory is named Terror Management Theory.

Terror Management Theory

Terror Management Theory (TMT) supposes that a large amount of human behavior is provoked by a paradox that each of us has to deal with every day (for a review,

see Pyszczynski et al. 2003). This paradox is the conflict between our love of life and our certainty that we will die. Pyszczynski et al. state that the internal conflict would fill us with an incredible fear and we spend a great deal of our time managing this terror (hence the name). The way we manage this terror is by trying to become immortal, be it physically, spiritually or metaphorically. Or – more concretely – by living longer and having children; by following religious observations and cultural practices; or by leaving behind something that lives on in our stead, such as our work or our ideas. In this way our desire for immortality helps create modern society.

TMT has really come into its own since the start of the war on terror. According to TMT, the attack raised American citizens' awareness of their own mortality, which provoked a whole host of actions to control the anxiety it produced. For example, it caused a violent rejection and reaction toward out-groups, provoked shopping sprees, increased community cohesion and caused a huge upsurge in nationalism. A good indicator of the last was the sudden jump in American flags sold in the USA on the day of 9/11. Wal-Mart reportedly sold 116,000 flags on the day, while selling only 6,400 on that day a year earlier, which is almost a twenty-fold increase (Huntington 2004).

Ever since, many based their studies on TMT, also within a media context. For example, TMT has been applied to consumer behavior showing that people become more materialistic when death-related thoughts are triggered by ads or commercials (Arndt et al. 2004). Other TMT-related research has demonstrated that people primed with mortality reject abstract art that they feel has no meaning (Landau et al. 2006), are more negative toward negative essays and more positive about positive essays about their own country (Greenberg et al. 1994), and behave more greedily in a resource management game (Kasser and Sheldon 2000). In another media context, research showed that the abundant news reports on terrorism and Muslims after 9/11 actually increased a negative attitude toward out-groups (Das et al. 2009).

It should be noted, however, that most studies thus far have used a priming paradigm and implicit association tests in experiments – thus we can only speculate about the long-term effects of media primes on mortality issues and TMT. Not all research agrees with the theory and people have suggested alternatives – such as coalition psychology, which tries to explain the same phenomenon as TMT, but from a more evolutionarily sound footing (Kirkpatrick and Navarrete 2006).

More importantly, perhaps it was not just the attack on the twin towers that caused this upsurge in people's awareness of their own mortality, but also (or, especially) the following worldwide media frenzy that resulted. If being in the vicinity of a funeral parlor already makes people's mortality salient and triggers TMT (Greenberg et al. 1994), what effect would regular exposure to footage of war, death, natural disasters, and famine have? In other words, what is the impact of mass media's daily news reports and politics that play on people's fear? This is especially significant because most of the effects of making people's mortality salient, due to the attention-narrowing effects of negative emotions such as fear, leads them to becoming less open minded, less accepting of dissenting opinions, and less accepting of out-group members. How then do we process media messages? Insights from recent neuropsychological research may increase our understanding of media's impact.

The high and the low path in media processing

A promising development in recent years has been the slow but steady opening of the brain's black box through neuroscience. For a long time we could only guess at what was happening in the brain from the outside (by studying behavior) or after the fact (by way of autopsy). But now, with fMRI (functional Magnetic Resonance Imaging) scans and EEG (Electroencephalography) recordings we are obtaining a glimpse of the human brain in action. One notable discovery has been that we do not have one pathway that processes information from the outside world, but two (LeDoux 1998). These two pathways are commonly referred to as the 'higher pathway' and the 'lower pathway.' The higher pathway leads to our higher brain faculties and ultimately conscious awareness. The lower pathway runs to the amygdala, an almond-shaped set of neurons deep in the brain's medial temporal lobe. The amygdala is part of the limbic system and is involved in the processing of emotions including fear and pleasure.

Interestingly, how the amygdala learns to recognize dangers resembles classical conditioning (Pavlov 1927). While classical conditioning and stimulus-response models established that certain S-R effects occurred, the black box remained closed. Neuro-imaging research is able to open that box and show *how* certain effects occur, as well as how such connections are established in the brain (LeDoux 2002). The main advantage of having a second pathway seems to be one of speed. The lower pathway is markedly faster than the higher pathway, allowing us to react before we have cognitively fully processed the information (Damasio 1994; LeDoux 1998, 2000; Panksepp 1998; Rolls 2003). This might offer real evolutionary advantages, as it means that we can react to a threat before we are consciously aware of it – a primitive knee-jerk response, if you will – to conditioned and evolutionarily determined dangers.

Another use for the lower pathway is that it can prime the amygdala to possible dangers, without immediately directing awareness toward the potential threat. In this way, the amygdala is alarmed, but we are not necessarily distracted from the task at hand. When a real threat suddenly shows up, then the amygdala can interrupt our current activity to focus our attention onto it when needed (for a review, see LeDoux and Phelps 2008).

So why bother with the higher pathway? Quite simply, the lower path response is not enough on its own. It is often triggered by 'false positives,' or things that only roughly match the fear response – such as a stick that resembles a snake triggering a fear reaction. Furthermore, though the amygdala triggers an immediate response, it is not the whole response. Instead, the higher path kicks in, moderating our behavior and guiding us down rehearsed or automatized danger-avoidance paths. In this way, the fear response can largely be controlled when necessary, for instance when we realize the snake has twigs and leaves. Thus, the *higher* path can help us to interrupt or unlearn fear reactions. All animals can unlearn fear responses through repeated exposure to the stimuli without the paired pain or danger event (not to say that this is easy, but rather it is possible through the higher pathway). Primates can also use the higher path, which allows them to unlearn a fear response by mentally controlling it. So, why not through repeated exposure to media fare, both learning and unlearning?

Although media violence studies have met some resistance among several media and communications scholars, the idea that what happens with fear responses might

also be possible with aggression as a learned response from media violence recently received increased attention. With the popularity of video games, often with a violent nature, media violence research received a new impetus. Recent research used fMRI methodology to show how aggression in response to violent video games revealed significant neuronal correlates in an event-related design (Weber et al. 2006; see also Murray 2008). Another study (Bartholow et al. 2006) showed by way of behavioral and event-related brain potential data (e.g., EEG) how individuals high in media violence exposure responded in a desensitized manner to real-world victims of violence and suffering, as well as displaying reduced helping behavior. It is not a stretch of the imagination to consider the idea that an aggression response might be similarly conditioned as a fear response. Most neurological research performed so far, however, has been about fear, with very little of it directed at anger or aggression (Barrett and Wager 2006).

The amygdala responds to simple perceptual cues, especially the face and the eyes (Adolphs et al. 1999, 2005) and is involved in detecting significant threats or rewards (Barrett and Wager 2006). This may imply that new media, largely auditory and visually transmitted and relying on rewarding experiences, can have disproportionate effects on the amygdala. Zillmann (2006; also this volume) suggests that the lower pathway might have trouble distinguishing between fictional and factual events. PET (positron emission tomography) studies have lent this further support by demonstrating that two-thirds of the activated brain substrates used to process imagined versus perceived images are the same (Kosslyn et al. 1999; Kosslyn et al. 1997). Thus, it is hard for the human system to distinguish between imagined and perceived images when using graphically rich media. When ambiguous audiovisual stimuli are involved, or in case of doubt, people may then 'err on the side of safety' (Shapiro and Lang 1991) or take the 'low road' and err on the side of caution (LeDoux 1998) when emotions signal a threat – either factual or fictional.

When negatively valenced emotions (e.g., fear, sadness) arise, emotions may lead the viewer to process a media message as a real event, or at least partly. Such a media exposure may leave traces in memory that may later be remembered as if it had really happened. This may somehow resemble the so-called sleeper effect (Hovland and Weiss 1951; Kumkale and Albarracín 2004): a phenomenon whereby messages from sources with low credibility show opinion change only over time (Schenk 2008). In contrast to general persuasive effects of a message occurring right after media exposure, the sleeper effect occurs in the longer term. Emotions and a blurred perception of the factual and fictional may contribute to this as well as diminished skepticism over time. It seems that arguments and other content-related thoughts of the message weaken in memory over time, but the emotional impact of a message may last and add to its credibility.

How emotions may play a role in the sleeper effect seems unclear however. Brosius (1993), for example, has demonstrated that emotions play a role in the extent to which information is remembered for later recall. Positive messages may be remembered better than negative ones (Lang et al. 1995), while others have shown the opposite result (e.g., Reeves et al. 1991). Negative emotions within a media context have been shown to bias the information intake from media messages (Konijn et al. 2009). How emotions can affect bias information processing from media will be further elaborated below.

The amygdala appears to be important not just for fear perception, but also for recognizing fearful faces (Adolphs et al. 1999). This allows for social learning of

fear, simply by listening to or observing others experience or describe a fear-inducing experience. It is also in this way that the lower pathway connects to media studies, since this implies that people can learn fear responses – and possibly other responses – by observing events in the mass media. Through social fear response learning we might explain the general fear toward terrorism, nuclear weapons, and gun violence. After all, only few of us have seen such dangers in person and, instead, we rely on socially and media-learned fear to be aware of the dangers these threats pose. The recent discovery of so-called mirror neurons (Rizzolatti et al. 1996) contributes to this idea of observational or vicarious learning, as already described by Bandura (1962, 2001). However, how this type of learning occurs among users of mass media is still largely unclear.

Mirror neurons were first found in animals with neurons ‘mirroring’ the behavior of another animal as if they were conducting the behavior themselves. Later, such mirror neurons were found in humans in the premotor cortex and the inferior parietal cortex. The mirror neurons were found to be active both when people perform an action and when they watch it being performed (Rizzolatti and Craighero 2004). These mirror neurons may be important for understanding the actions of other people, and for learning new skills by imitation. Plausibly, such mirror neurons are assumed to also be incorporated in empathy or emotional contagion – a kinesthetic response through which we may ‘feel with’ the observed other. It might explain why we feel the sufferings of ‘just’ a movie character, for example, when we watch a Nazi war criminal ‘dentist’ torturing Dustin Hoffman’s character in the *Marathon Man* (1976) by drilling his teeth without anaesthesia.

Research using functional MRI (among other techniques) has shown that certain brain regions comparable to the mirror neurons are active when a person experiences an emotion (disgust, happiness, pain, etc.) and when he or she sees another person experiencing an emotion (Gallese, 2001; Preston and de Waal 2002). However, mirroring movements and actions is not the same as mirroring emotions. Feeling the emotions of other individuals such as in empathy has only recently been taken into account (Jabbia et al. 2007). They state that empathy involves not only the firing of mirror neurons representing a form of simulation of the observed states but also that the sensed states are attributed to the other individual, distinguishing them from the observer’s own emotions. Importantly, such findings coincide with recent neuropsychological research showing that the brain responds similarly to emotion-rich media events as to real-life events, which also affects learning in similar ways (Murray 2008).

All of this therefore raises an important question: What is the unconscious and ‘creeping’ impact of mass media on all of us? Mass media may sort its effects in much more implicit and less understood ways than we may have assumed thus far. Perhaps also, because the ‘fictionality’ of many messages has been rather obvious thus far. To the extent that the human hard wire cannot discern fact from fiction and to the extent that the basics of learning are settled down there, deep in the brain, mass media may be or become much more influential than we have realized so far – especially with the new technology and contemporary media fare with which it become increasingly difficult to realize or experience the differences between real and virtual worlds (cf. Hoorn et al. 2003). Often we are being exposed to alternative realities that we might consciously realize are fictional, but might still be processed in similar ways as real-world experiences by our lower path. Thus, even if we know

that a game's environment is not real, for example, it may have some sort of effect eventually. We might find that emotional responses are being conditioned into us without our own awareness or consent. In this way, mass media might hold far more sway over our lives than any of us realize.

Emotions affect message processing and memory

Some research in emotion psychology has studied how cognitions may influence affect and emotions and Rational Emotive Therapy is even based on this idea (Ellis 2003). The other way around, however, how emotions may influence cognitions, thought, and memory, is equally likely but has received little empirical attention (Frijda and Mesquita 2000). As media, not just entertainment media but media in general, increasingly provokes emotions, the question becomes relevant to what extent media-generated emotions affect the way a message is perceived and recalled. In general, it is known that emotions serve an attention-grabbing function, though this has hardly been studied within ecologically valid media environments. Emotions motivate people to focus their attention on distinctive information or objects and, because people are limited in their capacity to process information, emotions are helpful to selectively direct attention to parts of a media message (e.g., tears on a victim's face), subsequently affecting memory for specific information only (Lang 2000). Selective attention thus refers to the process of prioritizing particular objects or events while ignoring others (Theeuwes 1993). How specific media-generated emotions may affect message processing, cognitions, and memory has to be explored in further detail.

Research suggests that the more emotional people are when watching a piece of media, the more likely people are going to believe it. A recent study used audiovisual materials taken from a television documentary and found that individuals experiencing emotions while watching attributed higher levels of perceived realism and information value to the contents than those who were less emotionally moved. This was especially true when the materials were framed as fictional (as contrasted with 'reality-based'; Konijn et al. 2009). The authors reasoned that the underlying mechanisms are in line with emotion psychology such that 'emotions point to the presence of some concern' (Frijda 1988: 351). Because emotions signal what is relevant to us, such as a threat or a reward, emotions may as well serve as a signal for the program's reality status: 'If I feel, it must be real.' The emotion psychology literature argues that intense emotional experiences signal to individuals that something is real, psychologically real, or of real importance. Thus, emotional responses to media messages may likewise alert the viewer that the media message represents something real, psychologically real, or of real importance (i.e., threatening to their well-functioning and malfunctioning) (Konijn et al. 2009). This may explain why even fictional media can affect one's real-world perceptions.

In a similar vein, Forgas and East (2008) have found that the mood that a participant is in can also have an impact on the believability of news, with people in bad moods being better at detecting lies than individuals who are in neutral or positive moods. A similar effect has been found for people being uncertain who processed information more systematically than those who were more certain and processed the information more heuristically (Tiedens and Linton 2001). Forgas (2007) argued that people in negative moods use more detailed and systematic schemas

and process persuasive messages more systematically. Isen (2008) then added the important condition that this is only in terms of how relevant the information is to the person doing the processing.

Moods also influence the memories of children, with sad children being more suggestible than children in either happy or angry moods (Levine et al. 2008). Note that even similarly valenced emotions can have different effects. For example, fear and anger (both negatively valenced) had different influences on people's risk perception (Lerner and Keltner 2000, 2001). Fear, they discovered, made people see higher levels of risk, while anger made them see lower levels. Likewise, when students were exposed to fear- or anger-oriented messages before they determined what kind of action should be taken against an undesirable activity, the emotion framing the message influenced their approach: from more retributive – in the case of anger – to more protection-oriented approach – in the case of fear (Nabi 2003).

The possible influence of emotionally laden content on memory is equally important. For example, by showing people negative images, their memories of events that immediately follow those images are enhanced, while leading to a generally poorer recall of narrative information in the long run (Newhagen and Reeves 1992). Brosius (1993) found that emotional pictures in television news led to recall errors that he proposes were evidence that emotional presentations narrow attention to certain parts of the message. In terms of specific emotions, disgust and surprise resulted in better recall of the central topics of advertisements just presented, while happiness, fear, and guilt weakened such recall (Englis 1990). Similarly, Newhagen (1998) found evidence that images that evoked fear and anger enhanced visual recall, while images that evoked disgust reduced visual recall. Thus, some studies have shown that positive messages may be remembered better than negative ones (Lang et al. 1995) while others have shown the opposite result (e.g., Reeves et al. 1991).

Such findings have definite implications for how media messages are processed and stored in memory. For example, the trend among news programmers to move from 'information' to 'infotainment' through an increased use of cinematic effects, such as close-ups and theme music, to increase the emotional impact of these programs may bias message processing in its users. Some have lamented this change away from merely reporting hard core news, but such research opens up the ironic possibility that this type of programming might actually convey news stories more effectively and make them more prominent in people's memory. However, what would be 'more effectively' and how will they be stored and retold?

Conclusions and future research

In this chapter we have argued that media scholars may gain an ever better understanding of how media might affect its users by incorporating recent theorizing and research findings from emotion psychology. The question then becomes what the future of media studies may hold. What further research can we expect from the perspectives we have laid out in this chapter?

One thing we can look forward to is a better understanding of why we consume what kinds of media. With a better understanding of what needs media satisfies, the media will be able to target those needs more precisely. What media offerings serve our cathartic, mood management, or emotion regulation needs in which way? The

notion of mixed or multileveled emotions and parallel processing of positive *and* negative affects seems helpful in understanding how we may like bad villains, serial killers, and all kinds of ‘bad guys’ in movies and video games. Phenomena such as wishful identification with a dissimilar character may also be explained from this perspective. Yet, a better understanding of how we feel attracted to and so often like the negative feelings aroused by the mass media needs further elaboration and empirical testing in media research.

Recent theorizing on emotion regulation may be helpful to further specify the processing of emotions through mass media exposure. In the section dedicated to emotion regulation, we discussed how people might learn different forms of regulation and it is here that the media can play an important role. Of course, we will first need to understand in what way – if any – the media affect our views on how to regulate our emotions. Once we know that, it then becomes possible to design media, especially interactive media for example, which might help people regulate their emotions in a positive manner. Furthermore, the idea that emotion regulation might be like a muscle offers up interesting research opportunities, specifically into what this means for media and why we might consume it. Is it possible that part of the reason we consume emotions via media is to become better at emotion regulation? If and how people acquire emotional competence and emotion regulation skills from media is largely understudied.

Some examples of the media being used to help people learn or cope with daily life emotional experiences have already been developed. For example, Marsella et al. (2003) have developed an application that allows parents whose children have cancer to interact with a distraught virtual parent whose child also has cancer. Through their interaction, the parents often find their own situation is a little easier to deal with. Another example is the ‘FearNot’ program (Aylett et al. 2005) which has been created to demonstrate to bullies what effect their bullying behavior has on the bullied, in the hope of giving them insight into what harm their behavior does. In years to come, we will no doubt see more of these types of programs that can augment therapy and offer opportunities to help those who might not need counseling, but do have problems they wish to work through (Pontier and Siddiqui 2008). Likewise, needs for social sharing and social comparison may be fulfilled through such media applications, even in much more tailored ways than through traditional mass media. As we get a better grasp of what people are trying to learn from their interaction with the media, we can then use this knowledge to aid these learning processes.

Thus far, most emotion-regulation research has been focused on reducing unpleasant (side) effects of negative emotions. However, studying positive emotions gained increased attention in recent years and may feed media research. For example, would promoting more positive emotions through the media make people more resilient to negative experiences? Positive psychology deals with studying optimal functioning of human beings. It has been proposed that where negative emotions narrow attention down to one specific problem, positive emotions might instead broaden our attention to take in more of the world around us (Fredrickson 1998). Recent research showed that positive emotions supported creative thinking, trouble solving abilities, and improved critical thinking (Isen 2008). Therefore, a reasonable assumption seems to be that media play a role to let us build up reserves for when times get rough and in training one’s regulatory ‘muscles’ to make them

better prepared to deal with the surrounding real world. Ironically, however, most news broadcasts and warning messages largely focus on negative emotions (e.g., the fear inducing media messages after 9/11). Research is needed to acquire a closer understanding of what emotions are evoked while spreading a message and how they affect message processing and recall.

Studies within the context of Terror Management Theory showed that, in materialistic societies, making people's mortality salient leads to more consumption, especially of nationalistic items, and increased community cohesion. The effects seem two-sided. On the one hand, advertisers and marketers may use mortality primes to sell more products and make viewers act more materialistic and greedy. On the other hand, mortality salience also primes negative attributions toward out-group members in society. Thus, how media messages may prime mortality salience is important to further study. How does regular exposure to footage of war, death, natural disasters, and famine in mass media's daily news reports play on people's fear?

The attention-narrowing effects of negative emotions such as fear, appear to lead people to become less open minded, less accepting of dissenting opinions, and less accepting of out-group members. How we process media messages and store them in memory may be better understood from insights in recent neuroscience. Neuro-imaging studies and the recent exploration of the lower pathway through the amygdala (LeDoux 1998) clarifies how media may have a more unconscious and 'automatic' impact than many have considered thus far. The lower pathway allows us to respond without having cognitively fully processed the information. Furthermore, neuro-imaging studies have revealed that it is hard for the human system to distinguish between imagined and perceived images when using graphically rich media. Then, the human system may take the 'low road' when emotions signal a threat – either factual or fictional, especially with negative emotions. As the human hard wire cannot discern fact from fiction (also see Zillmann this volume), media exposure may leave traces in memory that may later be remembered as if things had really happened.

The amygdala, which provides the basis for the 'low road,' is important, for example, for recognizing fearful faces, thus paving the way for social learning of fear by observing others. Some basics of (social) learning may therefore be settled deep in the brains and may store information observed in others as displayed in the media. Through the lower pathway people can learn fear responses – and possibly other responses – by observing events in the mass media. For example, an aggression response to media violence exposure might be similarly conditioned as a fear response. Currently, the main area of interest in neuroscience has been fear, but soon we should see a whole host of other emotions examined, such as happiness and sadness. Especially with the new technology and contemporary media fare with which it becomes increasingly difficult to note the differences between real worlds and virtual worlds, we might find that emotional responses are being conditioned into us implicitly or unconsciously. Therefore, much more research is needed in understanding how mass media may have an impact on its users.

In addition, the higher path can help us unlearn fear reactions and probably other emotional responses. For instance, when cognitive processes control a fear response, such as realizing 'the blood' is just tomato ketchup, we can undo the automatized response for the low road by reappraisal and training. This has impor-

tant implications for media education. Media users can thus be trained to control their initial and emotional responses to media fare in order to undo possible unwanted effects of mass media by realizing how such effects are imposed upon them. Much research is needed to gain a better understanding and more detailed insights of what specific cognitive strategies can be used here to sort beneficial effects.

Related, it is important to understand how emotions influence message processing and memory. Research suggests that the more emotional people are when watching media, the more likely people are going to believe it. More specifically, people in negative moods use more detailed and systematic schemas and process persuasive messages more systematically, as far as the portrayed information is relevant to the observer. Furthermore, similarly valenced emotions seem to sort different effects such as fear-inducing higher levels of risk perception after media exposure, while anger made them see lower levels. However, results also seem to contradict each other and appear to be dependent on specific conditions, such as whether it concerns the self or an (unknown) other. Likewise, the influence of emotionally laden content in media messages on memory seems to diverge according to different emotions, conditions, and contexts.

Given the increased use of ‘infotainment,’ cinematic effects, and emotional appeals in contemporary media fare, research is warranted to study how such type of programming might actually be perceived by the public, leaves its traces and becomes pertinent in people’s memories later on. More research might unearth some unexpected implications. For example, do induced positive emotions help us store emotions differently? Do positive emotions make us more likely to accept things as true, or only if they are not relevant to us? Is awareness of media’s generally ‘fictional character’ enough to resist its impact? How significant is media’s impact – significant enough to have a real influence in our daily lives? In short, the research areas described above have the potential to have a real impact on both future studies and mass media as a whole. As our understanding becomes more and more sophisticated, hopefully so will our media – and not just in terms of entertainment. We face a real possibility for media to aid us in living our lives better and support our well-being in a broader sense. Where initially emotions were seen as a nuisance in mass media research, they have slowly but steadily migrated toward the locus of media studies. By now, it is safe to state that without emotions, there would be no media effects. From noise to nucleus, indeed.

Notes

- 1 Although we acknowledge the important differences between emotions, affects, and moods (Konijn 2008), for the aim of the present chapter, we do not elaborate on these differences (e.g., see Barlett and Gentile this volume).
- 2 The concept of meta-emotions is not clear, however, on the extent to which it applies to multileveled emotions *or* to cognitions and thoughts about emotions (see definition in Bartsch et al. 2008).

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4 Affective and emotional consequences of the mass media

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Led Zeppelin's *Stairway to Heaven*, the 1941 movie *Citizen Kane*, and the TV show *Star Trek* share at least two commonalities. First, they are examples of mass media, and, second, each has the ability to create and change one's affective, emotional, or mood state. The mass media are powerful in terms of creating and changing many psychological states, including arousal, emotional, and even aggressive predispositions. The term *mood* is often used when talking about the mass media. People choose to view or listen to particular media based on their current mood or emotional states and their perceptions of how the media product will enhance or modify that state. The mass media are designed to affect viewers emotionally, and viewers want to be affected. Harris (2004) suggested that this may be the case because the mass media can serve as a vicarious emotional experience for viewers. When watching a dating show on television (e.g., *The Bachelor*), for example, viewers experience certain emotions from the bachelor's point of view or the point of view of the female contestants. If a hero on film is scared, then the viewer may also feel aroused and scared as well.

This chapter focuses on the influence that the mass media have on viewers' emotional experiences. We will operationally define affect and emotions, explain how the mass media are related to a variety of emotional and affective experiences using evidence from primary research and theory, then describe a study in which we created a negative affective state and had participants play a violent video game to determine if video game play was related to affect and emotional repair. Finally, we conclude by offering our conclusions and suggestions for future research.

Definitional issues

Affect, mood, and emotion are often used synonymously, but they are theoretically distinct. Larson (2000) defines *affect* as a feeling tone that is evaluative, and can be either positive or negative, and comprises both mood and emotions. *Mood* is a feeling tone that is long-lasting and may not have a known specific cause. In contrast, *emotions* are typically short-lasting, may be intense, focused, and often have a clear causal underpinning (Gross 1998; Konijn 2008). Thus, affect is conceptualized as more global than emotions and mood, and may consist of many different emotional and mood states. For instance, negative affect may include multiple emotional states, such as sadness, being afraid, and hostility (Watson et al. 1988), as well as negative mood states, such as being generally distressed or depressed.

Theorizing on the structure of positive and negative affect has been a productive research enterprise, especially when considering that mood, emotions, and affect are theoretically distinct concepts but are very highly related to one another. Traditionally, it was thought that positive and negative affect lay on different ends of the same continuum and were, thus, dependent on one another. Researchers expanded on that argument and have suggested that affect is a function of valence (positivity and negativity) on one axis and activity level (inactivated, activated) on the other axis (the Circumplex Model; Russell 1980). Although useful, this model suggests that one stimulus cannot elicit both extreme increases in positive and negative states at the same time, because positive and negative affect lie on the same continuum. Larsen et al. (2001) have found evidence to suggest that certain events (i.e., graduation day from college, moving out of the dorms) can elicit both positive and negative emotional states simultaneously (e.g., one is happy to be graduating from college, but also sad to say goodbye to friends). Experiencing both positive and negative affect at the same time is at odds with the Circumplex Model, but can be readily explained by the Evaluative Space Model (Cacioppo and Berntson 1994), which places levels of positive affect, levels of negative affect, and baseline frequency of affective experiences on a metaphorical three-dimensional space. This allows one to feel happy and sad at the same time to the same stimulus.

At a more global level, there are at least two theoretical stances on the role that emotions can take. The first is the view that emotions are responses to some stimulus. For instance, most media researchers measure emotions after the presentation of some stimulus (e.g., movie, video game) to see if emotions are influenced by the media. The second view is that people actively select and seek out the media they view in order to respond to, change, or enhance a certain affective state (see Rubin 1994, 2002). Related to this is the growing body of research demonstrating that emotion is not simply a reaction, but is functional. Humans (and other mammals) use emotion to communicate, and we modify our behaviors based on others' emotions. Therefore, emotion is not only something we feel, but it also guides the actions of both the feeler and those in the vicinity. For example, if people are sad, they may want to view a movie that will make them feel happy. The movie in this example may serve as a means to a) repair the sad emotional state the viewer is feeling, b) distract the viewer from whatever was making that person sad, and/or c) provide the viewer with information on how to solve their problem (cf. Nabi et al. this volume). Overall, the second view suggests that one method of emotional repair that people may engage in when experiencing certain negative emotional states may be to select certain types of media to view.

There are many benefits and costs to being in positive and negative affective states. Many psychological theories of rumination, judgment, and social cognition incorporate affect and emotion as important variables because they provide people with information that can influence judgments. This is what Kunda (1999) coined as 'hot cognition' or social cognition that is influenced by emotions and affect. For example, research has shown that positive affective states are related to more risky decision-making (e.g., Fedorikhin and Cole 2004). Negative affective states are related to depressive rumination (Nolen-Hoeksema et al. 1993). There are also certain advantages to being in positive or negative affective states. Taylor and Brown (1988) have argued that a positive affective state is typical of 'normal' functioning, in which people who have positive illusions regarding themselves tend to be over-optimistic about the

future, tend to see themselves as more positive, and have illusions of control. These positive illusions are self-serving and are more typical among nondepressed people. There are also positive aspects of being in a negative affective state, such that those in such a state are less influenced by positive illusions and tend to be more accurate regarding judgments of themselves (Taylor and Brown 1988).

The media's influence on affective states

Many factors can influence affective and emotional states, including the mass media. In fact, influencing emotions and affect may be the most typical effect of the media. Media are designed to influence emotions, and consumers desire to be affected (cf. Zillmann this volume). The proof of this is simply that when people are not affected emotionally by a movie, show, or video game, they call it 'boring.'

Research has shown that television, music, movies, and video games all have the ability to alter one's affective state. For example, it is likely that the dominant effect of music is to enhance or alter affective states (Roberts et al. 2003), and even infants as young as nine months old can reliably discriminate between happy and sad music (Flom et al. 2008). In a review, Konijn (2008) suggests that affect and emotions are related to a variety of media formats (e.g., internet, news), because, as Kunda (1999) suggested, affect will influence one's information-processing ability.

The boundaries between affect, mood, and emotion are complex to define. Measures such as the Positive and Negative Affect Schedule (Watson et al. 1988) claim to measure global positive and negative affect, but ask questions regarding specific emotional states (ten positive and ten negative) that are summed together to create positive and negative affect scores. We believe that certain valenced emotional states should make up global positive and negative affect, as Watson et al. (1988) have suggested, but we believe that specific emotional states may be related to specific factors rather than global positive and negative affect. For instance, the conception of global negative affect included aggressive emotions (e.g., hostility, frustration, and irritability), along with fear and sadness. Instead of combining them into one global negative affective category, these emotional states are likely to be qualitatively distinct. When analyzing the influence of specific types of mass media stimuli on emotions, mood, and affect, we suspect that the effects will be different at certain levels of analysis. For instance, violent media should be related to specific emotional states (e.g., hostility) and more specific affective states (e.g., aggressive affect), whereas, we do not know if violent media exposure should be related to global negative affect. Because this construct consists of aggressive and sad emotions, they may statistically cancel each other out (increase in aggressive emotions and a decrease in sad emotions after violent media exposure). We present data that offer some support for this prediction later in this chapter. Predicting emotional responses is even more complicated when one realizes that although violent media exposure may increase specific negative emotions such as hostility, they may also simultaneously increase general positive emotions if, for example, watching a violent film was seen as relaxing or enjoyable.

Global affective states and the mass media

The mass media can be used to create many different emotional and affective states. For instance, many researchers have used movie clips or television clips to successfully

manipulate affect. Fedorikhin and Cole (2004) used the comedy *Tommy Boy* to manipulate positive affect, whereas sad movies have been used to create negative affective states (McIntosh et al. 2001). Consistent with theories conceptualizing positive and negative affect on the same continuum, such comical or sad movies typically increase one type of affect while decrease the other type of global affect. For instance, showing the last ten minutes of the movie *Champ* is successful at increasing negative affect and decreasing positive affect from baseline (Gross and Levenson 1995). Consistent with the Evaluative Space Model, research has shown that certain movies can induce both happy and sad emotions at the same time. Larsen et al. (2001) had participants view clips from the movie *Life is Beautiful*. This movie depicts the Holocaust in Europe (thus possibly inducing sad emotions), but is comical (thus possibly inducing happy emotions). Findings showed that participants reported feeling more sad and happy after viewing the movie, suggesting that certain mass media formats have the ability to influence multiple emotional and perhaps even affective states at the same time (Larsen et al. 2001; cf. Oliver and Woolley this volume).

The research discussed above has suggested that emotional changes are one effect of the media; however, as previously argued, people may also select the mass media to reach certain goals. This can be predicted by the uses and gratifications model (Rubin 1994, 2002), which posits that media viewers are active in their choice of which media to view. The choice is based on motivational and goal-directed variables that predict when certain people choose which media to experience. For instance, different motivations and goals will be applied in the decision to see a horror film rather than a comedy at the movie theater. The uses and gratifications paradigm has generated several research studies about why people view certain types of mass media (e.g., McIlwraith 1998). Sherry et al. (2004) have found, for example, that people play video games because they are enjoyable, fun, and challenging. Thus, this theory would predict that people watch comedy movies to either match or enhance their positive affect, or watch violent movies in order to feel suspense and arousal. Certainly, there are individual differences that also predict who will see what movies (e.g., males preferring frightening movies; Cantor 2002), and Rubin (1994, 2002) argues that when given a choice between different types of media that compete for one's attention, people will seek out the media that gratifies their immediate needs, desires, and goals the most.

Specific affective states and the mass media

Measuring media's influence on global positive and negative affect may be attenuated by aggregating emotional items that are conceptually distinct (e.g., summing hostile and sad). A discussion of specific affective states is warranted, but we discuss only those specific affective states that have received the most empirical attention: afraid and negativity affect. We define specific affective states as comprising emotions and mood (such as global affect), but specific affective states are composed of more closely knit emotions and fall in between emotional states and global affect.

Afraid affect

The emotions of scared, nervous, afraid, and jittery should all correlate together to produce the specific afraid affective factor. These emotions are important in

considering why people experience fear in relation to certain mass media. Research has demonstrated that a fear response is one major effect of viewing media violence (see Cantor 2002 for review; also Cantor this volume), but other media can also elicit fear. To explain what factors increase feeling afraid from the media, Cantor (2002) took a stimulus generalization approach and concluded that there are three classes of stimuli that can produce fear. These include distortions of natural forms (individuals who have been mutilated or have other physical anomalies, such as zombies), dangers and injuries, and experiencing the endangerment and fear of others, which are typically found in horror films. Specifically focusing on the two latter classes of stimuli, one can extrapolate these findings to other stimuli besides horror films to describe how other types of mass media can elicit fear, such as the news. The news shows images and reports of very scary issues that can affect everybody, such as the possibility of war, people losing their jobs due to recession, and various crimes (e.g., murder, kidnapping, and others). Cantor and Nathanson (1996) showed that 37 percent of sampled children have been made afraid by stories in the news, which often included wars and famines, violence between strangers, and natural disasters. Thus, news stories clearly show possible dangers and injuries as well as the endangerment and fear of others. Valkenburg et al. (2000) argued that as children develop, they are less frightened by fantasy-based scary media depictions (e.g., monsters), but more scared of realistic fright depictions, such as war and suffering. Their data confirm such an assertion, but also show that cognitive reassurance (a form of re-appraisal) is the coping mechanism most used when viewing frightening media.

Specific negativity affect

This type of specific affect consists of emotions related to hostility, irritability, feeling upset, guilty, and ashamed. Clearly, the first two emotions are related to aggressive affect, and research has shown that aggressive affect is a predictor of aggressive behavior (defined as behavior intending to harm another who is motivated to avoid that harm; Anderson and Bushman 2001). The General Aggression Model (GAM; Bushman and Anderson 2002) explicitly states the importance of aggressive affect and emotions in relation to aggressive behavior. The proximate GAM posits that person variables (e.g., gender) and immediate situations variables (e.g., exposure to real or media violence) will interact to influence one's internal state, which consists of physiological arousal, aggressive cognitions, and aggressive affect. These variables are all predicted to be correlated with one another. These internal state variables influence one's appraisal and decision processes to determine behavior. Aggressive affect is just one route to aggressive behavior, but an important one. Viewing violent media may increase feelings of hostility (along with arousal and aggressive cognitions) to increase the probability of aggressive behavior.

State hostility influenced by violent media exposure is not expected to last long, because it is an emotion, and by definition emotions are short-lasting (Gross 1998). Thus, state hostility may increase after violent media exposure, and that heightened hostility is likely to return to baseline fairly shortly after the television or radio is turned off. This is consistent with the definition of an emotion, but the distal version of GAM posits that continued exposure to media violence is related to a variety of variables, including desensitization (Anderson and Bushman 2001),

defined as 'a reduction in emotion-related physiological reactivity to real violence' (Carnagey et al. 2007: 490). Thus, continued media violence exposure is related to the decrease in the emotional experience of seeing continued violence, gore, and blood. Desensitization is important because if seeing further violence is not related to feeling scared or disgusted, then this may be related to subsequent aggressive behavior (see Carnagey et al. 2007).

Media violence exposure has both intended and unintended consequences. Namely, we propose that people view media violence to satisfy some need (via the uses and gratifications paradigm), such that the media are entertaining or may give them a sense of control, which is a positive and intended consequence. Hostility and other emotional states associated with aggression are also increased, which is probably an unintended negative consequence. Thus, media violence is related to positive emotions as well as hostile ones, but these emotional states do not cancel each other out. Thus, the risk of aggressive behavior is increased when aggressive feelings are experienced, even if media violence viewers are experiencing enjoyment or a sense of control.

Aggressive emotions (or cognitions or arousal) are not a sufficient condition for aggressive behavior; however, such emotions are one possible risk factor for aggressive behavior. Gentile and Sesma (2003) posited that the probability of behaving aggressively is best described with a risk factor approach. A risk factor is any variable that increases the likelihood of aggressive behavior. The more risk factors that are present additively predict when someone will behave aggressively. Anderson et al. (2007) found that the prediction equation for behaving aggressively was more accurate as the number of risk factors increased, and when five risk factors were present (being male, high video game violence exposure, prior fights, having a hostile attribution bias, and having low parental monitoring), the probability of behaving aggressively increased to 84 percent (compared to 16 percent for children with none of those risk factors). Aggressive emotions stemming from media violence exposure is one risk factor. The GAM predicts that aggressive emotions are correlated with aggressive cognitions and arousal, which are also risk factors.

Media violence exposure and aggressive emotions

The GAM posits that media violence is a risk factor for aggressive behavior because it can increase aggression-related emotions, physiological arousal, and aggressive cognitions. The types of state emotions affected by media violence may include anger, frustration, and hostility. The GAM also predicts that repeated exposure to aggression-related variables will be related to long-term personality changes, such as the formation and access of aggressive attitudes (see Anderson and Carnagey 2004).

As an example, studies of violent video game exposure have found relations with aggressive emotions in short-term experimental studies, cross-sectional studies, and meta-analytic reviews. The experimental literature focusing on media violence and aggressive emotions has typically shown that those who are randomly assigned to a media violence condition have higher aggressive emotions compared to those who are assigned to the control condition(s). For example, Anderson and Carnagey (2009) found that participants who played a violent sports video game had higher levels of aggravation and mean emotions than those who played a nonviolent sports game. Research has also found that violent video game play is related to aggressive

emotions during violent shooter game (Barlett et al. 2007) and violent driving game play (Carnagey and Anderson 2005). Overall, this suggests a causal relation between media violence exposure and aggressive emotions.

Although cross-sectional studies cannot make causal inferences regarding relations like true experiments can, we argue that correlational research designs are important for understanding complex relations between variables of interest. Regarding the relation between video game violence exposure and aggressive attitudes, research has shown significant positive relations with trait anger (Bartholow et al. 2005), trait hostility (Gentile et al. 2004), and attitudes toward war (Anderson et al. 2007). These relations tend to remain even after statistically controlling for other theoretically relevant variables, such as sex and real-life violence exposure (e.g., Funk et al. 2004).

Properly conducted meta-analyses are important for the area of violent media exposure and aggressive emotions because they a) allow for a test of the difference between violent and nonviolent media on aggressive emotions, b) allow a test for any moderating variables in the relation between media violence exposure and aggressive emotions, and c) objectively summarize the literature, unlike narrative literature reviews. Bushman and Huesmann (2006) found that the relation between media violence exposure and aggressive affect was significant and positive ($r = .27$, 95 percent CI: .24 to .30). Specific to violent video game exposure, Anderson (2004) found a significant positive relation between video game violence exposure and aggressive affect ($r = .21$), especially when the studies were the best quality (see also Anderson and Bushman 2001). This suggests that when effect sizes from the primary literature are statistically aggregated, a positive relation between media violence exposure and aggressive affect remains.

Despite the wealth of research on violent video game exposure and aggressive emotions, there has not been much research on the effect that violent video game play has on changes in global affective, specific affective, or emotional states other than aggression-related emotions. Thus, although the following study will test for changes in aggressive emotions (i.e., hostility), we will also test for changes in positive and negative affect, other specific affective states, and other nonaggression related emotions (e.g., excitement). Furthermore, we are unaware of any published research examining the effect that difficulty in these games has on these variables. The level of difficulty in a video game has a possible interactive effect with game play for global affect, specific affect, and emotions. Past literature has demonstrated that when a particular task is easy to complete, there is more positive affect than if that task is difficult to complete (Besser et al. 2004; Rohrkemper 1986). At a theoretical level, it is important to determine if the difficulty in the violent video game is going to attenuate any aggressive emotion relations, and/or if very difficult violent video game play may enhance the aggressive emotion effect.

Overview of the study

One aspect that distinguishes the Evaluative Space Model from the Circumplex Model is the ability to explain how a stimulus can alter multiple affective and emotional states at the same time. This poses a very interesting issue for media researchers. For instance, people will often report that they play violent video games

because they are fun and it makes them feel excited and happy (e.g., Sherry et al. 2004), but they could also increase aggressive emotions (e.g., Anderson 2004). Participants may experience both positive and aggressive emotions after video game play. Previous research has found that video games can influence multiple affective states, but did not test for emotional states. Fleming and Rickwood (2001) found that violent video game play, nonviolent video game play, and a paper–pencil game were all related to positive affect, suggesting that these types of games are fun and challenging, which can alter positive affect.

The current study was conducted to explore the relations between violent video game play and global affective, specific affective, and emotional states. We measured positive and negative emotions simultaneously in response to video games, which allowed us to test whether games influenced different emotional and affective states. We also tested whether the Circumplex or Evaluative Space Model best explain the data, or if these two theories can explain the findings at different levels of analysis (emotions compared to global affect). Theoretically, we would expect changes in emotions and affective states as a function of any media format (e.g., video games, television); however, we chose to use video games for this study for three reasons. First, there is little research on video game exposure and global positive and negative affect. Second, the researchers could easily manipulate certain aspects of the game that have been shown to be related to emotions (e.g., difficulty). Third, the task is ecologically valid as many people play video games.

Since the research objective of the current study was to investigate the possible interaction between video game play and difficulty of the game, the analyses are organized into testing global affective changes, specific affective changes, and emotional changes. We hypothesize a significant interaction between amount of video game play and difficulty for global affect, specific affective states, and certain emotions. Specifically those who play the video game on the easiest difficulty level will have significantly higher levels of positive affect, specific affective states regarding positivity (e.g., attention and arousal), and emotions related to positivity (e.g., strong), because the player will be constantly reinforced and rewarded with continued success in the game. But, because the game is violent, we also posit that specific negative emotions (e.g., hostility) will be heightened. Note that we do not predict that violent video game play will be related to global negative affect, because the computation of this variable includes items that are related to being hostile, afraid, and sad, and the video games selected for this study should not induce such broad affective states or emotions.

Method

Participants

Only participants with complete data were included in this study. There were 104 students (61 male) from a large Midwestern university who participated in the current study for partial course credit for their psychology classes. The average age for this sample was 19.46 (SD = 3.17) years. The majority of participants were freshman and sophomore in undergraduate courses (88.5 percent). There was 91 percent who were Caucasian.

Materials

Two questionnaires were used in the current study. The first was a demographic questionnaire that assessed age, sex, year in school, and ethnicity. The second was the Positive Affect Negative Affect Schedule (PANAS; Watson et al. 1988), which measures global positive and negative affect. This scale consists of twenty single adjective items and asks participants to indicate how they feel right now using a 1 (Not at all) to 5 (Extremely) response scale. Ten items are positive (e.g., enthusiastic, proud, strong) and ten were negative (e.g., hostile, jittery, afraid), which were summed together to produce a measure of global positive and negative affect. Because we were interested in specific affective factors that consist of various emotions, a principal components factor analysis with Varimax rotation was conducted on Time 1 PANAS items. Results showed that six, rather than two, factors emerged that accounted for 71.38 percent of the variance. The first factor was a Negativity Factor including the items upset, guilty, hostile, irritable, and ashamed. The second factor was an Afraid Factor consisting of scared, nervous, jittery, and afraid. The third factor was an Aroused Factor consisting of interested, excited, and enthusiastic. The fourth factor was an Attention Factor consisting of alert, attentive, and active. The fifth factor was a Strong Factor consisting of strong, proud, inspired, and determined. Finally, the sixth factor consisted of only one item (distressed). Thus, we moved this item to the Afraid Factor. Items were summed for each factor, such that higher scores indicated higher levels of that particular construct. Overall, the PANAS provides information at three levels: emotional states (analysis of each individual item), specific affective states (analysis of the summation of certain emotional states), and global affective states (analysis of the summation of all positive emotional items and negative emotional items).

Two violent video games were used. The first was *Mortal Kombat: Deadly Alliance* for the PlayStation 2. This is a violent fighter game in which players choose one fighter to beat up their opponents. The second violent game was *Time Crisis 3* for the PlayStation 2. This is a violent shooter game in which participants are special police officers who have to kill enemy soldiers. These games were selected because both games allowed the researcher to manipulate the difficulty level of the game. Recall that we predicted that the difficulty may attenuate positive emotional and affective consequences of video game play or enhance them, depending on the dependent variable of interest. Also, because both games were violent, we could test whether violent media can elicit both positive (e.g., fun) and negative (e.g., hostile) emotional states at the same time.

Because there may be significant individual differences between people's initial emotional states and their reactions to stimuli, we deemed it appropriate to put all of the participants in a similar affective and emotional state prior to any experimental manipulation. To accomplish this goal, all participants viewed the last 15 minutes of the movie *Champ*. This scene depicts a boxer who just won a boxing fight, but has sustained enough injury to kill him. The boxer says his last words to his little son (about four years old) who is crying and telling others in the room to 'wake him up.' The scene ends with the little boy and the other adults in the room crying at the bedside of the fallen boxer. This short clip was selected because it has been shown to be a negative affect-inducing video (Gross and Levenson 1995), but can also influence specific negative emotions, such as sadness (Hemenover et al. 2008).

Procedure

Upon completion of the informed consent, participants completed the PANAS to assess baseline affect. Then, all participants viewed the *Champ* and completed the PANAS to see if the video was successful at increasing global negative and decreasing global positive affect. Recall that this video was used only as an emotional manipulation to put participants in a similar emotional state prior to video game play. Because the items on the PANAS are emotion items that are summed to create a global affective index, we deemed it appropriate to measure global affect, rather than specific emotional states. Participants then played one of the two games on either the novice or expert difficulty levels for 15 minutes and then completed the post-game PANAS and the demographic questionnaire. Finally, all participants were shown a 10 minute clip of *National Lampoon's Christmas Vacation* in order to induce positive affect prior to being debriefed and leaving.

Results

Manipulation check

In order to check if the *Champ* decreased positive affect and increased negative affect, multiple one-way repeated measures analyses of variance (ANOVAs) were conducted. Table 4.1 shows the means and standard deviations for any global affective change,

Table 4.1 Means and standard deviations for each factor over time

Factor	Item	Baseline	Post-Champ	Post-Game
Global NA		13.38 (4.17)	15.05 (4.87)	14.65 (4.89)
Negativity		6.17 (2.41)	7.57 (2.74)	7.61 (3.27)
	Hostile	1.14 (.51)	1.27 (.69)	1.77 (1.06)
	Upset	1.22 (.64)	2.08 (1.00)	1.57 (.99)
	Guilty	1.22 (.67)	1.32 (.74)	1.23 (.67)
	Irritable	1.47 (.78)	1.61 (.74)	1.70 (1.02)
	Ashamed	1.13 (.48)	1.29 (.76)	1.34 (.91)
Afraid		7.20 (2.47)	7.48 (2.57)	7.04 (2.42)
	Scared	1.17 (.51)	1.23 (.65)	1.15 (.51)
	Nervous	1.58 (.85)	1.32 (.58)	1.35 (1.13)
	Jittery	1.79 (1.00)	1.64 (.87)	1.65 (.97)
	Afraid	1.11 (.39)	1.39 (.81)	1.09 (.40)
	Distressed	1.56 (.76)	1.89 (.99)	1.81 (.98)
Global PA		27.33 (6.32)	22.52 (6.58)	26.75 (7.95)
Strong		10.10 (3.34)	8.33 (3.42)	9.17 (3.48)
	Strong	2.66 (1.02)	2.17 (1.05)	2.56 (1.13)
	Proud	2.59 (1.09)	1.92 (1.07)	2.16 (1.12)
	Inspired	2.15 (.97)	2.03 (1.03)	1.70 (.94)
	Determined	2.70 (1.22)	2.20 (1.18)	2.75 (1.21)
Attention		8.85 (2.38)	7.48 (2.42)	9.39 (2.84)
	Alert	2.96 (1.04)	2.71 (1.02)	3.29 (1.18)
	Attentive	3.19 (.90)	2.68 (1.04)	3.17 (1.09)
Aroused		8.39 (2.12)	6.72 (2.16)	8.19 (2.88)
	Interested	3.29 (.76)	2.81 (.92)	2.91 (1.06)
	Excited	2.47 (.87)	2.02 (.91)	2.82 (1.14)
	Enthusiastic	2.63 (.95)	1.89 (.94)	2.47 (1.08)

Table 4.2 Correlations between the specific affective variables at Time 3

	1	2	3	4	5
1 Strong	—				
2 Attention	.61**	—			
3 Aroused	.61**	.66**	—		
4 Afraid	.20*	.14	.16	—	
5 Negativity	-.04	.03	-.18	.46**	—
Mean	9.21	9.41	8.23	7.09	7.61
StDev	3.50	2.83	2.89	2.45	3.25

* $p < .05$, ** $p < .01$

The correlation between PA and NA at Time 3 was .05 ($p > .05$).

specific affect change, and individual emotional changes. Please note that these descriptive statistics refer to the entire sample. Results showed that there was a significant increase in global negative affect, $F(1,102) = 16.62$, $p < .001$, *partial* $\eta^2 = .14$, from baseline ($M = 13.38$, $SD = 4.17$) to post-video viewing ($M = 15.05$, $SD = 4.87$), and a significant decrease in global positive affect, $F(1,102) = 90.54$, $p < .001$, *partial* $\eta^2 = .47$, from baseline ($M = 27.33$, $SD = 6.31$) to post-video viewing ($M = 22.52$, $SD = 6.58$).

Correlations between variables

Table 4.2 displays the correlations between the specific emotional states and Table 4.3 shows the correlations between the individual PANAS items (conceptualized as emotions for this study) at Time 3. These correlations are for the entire sample. The correlation between positive and negative global affect did not reach significance. Results for the specific affective states showed that aroused affect, strong affect, and attention affect significantly correlated with one another, while scared and negativity were correlated with one another, as expected. Results from the emotion items showed that, for the most part, the emotional states that are conceptualized as 'positive' were correlated with one another. For instance, the emotional state of interested was significantly positively correlated with excited, strong, enthusiastic, alert, inspired, determined, attentive, and active. Also, 'negative' emotional terms tended to be correlated with one another. For instance, hostility was positively correlated with irritable, ashamed, jittery, distressed, upset, and scared.

Global affective consequences of video game play

To determine whether violent video game play influences global affective responses, two 2 (time: Time 2, Time 3) X 2 (difficulty of game: novice, expert) mixed ANOVAs with global positive and negative affect as the dependent variables were conducted. Results showed a significant main effect of time for positive affect, $F(1,102) = 29.14$, $p < .001$, *partial* $\eta^2 = .22$, such that there was an increase in positive affect from Time 2 ($M = 22.56$, $SD = 6.57$) to Time 3 ($M = 26.86$, $SD = 7.99$). However, this was qualified by a significant time X difficulty interaction, $F(1,102) = 5.28$, $p < .03$, *partial* $\eta^2 = .05$. A simple effects analysis showed a significant increase in positive affect for both the novice ($F(1,102) = 30.20$, $p < .001$) and expert ($F(1,102) = 4.71$, $p < .05$) difficulty levels; however, examination of the means showed a greater increase in positive affect from Time 2 ($M = 21.92$, $SD = 6.50$) to Time 3 ($M = 27.96$, $SD = 8.15$) for those in the

Table 4.3 Correlations between emotional states at Time 3

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	—																		
2	.12	—																	
3	.68**	-.06	—																
4	-.02	.65**	-.19	—															
5	.32**	-.08	.47**	-.19	—														
6	-.33**	.11	-.27**	.27**	-.10	—													
7	-.12	.04	-.004	-.02	.01	.40**	—												
8	-.03	.35**	.10	.22*	.14	.15	.30**	—											
9	.64**	-.04	.67**	-.15	.47**	-.26**	-.05	.04	—										
10	.41**	-.11	.51**	-.24*	.56**	-.23*	-.01	.08	.53**	—									
11	-.17	.42**	-.16	.43**	-.20*	.37**	.10*	.37**	-.16	-.20*	—								
12	.49**	.08	.48**	-.06	.37**	-.03	.21*	.04	.50**	.34**	.05	—							
13	-.07	.27**	-.16	.53**	.10	.56**	.32	.32	.002	-.20*	.43**	.13	—						
14	.29**	-.06	.32**	-.09	.50**	-.11	.03	.17	.40**	.39**	-.11	.31**	.05	—					
15	.06	.15	.16	-.01	.13	.01	.42**	.21*	.18	.03	.00	.15	.12	.23*	—				
16	.44**	.15	.49**	.06	.55**	-.07	.12	.22*	.46**	.55**	.04	.51**	.22*	.45**	.15	—			
17	.52**	.09	.38**	.02	.41**	-.05	.09	.003	.51**	.37**	-.03	.70**	.15	.33**	-.01	.53**	—		
18	.17	.21*	.29**	.15	.19	.16	.31**	.26**	.17	.03	.28**	.20*	.22*	.22*	.12	.25*	.13	—	
19	.46**	.02	.48**	-.05	.49**	-.15	-.15	.11	.54**	.39**	-.08	.47**	.11	.33**	.10	.40**	.46**	.02	—
20	-.03	.02	.06	-.04	.17	-.08	.23**	.10	.09	.05	-.02	.02	.02	.33**	.46**	.11	.004	.01	-.07

* $p < .05$, ** $p < .01$

1 = interested, 2 = distressed, 3 = excited, 4 = upset, 5 = strong, 6 = guilty, 7 = scared, 8 = hostile, 9 = enthusiastic, 10 = proud, 11 = irritable, 12 = alert, 13 = ashamed, 14 = inspired, 15 = nervous, 16 = determined, 17 = attentive, 18 = jittery, 19 = active, 20 = afraid.

Note: $N = 104$ for all correlations and each item is on a 1–5 rating scale.

novice condition compared to those in the expert condition ($M = 23.27, SD = 6.65, M = 25.71, SD = 7.74$). There were no significant main effects or interactions regarding the global negative affect change.

The nonsignificant change in negative affect after video game play makes sense, because global negative affect comprises factors related to hostility, sadness, and fear. Theoretically, these violent games should increase hostility and should be unrelated to sadness or fear because these games were not scary or sad. Thus, the emotional states that make up global negative affect may statistically cancel each other out or add error by including theoretically distinct constructs in one measure.

Specific affective states

In order to determine if specific affect changed as a function of game play and difficulty level, multiple 2 (time: Time 2, Time 3) X 2 (difficulty of game: novice, expert) mixed ANOVAs were conducted on each of the specific affective factors from the factor analysis. Results showed a significant time X difficulty level interaction for the Negativity Factor, $F(1,102) = 4.79, p < .04, partial \eta^2 = .05$, in which there was a decrease from Time 2 ($M = 7.83, SD = 2.58$) to Time 3 ($M = 7.32, SD = 2.89$) for those in the novice condition, but an increase in negativity from Time 2 ($M = 7.29, SD = 2.86$) to Time 3 ($M = 7.90, SD = 3.59$) for those in the expert condition. A simple effects analysis showed that the changes in time as a function of difficulty were not statistically significant ($F_s < 3, p_s > .05$), despite the significant interaction (see Figure 4.1). There was also a significant time X difficulty interaction, $F(1,102) = 6.75, p < .02, partial \eta^2 = .06$, for the Strong Factor. A simple effects analysis revealed only a significant change for those in the novice condition ($F(1,102) = 13.14, p < .001$), in which there was an increase in scores from Time 2 ($M = 8.21, SD = 3.48$) to Time 3

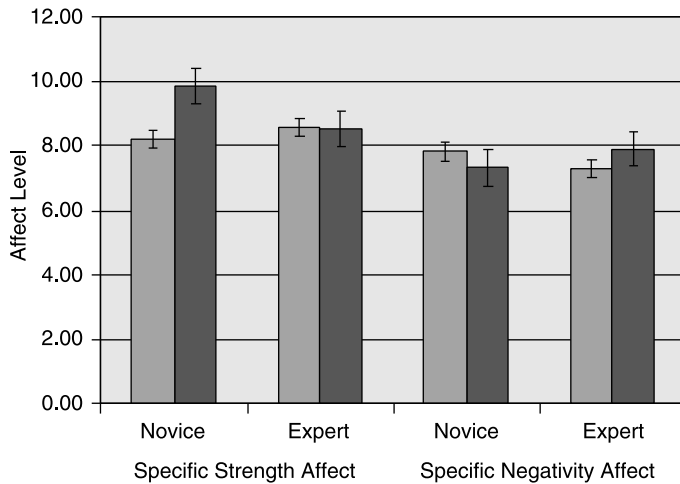


Figure 4.1 Significant interactions between time and difficulty for negativity and strength affect. Note: Light gray bars represent Time 2, whereas dark gray bars represent Time 3. Bars represent one standard error from the population mean. Although the interactions for the specific strength factor and the specific negativity factor were significant, only the difference between Time 2 and Time 3 for the novice condition for the specific strength factor was significant.

($M = 9.87$, $SD = 3.67$) but no significant change from Time 2 ($M = 8.57$, $SD = 3.44$) to Time 3 ($M = 8.53$, $SD = 3.20$) in the expert condition. None of the other specific affective scores produced the predicted time X difficulty interactions.

Emotional consequences of video game play

Recall that we hypothesized that video game play and the difficulty of the game would interact to change emotional states. The previous analyses explored global and specific affective changes in regard to violent video game play and difficulty of the game. Therefore, the next set of analyses tested the hypothesis that violent video game play would interact with difficulty of the game to influence specific emotions, rather than the super-ordinate affective variables made up of these emotion items. We targeted specific theoretically relevant individual items from the PANAS to assess any change in specific emotional states. These included 'hostility,' 'strong,' 'exciting,' and 'afraid.' The first variable analyzed was hostility (related to negativity) using a 2 (time) X 2 (difficulty) mixed ANOVA. Results showed a significant main effect of time, $F(1,102) = 28.17$, $p < .001$, $partial \eta^2 = .21$, such that there was an increase in hostility from pre-game ($M = 1.27$, $SD = .69$) to post-game play ($M = 1.77$, $SD = 1.05$). The second emotional variable was feelings of strength (related to positivity). Results showed a significant main effect of time, $F(1,102) = 14.00$, $p < .001$, $partial \eta^2 = .12$. There was an increase in the 'strong' emotional item from pre-game ($M = 2.20$, $SD = 1.08$) to post-game ($M = 2.58$, $SD = 1.14$).

The third emotional variable was excitement and results showed a significant main effect of time, $F(1,102) = 34.41$, $p < .001$, $partial \eta^2 = .25$; however, that was qualified by a significant time X difficulty interaction, $F(1,102) = 5.20$, $p < .03$, $partial \eta^2 = .05$. A simple effects analysis showed significant changes for those in the novice ($F(1,102) = 33.82$, $p < .001$) and expert conditions ($F(1,102) = 6.31$, $p < .02$); however, examination of the means showed that a higher increase in excitement from pre-game ($M = 1.85$, $SD = .89$) to post-game ($M = 2.96$, $SD = 1.13$) for those in the novice condition, compared to the increase in excitement from pre-game ($M = 2.20$, $SD = .89$) to post-game ($M = 2.69$, $SD = 1.14$) for those in expert condition. The emotional experience of feeling afraid significantly decreased, $F(1,102) = 12.92$, $p < .01$, $partial \eta^2 = .11$, from pre-game ($M = 1.39$, $SD = .81$) to post-game ($M = 1.10$, $SD = .41$). No other main effects or interactions involving these variables were significant.

Discussion

Overall, the results seem to suggest that video game play can change emotional and affective states after being placed in a global negative affective state. Simply playing a violent video game and the difficulty of that video game both make a difference in changing certain emotional and affective states. However, it appears as though the level of analysis makes an impact on how video game play is related to affective and emotional states. Specifically, results show that violent video game play can change emotional states that are generally termed as positive (e.g., strong, excited) and negative (e.g., hostile, afraid) simultaneously. Similar findings were reported for specific affective states associated with global negative affect (e.g., specific negativity affect) and positive affect (e.g., specific strength affect). Violent video game play changed global positive, but not global negative affect. Theoretically, the Evaluative Space

Model can explain the findings when applied to all three levels, but the Circumplex Model can only explain the global positive and negative affect findings. Perhaps the PANAS is useful at providing data at multiple levels of analysis: global affect, specific affective states, and emotional states. These three distinctions are not isomorphic with the differences between affect and emotion, but the data do suggest that the mass media can influence people at multiple levels of emotion and affect simultaneously.

The current study only used the PANAS to assess global affect, specific affect, and emotional states, and did not include frustration or anger as specific emotional items. We did measure the emotion of hostility, which we predict is strongly related to anger. In the video game violence literature, most studies that assess aggressive emotions measure hostility rather than anger (e.g., Carnagey and Anderson 2005), suggesting that hostility may be a better indicator of aggressive affect in GAM than state anger; however, we expect a high degree of colinearity between anger and hostility. Due to the interactive nature of video games, they have the ability to elicit feelings of frustration, which is related to aggressive behavior (see Dill and Anderson 1995). Bartholow et al. (2005) found that performance (an indicator of frustration) did not mediate the relation of video game content and aggressive behavior, suggesting that even while controlling for frustration, video game content still predicted aggressive behavior. Also, frustration should be related to feelings of anger and hostility. Therefore, although we did not measure frustration or anger in the current study, past research and the results of the current study would suggest that trends in the data would be similar to that of the hostility findings.

One interesting finding in the current study was that global positive affect was changed as a function of video game play, whereas global negative affect was not changed. Furthermore, the specific negativity affective state did change along with the specific strong affective state. Although this may seem like contradictory results, we argue that this is predicted based on how global and specific affective states are computed. We argue that negative affect should not change because the computation using the PANAS involves summing emotional items that are vastly different from one another (albeit 'negative'), such as hostility, sadness, and fear, whereas different positive states are not as distinct. When the factor analysis was computed and the emotion items were partitioned to load onto specific factors, this grouped more similar items together, and the results were that the specific negativity affective state did change as a function of game play, while global negative affect did not. Furthermore, certain emotional items (e.g., hostility) increased over time, while others (e.g., afraid) decreased over time. This suggests that researchers need to be careful in their measurement techniques and carefully define what constructs they are measuring, because it is clear that how affective and emotional states are defined is going to make a significant difference.

Conclusion and suggestions for future research

This chapter sought to suggest how media are related to global affect, specific affective factors, and emotions while relying on theory from both the communication field (e.g., uses and gratifications) and the social psychological field in terms of affect, emotions, and aggression. We also tested how the mass media could be related to both affective and emotional consequences using two different theories of affect, finding that the Evaluative Space Model appears to fit the data at all three

levels of analysis whereas the Circumplex Model fits the data at only one level of analysis.

Results from our analysis seem to suggest that the mass media are very powerful at changing global affect, specific affective states, and emotional states, including altering multiple emotions simultaneously. We analyzed the factor structure of the PANAS and found that rather than loading onto two global positive and negative affect factors, the items loaded onto five specific affective states. This suggests that emotions may be related to global positive and negative affect, but through these specific affective states.

The media have the ability to elicit multiple affective and emotional states simultaneously, and these emotional and affective states may often appear to be opposite of each other. Nonetheless, the different models at different levels of analysis regarding affect and emotions warrants future research, as does the role of physiological arousal at each stage. Arousal is an important variable when considering affective and emotional states. Research has shown a positive correlation between negative affect and arousal and a negative correlation between positive affect and arousal (Reich and Zautra 2002). Research has also shown that the mass media can influence physiological arousal (see Bushman and Huesmann 2006). Therefore, arousal is one variable that both media exposure and affect share, suggesting that future studies examining the relation between media exposure and affective or emotional states should measure physiological arousal and statistically control for this variable and see if the aforementioned relation remains significant.

A second area of future research is the longevity of emotional and affective states. Research is just beginning to look at the 'affective chronometry' (Hemenover 2003) of affect and emotions (see also Ahn et al. this volume). Emotions are defined as being short-lasting, but potentially intense, and affect is defined as long-lasting and not as intense. The literature has shown that global affective changes and longevity related to the mass media tend to be long-lasting. Hemenover (2003), in three studies, exposed participants to a set of positive affect-inducing video clips (mostly comedies), negative affect-inducing clips (disgusting movie clips or clips about a serial killer), or neutral clips (discussion of the future of internet technology), and measured global positive and negative affect using the PANAS before and after the affect induction, and a third time after a short writing task (for Studies 2 and 3 only). This latter affect assessment was 20 minutes after video induction. Results showed that this type of media did significantly change affect, such that exposure to the positive affect-inducing clips significantly increased positive affect and decreased negative affect, whereas the negative affect-inducing clips produced the opposite effect. Interestingly, global negative and positive affect had not returned to baseline after 20 minutes, but this was moderated by the type of movie clips viewed and personality traits (e.g., neuroticism and extraversion). For instance, participants (in Study 2) had an increase in positive affect after viewing the comedies, but then a decrease after the 20 minute writing task. Participants who viewed the negative affect-inducing video clips had a decrease in positive affect that remained stable even after the 20 minute writing task. This suggests that viewing certain mass media clips is sufficient to alter negative affect that remains changed even after 20 minutes. Although this described effect was replicated in Hemenover's study (Study 3), future work needs to continue to investigate how long affective and emotional experiences last from the mass media, what individual differences either moderate

or mediate this relationship, if the effect is different for global positive and negative affect and emotional states, and what specific types of media will have a long-lasting versus short-lasting longevity.

Third, the boundaries between emotions, moods, and affect are very thin, but analysis of these constructs yields different results. This is further compounded by the interchangeability of these terms in the literature. For instance, the use of the movie *Champ* has been coined a mood manipulation, but was tested using the PANAS, an affect measure that seems to measure state emotion. We think that researchers would benefit from increased clarity about the emotions, moods, or affect they are manipulating and measuring because that could affect the results.

Finally, our study focused on the reactive nature of emotions. This is only one aspect of the relation between the mass media and emotional experiences. Another aspect is the motivational and functional nature of emotions, which likely have a role in media choice and effects. Our data speak partially to this, because we manipulated mood by showing people a sad movie clip, any increases in positive affect or positive emotions after video game play can be seen as a method for repairing those negative feelings from the movie. These data lend some support to the claim that video games can be used to improve negative moods, although there was no nongame (control) condition. Furthermore, we did not ask participants to choose the game they wanted to play. Future research should add this latter suggestion to their procedures and see if, in fact, people select different types of games or other media to play to put them in more positive emotional states after being sad as well as measuring how effective different types are at improving mood. This study does, however, help to resolve one argument that is often heard about violent video games – some people claim that playing violent games helps them to ‘relax’ and feel better, whereas others claim that playing violent games will instead increase aggressive emotions. This study demonstrates that both claims may be correct. Notice, however, that neither side debates whether media influence emotions.

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5 The measurement of positive and negative affect in media research

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Emotion is a hot topic in media research (Detenber and Reeves 1996; A. Lang et al. 1999; Lee and Lang 2009; Konijn and ten Holt this volume; Monahan 1995; Nabi 1998; Nabi et al. 2008; Newhagen 1998; Oliver et al. 2000). Clearly a great many, if not most, media messages contain emotional content and elicit emotional experiences in media users. Both the presence of emotion in messages (A. Lang et al. 1995; Nabi 1998) and the experience of emotion (Monahan 1995; Newhagen 1998) in users have been shown to have profound effects on many aspects of online message processing and subsequent related behavior (Calder and Gruder 1989; Isen 1989; also Gratch this volume). However, despite the ubiquitous nature of emotion as a content feature and emotion as a dependent variable, there has been remarkably little discussion or standardization of the concept or its measurement in our field. As a result, it is difficult to draw broad conclusions about the role of emotion in mediated content. In this chapter, we will explore methodological issues involved with both emotion as a content feature of the message and measuring emotion as a reaction to media messages.

This problem is intensified by a lack of clarity about whether emotion is something which exists in messages irrespective of the responses of message users. In other words, can we conceptualize emotion as a stimulus feature or does emotion reside only in people and is it best thought of as a response to, not a property of, media? Both types of research exist in our field, though a clear distinction is not made between the two approaches. In this chapter, we will discuss theoretical and measurement approaches to emotion that treat emotion both as a property of a message and as a response to a message.

The goal of this chapter is to provide an overview to the study of emotion within mediated contexts. First, we will consider approaches to the study of emotion as a property of the media message. Second, the chapter will focus on measuring emotion as a response to a media message. Self-report, behavioral, and physiological measures of emotion will be presented and strengths and limitations of the various approaches will be discussed.

Emotion as a stimulus property

A great deal of media research has been designed to look at the effects of emotional messages (Chock et al. 2007; A. Lang 2006; A. Lang et al. 2007). Research done from this perspective considers emotion to be a property of the message. The presence of some kind of emotion in the message is thought to elicit some kind of

response in the media user, though not necessarily an emotional response. The focus is on the presence of emotion or emotional content within the message. Research taking this perspective has categorized emotion in various ways. For example, in the 1980s Esther Thorson and her colleagues thought about messages as being neutral, positive, negative, and poignant (Friestad and Thorson 1986; Reeves et al. 1989; Thorson 1989; Thorson and Friestad 1984). Neutral messages were those which contained little if any emotional content. Positive messages contained primarily positive images and events. Negative messages contained primarily negative images and events. Poignant messages were a mix of positive and negative images and events. Generally these included messages which began positive and ended up negative or started negative and ended up positive.

At the same time, other researchers were considering stimulus emotion as more of a dichotomous variable and comparing emotional messages to something else. That something else was sometimes called rational messages, sometimes neutral, and sometimes simply not emotional. An example of research within this tradition is research on fear appeals where messages are constructed that contain certain elements (the severity of the threat, vulnerability to the threat, visceral images) and messages with these elements are assumed to elicit fear and messages lacking these elements are considered neutral and operate as the control message (c.f. Nabi et al. 2008; Ewoldsen et al. 2004). However, all types of emotions were included in the emotional category.

Somewhat later, dimensional approaches to emotion were used to categorize emotional stimuli in terms of valence (how negative or positive a message was) and arousal (the level of excitement in the message) (Bradley et al. 1992; Bradley and Lang 2000; Grabe et al. 2000; A. Lang et al. 2004; A. Lang et al. 2007; P.J. Lang et al. 1996; Greenwald et al. 1988; P.J. Lang et al. 1993; Potter, and Lang 1996; Potter et al. 2000). This group of researchers was highly influenced by the work of Peter Lang who developed the International Affect the Picture Show (IAPS) to provide researchers with a standardized set of emotional stimuli (Bradley and Lang 2007; Bradley et al. 1992; Bradley and Lang 2000; P. Lang 1984; P.J. Lang et al. 1996; Greenwald et al. 1988). The IAPS consists of several hundred still images which have been rated by large groups of people in multiple countries to provide normative rating of valence and arousal. The IAPS is available on request from the NIMH Center for Research on Emotion and Attention (CSEA) (<http://csea.php.ufl.edu/Media.html>) and provides a standardized set of emotional stimuli to facilitate cross laboratory collaboration and comparison. Lang and his group also developed sets of normed sounds, words, and text vignettes (also available from the CSEA).

Many researchers have followed this procedure to develop specific sets of emotional mediated stimuli (Bolls et al. 2001; Grabe et al. 2000; Yoon et al. 1998). That is, researchers have selected a group of pretest stimuli they think contain emotions of interest (conceptualized both as specific emotions such as fear, disgust, and joy (Lee and Lang 2009) or as points within the valence by arousing content emotional space) and had groups of participants rate those messages using specific emotion scales or dimensional emotion rating tools. Generally, this research has used summative ratings provided at the end of a message to describe the emotional content of the message. However, in recent years some researchers have begun to use continuous response measures (Biocca et al. 1994) to rate either the specific content of

a message over time (Lee and Lang 2009), or to rate its dimensions over time (Wang et al. in press).

More recently, some researchers have begun making distinctions between what is actually in the message and the average feeling experienced by a group of participants. Specifically, some kinds of content have the property of being emotional even if an individual looking at them does not report feeling an emotion. In other words, if you use the experience of the viewer as a determinant of message content, then all the other variables that make any given message unique combine with the emotional content to provide the final emotional rating which is then given to the message. This may make it difficult to separate the influence of structural and production features of the message from the presence of inherently emotional content.

Thus, some recent research has provided an operational definition of emotional content and had coders code for the presence or absence of emotional content (Kang et al. 2006; Strasser et al. 2009). For example, Lang et al. (2006, 2007) have used the following coding definitions based on a dimensional approach to emotion. Messages are coded as containing positive emotional content if they contain expressions of positive emotion (e.g., laughing, smiling), positive locations and things (e.g., beautiful beaches, cute puppies, food), and positive events and actions (e.g., sex, birthday parties, winning). Messages are coded as containing negative emotional content if they contain expressions of negative emotion (e.g., crying, moaning, screaming), negative locations and things (e.g., cemeteries, prison, disgusting objects, blood, gore), and negative events and actions (e.g., funerals, fighting, arguing). Messages are coded as low, medium, or high in arousing content based on the coders' judgment of the extent to which the emotional content is intense, exciting, and deals with serious and/or imminent threats or opportunities.

Emotion as a response

It is fair to say that mass media research has been more interested in the effects of emotional media on outcome variables not related to emotion. In other words, media researchers have not spent a great deal of time measuring emotional responses to emotional media content. Indeed, it is often the case that the measure of emotional response is simply a manipulation check to demonstrate that the presumably emotional media stimulus elicited the emotion it was meant to elicit before demonstrating its effect on something such as memory (Newhagen 1998), persuasion (Lang and Yegiyan 2008), behavior (Kirby 2006; Will et al. 2009) and so forth. More recently, however, researchers interested in message processing, enjoyment, entertainment, narrative, and various other approaches to studying media have become more interested in measuring the level and types of emotion experienced by mediated users during media use.

In psychology, on the other hand, researchers have spent a fair amount of time trying to measure the experience of emotion, and the measurement of emotion in humans has a long history (Coan and Allen 2007). The tools used to measure emotion are tightly linked to the theoretical conceptualization of emotion. There are two primary theoretical approaches to emotion in psychology today, the dimensional approach, already discussed above, and the specific emotion approach. Though the tools researchers use in these differing perspective views vary, the types of data which they consult do not. Lang (1979) argued that there are three primary

data sets of emotion: experiential, physiological, and behavioral. He suggested that these three data sets would provide different types of information about emotional experience and that when examined together they provide the richest and most comprehensive measurement and description of emotional responses. Experiential data is provided primarily through participants' self-report. While this kind of measurement has all of the general concerns associated with self-report data (willingness and ability of the subject to provide accurate information), only the person experiencing the emotion can tell you about that experience. Perhaps it is something of a philosophical question to ask if a person who demonstrates behavioral and physiological correlates of emotion but claims to not feel the emotion is actually in an emotional state. And yet, when measuring emotional responses, this is an important question. If the different data sets of emotions provide different answers about a person's emotional response does one give priority to one type of data over another or does one consider the responses to be fundamentally different?

Experiential measures of emotion

Most of the research on emotion in communication relies on self-report measures of emotion. Again, there are different measures depending on whether researchers take the specific or dimensional view of emotion. These measures will be discussed separately because they make distinct assumptions about the nature of emotions. It is important to note that research on the development of scales to measure emotion is comparatively speaking a fairly new enterprise – really only extending back to the late 1960s (Watson and Clark 1997). While this may seem like a long time, scale development in many other domains such as attitudes goes back to the 1920s and innovations in the measurement of attitudes still occur and controversies still emerge over the measurement of attitudes (Fazio and Olson 2003). The development of measures of emotions is not in its infancy, but characterizing it as in its adolescence may be accurate. Consequently, there should continue to be major developments in the measurement of emotions rather than a fine-tuning of the existing measures.

Dimensional measures of experiential emotion. The most widely used dimensional measure of emotional experience is SAM, the Self-Assessment Manikin. SAM is a pictorial scale which measures the three primary dimensions of emotional experience: valence, arousal, and dominance. All three scales show five images of a computer-generated humanoid whose facial and bodily features change to express visible variation in the three dimensions of emotion. On the valence scale, the leftmost Sam is frowning, his eyes are drooping and he is very sad. The rightmost Sam is smiling, his eyes are wide open and he is very happy. The middle Sam has a straight across mouth and neutral eyes. The arousal scale ranges from a Sam with his eyes closed and a small dot in his tummy to a Sam with his eyes wide open and lightning exploding out of his tummy. The dominance scale ranges from a very small Sam to a very large one. For all three scales, participants can put an X on any one of the Sam figures or in the spaces between the five figures. This produces a nine point scale. These measures have been validated in multiple countries and with children (Bradley and Lang 2007).

Recently, A. Lang et al. have developed a slightly different version of Sam which measures positivity and negativity separately rather than using a single bipolar

valence scale (A. Lang et al. 2007; A. Lang et al. 2005). The original Sam pictures are used, with three pictures for each scale and two spaces in between which produces two five-point scales: one going from neutral Sam to happy Sam and one going from neutral Sam to sad Sam. This change reflects the assumption that positive and negative affect are independent dimensions of emotion instead of two ends of a continuum (A. Lang et al. 2007). Still other researchers have simply used bipolar scales anchored by happy and sad, or positive and negative to measure the valence dimension of emotional experience.

The other dominant self-report measure of the dimensions of emotions is the Positive and Negative Affect Schedule (PANAS). The PANAS was originally developed by Watson et al. (1988). The early dimensional model of emotion was the circumplex model (Russell 1980). The circumplex model had a Pleasure–Displeasure dimension and an Arousal–Sleep dimension. However, the PANAS is based on Watson and Tellegen’s (1985) dimensional model of emotion which, like the Circumplex Model, also argues for two dimension but maintains that one dimension is positive affect and the second dimension is negative affect. Arousal is incorporated into these two dimensions. Specifically, both dimensions range from a lack of arousal to high arousal. For example, the positive affect dimension ranges from lethargy to highly enthusiastic and happy. Likewise, the negative affect dimension ranges from calmness to arousing negative affect such as anger or fear (Watson et al. 1988).

The PANAS is a twenty-item scale. The Positive Affect (PA) scale includes ten items (active, attentive, alert, determined, enthusiastic, excited, inspired, interested, proud, and strong). The Negative affect (NA) scale also includes ten items (afraid, ashamed, distressed, guilty, hostile, irritable, jittery, nervous, scared, and upset) (Watson et al. 1988). Participants rate how much they are experiencing each emotion on a 1 (very slightly or not at all) to 5 (extremely) scale. The scale can be used with a variety of time frames ranging from ‘at this moment’ to ‘in the past year’ (Watson 1988; Watson et al. 1988). The scales generally have high internal reliability (alphas > .90). Likewise, both the PA and NA subscales having good test–retest reliability with *rs* ranging from .39 to .71 after eight weeks depending on the time frame for measuring the mood (e.g., what mood you are feeling at this moment to during the past year). The PANAS has also been demonstrated to be a reliable measure of emotions in adolescents (Huebner and Dew 1995).

Several variations of the PANAS have been developed. The PANAS-C is a version of the PANAS for younger children (Laurent et al. 1999). The PANAS-C has twenty-seven items and has been found to be a reliable measure of emotion in children as young as fourth grade. A ten-item short form of the PANAS has also been developed and validated (Mackinnon et al. 1999). Finally, a ten-item international version of the PANAS (I-PANAS-SF) has also been created (Thompson 2007). Specifically, through a series of studies, Thompson (2007) identified those ten emotion words from the original PANAS that translated across cultures most consistently.

Numerous validation studies have been conducted with the PANAS (see Gray and Watson 2007; Watson and Clark 1997 for reviews). Generally, research has supported the appropriateness of the PANAS for measuring emotion, but one lingering controversy over the PANAS resolves around the independence of positive and negative affect. The PANAS is based on the assumption that positive and negative

affect are independent (see Huebner and Dew 1995; Watson and Clark 1997), but many researchers reject this assumption and some research challenges the independence of positive and negative affect as measured by the PANAS (Crawford and Henry 2004).

Both the SAM and the PANAS are well accepted scales. The SAM is faster to complete, but which scale is used should reflect the assumptions the researcher makes about emotion. The original version of the SAM should be used if positive and negative affect are not assumed to be independent. If positive and negative affect are assumed to be independent, then either the PANAS or the modified SAM can be used. However, if the research wants to consider arousal as separate from affect, then the SAM should be used because the PANAS does not measure arousal separately from affect.

Specific emotion experiential measures. Different ways have been developed to measure discrete emotions. Probably the most common is simply to present participants with a Likert-type scale and have them rate the degree to which they are experiencing a particular emotion (e.g., anger, fear, happiness, surprise). For example, participants will be asked to rate 'To what degree were you experiencing fright while watching the film clip using the following 1 (not at all) to 5 (very intense) scale.' Sometimes researchers will use a single item (e.g., fright). But using a single item to measure a construct is problematic because the internal reliability of the measure cannot be established. More often, researchers will use multiple items to measure the specific emotion with the advantage that multiple items will typically result in a more reliable measure of the underlying construct and the internal reliability of the scale can be assessed.

While having participants rate their reactions using adjectives related to the emotion using Likert scales is easy, the problem with this technique is that the validity of the items for measuring the specific emotion is rarely established beyond simple face validity. In addition, this procedure makes it difficult to compare the results of different studies because different researchers will use different stems to rate the same emotions. Consequently, the degree to which the same emotion is actually being measured may be suspect (Watson and Clark 1997). However, there have been a number of scales developed to measure specific emotions. Discussing all of these various scales is beyond the scope of this chapter. However, we will review two of the more popular scales – the Multiple Affect Adjective Check List and the Profile of Mood States (Gray and Watson 2007)

One of the earliest scales developed to measure discrete emotions was the Multiple Affect Adjective Check List (MAACL). The scale was initially developed by Zuckerman (1960) to measure anxiety. Subsequent reiterations of the scale have expanded the number of discrete emotional states that it measures to include depression and hostility (Zuckerman et al. 1964). Later the scale was further expanded to include a general positive affect subscale and a sensation seeking subscale (Lubin et al. 1986; Zuckerman 1990; Zuckerman et al. 1983; Zuckerman et al. 1986).

As the name suggests, the original checklist provided a series of adjectives and participants simply checked those adjectives that described their current emotional state. For example, some of the items that indicated depression include the following adjectives: alone, hopeless, blue, sad, tormented, and wilted. Some of the items that indicated a person was not depressed include the following adjectives: glad, interested, merry, active, and young. The MAACL includes a total of twenty depres-

sion items (labeled positive items) and twenty items indicating a person was not depressed (labeled negative items). A participant's depression score is simply the number of positive items the participant checks (items indicating depression) minus the number of negative items the participant checks (items indicating the person is not depressed). A person's score could range from 20 (checked all of the positive (depressed) items and none of the negative (not depressed) items) to minus 20 (checked none of the positive (depressed) items and all of the negative (not depressed) items). The intensity of the emotion is determined by the absolute value of the participant's score. The use of the checklist procedure resulted in a scale that is quickly administered. Of course, it is possible to use the checklist using scales (e.g., 0 not at all to 5 extremely) to indicate the intensity of each reaction (Lubin et al. 1986; Zuckerman et al. 1983), but the scale was not designed to be used in that way.

The MAACL has been used in numerous studies and has been extensively validated. Interestingly, validation studies for the MAACL included participants' reactions to films (Zuckerman et al. 1964). However, the MAACL was designed to measure a very minimal number of emotions. But the procedures that Zuckerman and his colleagues used to create the scales for hostility, depression, and so forth could be used to create scales for other emotions such as disgust or fear. However, one of the shortcomings of the scale is that the measures of different affects correlate fairly highly with each other (r s from .40 and higher) which suggests the scale is not adequately discriminating between the different emotions.

The Profile of Mood States (POMS) is another early scale that was developed to measure discrete emotions (Spielberger 1970). The original scale consists of sixty-five adjectives related to various mood states. However, briefer versions of the scale have been developed which contain thirty-seven (Shacham 1983), thirty (the POMS-B; Yeun and Shin-Park 2006), or twenty-four items (the POMS-A; Terry et al. 1999; Terry et al. 2003). The shorter versions of the POMS have been found to have equivalent reliability to the original version of the POMS (Shacham 1983; Terry et al. 1999). Any version of the scale is completed quickly with the original scale taking between five and seven minutes and the shorter versions about half that time. Participants indicate how intensely they are feeling (or have recently felt) that mood using a five-point scale ranging from 'not at all' to 'extremely' (Nyenhuis et al. 1999; Spielberger 1970). The scale was designed to measure depression/rejection, anger/hostility, vigor/activity, fatigue/inertia, and confusion/bewilderment. The validity and reliability of the scale has been widely tested and the results indicate the various versions of the scale are both reliable and valid (Spielberger 1970; Nyenhuis et al. 1999) for testing emotions in clinical populations as well as the elderly (Nyenhuis et al. 1999) and adolescents (Terry et al. 1999). As with the MAACL, one problem with the POMS is the high degree of covariation between the different subscales. The six subscales of the POMS are highly correlated with each other (Spielberger 1970).

One of the problems with many of the scales that have been developed to measure discrete emotions is that they were developed by psychologists who were concerned with studying clinical populations (Boyle 1987). While the scales are typically validated with nonclinical samples as well as clinical samples (Boyle 1987; Lubin et al. 1986; Spielberger 1970; Zuckerman et al. 1964), the scales predominantly measure negative emotions because of the focus on clinical issues. This is

true of both the MAACL and the POMS. Consequently, there is little differentiation between various positive emotions on these scales and certain positive emotions are ignored such as surprise. Of course, this also reflects the generally held assumption that there are more negative emotions than positive emotions.

There are several additional issues related to measures of discrete emotions. First, one of the arguments for discrete models of emotion is that similarly valenced emotions such as anger and fear have different eliciting conditions (Ortony et al. 1988). Fear is elicited by the belief that an undesirable event is going to possibly occur. The intensity of the fear reaction is driven by how undesirable the event is and the judgment of how likely the undesirable event is to happen. Conversely, anger is a response to the judgment that someone else's (person B) actions has in some way hurt the individual (person A). The intensity of the anger response is driven by how much person A is hurt, the degree to which the other person (person B) is judged to be at fault for causing the undesirable outcome and the degree to which person B is violating person A's expectations about the person (Ortony et al. 1988). To adequately test discrete models of emotion, research should measure the emotion as well as whether the eliciting conditions for the emotion are met. For example, a scholar may want to know if the evening news elicited anger in research participants because the news contains information that in some way signals a harm to the participant (e.g., raising tuition). In that case, the researcher should measure the degree of anger watching the show elicits, as well as the degree of harm tuition increases would cause the participant, and whether the participant judges the TV programming as responsible for the tuition increases (e.g., because of past editorials). Some studies on fear appeals will measure the eliciting conditions for the fear (e.g., the severity of the threat and the likelihood the threat will occur), but generally media scholars are not measuring the eliciting conditions for the various emotions. Yet, a complete test of the discrete models of emotion would seem to demand that the eliciting conditions be measured as well.

Another issue facing research on discrete emotions concerns which emotions to measure. Standard practice has been to measure the target emotion and no other emotions (Dillard and Nabi 2006). Yet, a message can elicit more than a single emotion response as research on emotional reactions to Public Service Announcements (PSAs) has demonstrated (Dillard et al. 1996). In a study of PSAs designed to elicit fear, Dillard et al. (1996) found that over 90 percent of these PSAs elicited more than one type of emotional response (e.g., fear and sadness). Of course, this result also raises the issue of whether the PSAs were eliciting multiple emotional reactions or whether the strong relationships among the various emotional reactions that were elicited is evidence for dimensional views of emotion. As noted earlier, one of the problems found with established scales for measuring discrete emotions is the high degree of covariation found between the different subscales which is a pattern that Dillard et al. (1996) encountered as well. Evidence of strong correlations between various measures of discrete emotions is often interpreted as more consistent with the continuous models of emotion than discrete models of emotion (Gray and Watson 2007; Watson and Clark 1997).

Brief self-report measures of emotion. Media researchers may be concerned with measuring emotional reactions during the film as well as at the end of a film. For example, when studying suspense, researchers may want to know how much suspense the research participant is experiencing at various points during the film.

Unfortunately, most self-report measures are poorly designed for this purpose. For example, if the MAACL or the PANAS were used, participants would either have to reconstruct the emotion they were feeling at a certain point in the film (e.g., what were you feeling right before the criminal is apprehended?) with the potential difficulties that result from retrospective reports of emotion. Otherwise, the film has to be stopped and the measures completed at the critical point in the film which may confound reports of emotion at later points in the film. Fortunately, procedures exist for the continuous measure of emotions.

The affective rating dial was developed to allow for continuous self-reports of a person's emotional responses (Gottman and Levenson 1985; Ruef and Levenson 2007). The original apparatus involved a dial with a nine-point scale ranging from very negative to very positive. The two extreme values were 180 degrees apart on the dial and a tick appearing every 22.5 degrees between the two endpoints. Participants are instructed to turn the dial along the scale to reflect the emotion they are experience at that point and to move the dial as their emotions change. The computer records where the dial is pointing at preset intervals such as every 100 milliseconds. Of course, other set ups for the dial are possible. For example, Fredrickson and Kahneman (1993) had the dial connected to lights that appeared above the screen participants were watching with fifteen different colored lights corresponding to different emotional reactions so that participants had visual feedback corresponding to the emotion they indicated they were feeling without having to look down to the dial (seven green lights corresponded to degrees of positive emotion, seven red lights corresponded to degrees of negative emotion and a yellow light between the green and red lights represented neutral emotion). Detailed procedures for constructing a dial can be found in Ruef and Levenson (2007).

This procedure has successfully been used to measure continuous emotional responses to a number of different types of stimuli included recordings of the research participant in a discussion with another person such as a spouse (Gottman and Levenson 1985) as well as participants' emotional reactions to short film clips (Fredrickson and Kahneman 1993; Tsai et al. 2000; Mauss et al. 2005). The type of rating that participants provide can easily be varied with instructions. For example, instead of indicating how positive or negative their reactions were to a film, participants could easily rate how aroused they felt at any point in time as well as unipolar measures of how positive or negative they felt (Wang et al. in press). However, one major limitation of this procedure beyond acquiring the equipment and programming the computer to record the data is that participants can only make one type of judgment at a time. For instance, it is doubtful participants could meaningfully operate two dials at a time with one measuring positive and negative reactions and the other measuring their degree of arousal. In addition, there is a risk that the continuous measurement of the emotion changes the participants' viewing experience.

While not a continuous measure of emotional responding, single-item grid measures allow for rapid assessments of more complex emotional reactions. For example, Russell et al. (1989) developed what they labeled the *affective grid* – a 9 × 9 grid for measuring the valence and arousal of the emotional response. The nine columns of the grid represent the intensity of participants' valenced response ranging from *extremely unpleasant* (leftmost column) to *extremely pleasant* (rightmost column) with the middle column representing a neutral response. The nine rows represent participants degree of arousal ranging from *extremely sleepy* (bottom row) to *extremely high*

arousal (top row). In this scheme, the top left square in the grid would correspond to stress (extremely unpleasant and extremely high arousal), the top right square would correspond to excitement (extremely pleasant and extremely high arousal), the bottom left box would be depression (extremely unpleasant and extremely sleepy) and the bottom right box would correspond to relaxation (extremely pleasant and extremely sleepy). The instructions for the task are lengthy, but Russell et al. (1989) provide evidence of the reliability of the scale for measuring both of these dimensions of emotion. The scale can be computerized and it could be programmed to appear at critical times during a film clip for participants to complete with minimal disruption of the viewing experience. Likewise, Larsen et al. (2009) have developed a similar measure – the *evaluative space grid* – for measuring unipolar positive and negative responses simultaneously. The evaluative space grid is a 5×5 grid with the columns representing positive feelings ranging from ‘not at all’ (leftmost column) to ‘extremely’ (rightmost column) and the rows represent negative feelings again ranging from ‘not at all’ (bottom row) to ‘extremely’ (top row). The bottom left box represents the absence of both positive and negative feelings. The top left box represents simultaneous extreme positive and extreme negative feelings. Larsen et al. (2009) demonstrated that a computerized version of the evaluative space grid can be used as a continuous measure of emotion with readings occurring every 100 milliseconds to record where participants place the computer mouse on the grid (Study 2).

At this point, neither the affective grid or the evaluative space grid have been used in research involving the media so whether these measures will work well with media messages is an open question. However, either of these scales would almost certainly be less disruptive of an ongoing viewing experience than more traditional measures of discrete emotions.

Behavioral measures of emotion

Behavioral measures of emotion involve measuring various overt behaviors that are related to emotion. These types of measures are by far the least utilized measures of emotion in media research. While it is rare to find behavioral measures of any kind in media research, this is particularly true of research on media and emotion.

However, this does not mean that there are no studies that have measured emotional behavior nor does this lack of research mean that behavior should not be measured in media research. An example of research that has productively employed behavioral measures is the research on children’s fright reactions to media portrayals. Children’s fright reactions to media are prevalent and they can have long-term behavioral consequences (Cantor 2002; Cantor this volume; Harrison and Cantor 1999; Hoekstra et al. 1999). For example, young children are likely to use behavioral coping strategies when frightened by the media such as hugging a blanket or stuffed animal or closing their eyes (Cantor 2002; Wilson 1989). Likewise, research on the long-term consequences of fright reactions found that people behaviorally avoid situations or locations related to the media content that caused the fright reaction such as avoiding swimming after see the movie *Jaws* (Harrison and Cantor 1999).

Another approach to studying behavioral reactions to media depictions involves coding viewers’ facial reactions to different media fare. By far the most developed

procedure to measuring facial reactions is the Facial Action Coding System (FACS) (Cohn et al. 2007). Rather than measuring the inferred emotional reaction a viewer is having based on the viewer's facial expressions, the FACS codes facial behaviors that may be tied to different emotions, but without drawing inferences about the actual emotion that is experienced (Ekman et al. 2002). Specifically, the FACS focuses on changes in the musculature of the face and coding changes in the face that result from using different facial muscles. Consequently, the FACS relies on the anatomy of the face to understand how various emotions are manifested behaviorally on the face rather than inferences about emotional states.

To use the FACS, researchers might videotape viewers' faces while watching a TV show and then code the tape utilizing the FACS's coding scheme. The FACS codes forty-six different action units (AU). Each action unit focuses on a facial muscle or a group of muscles that influence how the face appears. For example, there are AUs for inner eyebrow raising (AU 1), outer eyebrow raising (AU 2), and eyebrow lowering. There are a total of forty-six single AUs in the coding scheme. In addition, there are fourteen codes for the posture of the head and head movement because these have been found to aid in the differentiation of various emotional experiences (Cohn et al. 2007).

One of the drawbacks of the FACS is that it is a very time-consuming system. Utilizing the entire coding scheme can involve a 100 minutes of coding time to analyze a single minute of real time (Cohn et al. 2007). However, the system is flexible and researchers do not need to code all forty-six AUs if they have specific hypothesis they are testing. Likewise, researchers will sometimes code groups of AU that have been shown to correspond to particular emotional reactions (Ekman et al. 2002; Sayette et al. 2001).

Research has found that the coding scheme tends to be reliable (Sayette et al. 2001). However, there is a fair degree of variability across the different codes so researchers should report the reliability for each coder for each of the action units rather than report an aggregate reliability. Also, the size of the individual units of time being coded by the coder influences the reliability of the coding. The reliabilities are lower, though generally still acceptable, when an AU is coded each 1/30 of a second compared to coding each half-second (Sayette et al. 2001).

The FACS was initially developed in 1978 and has gone through two sets of refinements. The most recent redevelopment of the FACS was in 2002 and it resulted in changes in some of the scoring and training procedures included in the FACS. Interested researchers should use the 2002 version of the FACS and they should be aware that the training time is quite lengthy. It typically, takes about 100 hours of study and practice to become a reliable FACS coder. FACS certification, through testing, is available (Cohn et al. 2007). Recently, automatic applications of the FACS have been developed (see Ahn et al. this volume).

Physiological measures of emotion

There is a long history of looking for relationships between physiological states and emotional experiences. Since the beginning of psychology as a field of study there has been debate about whether automatic physiological responses to stimuli and events lead to the experience of emotion or if the experience of emotion creates the physiological response. This long-standing debate translated into a great deal of research in

the 1970s and 1980s which attempted to answer the question which comes first, cognition or emotion. Decades of research trying to answer this question has succeeded in experimentally demonstrating the modulation of physiological reflexes in response to emotional and cognitive stimuli at least as early as 50 ms after stimulus onset (P.J. Lang et al. 1997). These kinds of data suggest that there are automatic physiological and neurological responses to emotional stimuli occurring and feeding back onto one another before conscious thought. Consequently, current approaches suggest that thinking is emotional and that emotion is thoughtful and the question of which comes first is not an appropriate or useful question (cf. Konijn and ten Holt this volume). Instead, research has been focusing on identifying the major physiological correlates of emotion (Caccioppo et al. 2000). The vast majority of psychophysiological research on emotion takes a dimensional approach. This is because the dimensional approach to emotion theorizes that emotional experience is related to underlying activation in the appetitive and aversive motivational systems. Thus, activation in the appetitive (approach) motivational system is thought to be associated with positive emotional experience while activation in the aversive motivational system is thought to be associated with negative emotional experience (Caccioppo and Gardner 1999; Caccioppo et al. 1999). Based on this approach, certain physiological measures are thought to be primarily associated with the valence dimension of emotion while other measures are thought to be indicators of the arousal dimension. Currently, there are no reliable physiological correlates of the dominance dimension of emotion.

Indicators of valence

Facial EMG Activation in the facial musculature associated with facial expression have been shown to be correlated with self-reported positive and negative emotional experience (Bolls et al. 2001). There are three muscle groups generally used in indicators of emotional valence. The corrugator supercili muscle group, located on the forehead just to the inside of the eyebrows, serves to knit the brow or pull the eyebrows together and tends to activate when people are frowning. Numerous studies have shown viewing and listening to negative emotional stimuli elicits increases in activation in this muscle group. In addition, viewing positive emotional stimuli can actually lead to an inhibition of activation in this muscle, when compared to the level of activation seen during neutral emotional stimuli. Thus, measuring corrugator activation can provide indications of both positive and negative emotional experience.

Similarly, activation in the zygomatic major muscle, located on each side of the mouth, and used to draw the lips upward when smiling, has been shown to be associated with self-reported positive emotional experience when viewing positive media stimuli.

Finally, activation in the orbicularis oculi, a muscle which surrounds the eye and causes the eye to close when blinking, is also associated with positive emotional experience. Indeed, activation in this muscle can discriminate between 'real' smiles and fake ones.

Heart rate

In some circumstances, heart rate is shown to discriminate between positive, negative, and neutral messages. However, the type of stimulus seems to be an important

factor in whether or not heart rate consistently discriminates valence (Bradley and Lang 2000, 1994). In psychological research, using short (6 seconds), static stimuli (primarily still pictures from the IAPS), a different pattern of heart rate response is seen for positive, negative, and neutral images. Specifically, heart rate decelerates for negative pictures decelerates and then accelerates for positive pictures, and is in the middle for neutral pictures (Nadorff et al. 2007). However, in experiments using television and radio messages which are 30 seconds or longer in length, heart rate has not generally been shown to clearly discriminate between positive and negative messages.

Startle

The startle reflex is an automatic physiological response to a sudden, very short rise time stimulus. One component of the startle reflex is the automatic eyeblink. Research is shown that the size of that eyeblink, elicited by a burst of white noise, is modulated by emotional content of a mediated stimulus (P.J. Lang et al. 1990). To measure the startle, participants view or listen to mediated stimuli (still pictures, television messages, audio messages). From time to time a short burst of white noise is heard over headphones. This stimulus elicits the startle reflex and electrodes are used to measure the size of the eye blink. When viewing negative emotional messages, startle reflex are larger than those elicited while viewing neutral messages. Startles elicited while viewing positive emotional messages are smaller than those elicited while viewing neutral messages.

Post-auricular reflex

The post-auricular reflex, also elicited by a no rise time burst of white noise, is also modulated by mediated emotional stimuli (Sparks and Lang In press). Recent research suggests that the Post auricular reflex is facilitated (or larger) when elicited during arousing positive messages compared to neutral, calm positive, and all negative messages. There is no evidence of the post auricular reflex being inhibited during negative messages.

Indicators of arousal

Skin conductance is one of the primary physiological indicators of arousal. Skin conductance is collected by passing a small current across the palm of the hand. The level of the eccrine sweat glands, which is controlled by activation in the sympathetic nervous system, modulates the speed with which the current is conducted across the palm of the hand. Therefore, higher skin conductance is an indicator of increased sympathetic nervous system activation. Within subject correlations between skin conductance and self-reported arousal when viewing emotional stimuli are extremely high. Skin conductance level has been shown to be related to self-reported arousal when using many media including television, radio, still images, video games, and web content (A. Lang et al. 2002; Schneider et al. 2004; Wise et al. 2008).

Other physiological responses including fMRI and heart rate variability are beginning to be used to study emotional responses to media messages (Koruth et al.

2007; Langleben et al. 2009; Lee et al. 2008). However, the direction and strength of the correlation between any given psychophysiological response and experiential emotion or message emotional content are context specific. As each measure is applied to a new medium, or a new measurement paradigm, initial studies must be done to determine whether the correlation between the emotional aspect being manipulated or measured and the psychophysiological response being measured are the same in the new context and with the new medium as has been previously reported in the literature.

Conclusion

Emotion is a critical component in the quest to understand mediated message processing and how messages in the media influence people's thoughts, feelings, and behavior. Despite the fact that we are all intimately familiar with emotions, as a scientific concept its multiple definitions, theoretical perspectives, and measurement possibilities result in a somewhat fractured body of empirical results on which to build that better understanding. In this chapter, we have summarized the major ways in which emotion as a reaction to a mediated message is measured, including self-report, behavioral, and physiological measures. All three levels of measurement are critical if theorizing about media and emotion is going to make important contributions to our understanding of human behavior and the dynamic relationship between media and emotion.

We started this chapter by considering emotion as something that resides within a message and how this is measured. We believe this is an important distinction and more attention needs to focus on measuring emotion as a feature of a message. As the field moves forward, it needs to carefully separate the presence of emotional content in messages – that is, emotion as a message *feature* from emotional responses in message users. One way to do that may be by bringing together work from the dimensional approach and from the specific emotion approach in future research. One recent study (Lee and Lang 2009) tries to do just that by reconceptualizing specific emotions, based on the conceptual definitions provided by that theoretical approach, as various combinations of repetitive and aversive activation. This reconceptualization was then tested by examining messages which contained four specific emotions as message features (joy, anger, sadness, and fear) and measuring physiological responses as indicators of appetitive and aversive activation. This study generally supported the hypothesis that responses to fear messages (interpreted as message induced fear) resulted in strong aversive activation and virtually no appetitive activation. Responses to joy messages were strongly appetitive without an aversive component. Responses to anger messages were coactive showing physiological indications of both appetitive and aversive activation. Finally, responses to sad messages showed only weak activation in the aversive motivational system.

The strength of bringing these approaches together is that the specific emotion approach is strongly focused on the self-report data set and how emotions are perceived and experienced. This approach foregrounds the experience of emotion in the mind. On the other hand, the dimensional approach is more focused on and constrained by physiological and biological responses and architecture known to be associated with emotion. Given that we know both media use and responses to media use exist at the interaction of the lived experience in the mind and the

limitations imposed upon that experience by the physical body and brain, the melding of these two approaches can only provide a more nuanced and complete understanding of how emotions in messages influence emotions in media users.

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Part II

The entertaining experiences of emotions through mass media

6 Mechanisms of emotional reactivity to media entertainments

Dolf Zillmann

This chapter commences with a critical examination of proposals seeking to explain emotions from witnessing dramatic events, proposals that hitherto were treated as truisms. First addressed is the question of why real emotions can be evoked by events that are known to be unreal. The question is answered by literally reversing the established view. Second, the Freudian adage that emotions arise from identification with others is scrutinized and its untenability elaborated. A new conceptualization of emotional reactivity by immersion in media environments is then developed. This conceptualization entails empathy as an essential emotion-eliciting mechanism. Most importantly, however, it also presents the mechanisms that render empathy defunct and actually instigate counter-empathic, hostile emotions. A paradigm is detailed that makes positive as well as negative emotional reactivity dependent on the development of affective dispositions toward persons and that shows the development of these dispositions to depend, in turn, on moral appraisals. Several research demonstrations are discussed in support of this paradigm, and a larger body of pertinent research is indicated. Additionally, attention is given to the phenomenon of emotional intensity. A model is presented to explain interdependencies between emotional reactions that, especially in information-dense media contexts, are triggered in rapid succession. Finally, persisting uncertainties in our understanding of emotional reactivity to media environments are discussed, and avenues for future exploration are sketched.

Emotions in response to apparent realities that are recognized as unreal

At one time or another, if not routinely, we all have been emotionally roused by media presentations. News revelations of others' ruin and grief may have choked us to tears, sports spectacles may have sparked ecstatic jubilation, and musical performances may have removed noxious stress and replaced it with pleasant excitement. But perhaps first and foremost, uncounted imaginative tales about the struggle between good and evil have let us travel the rollercoaster of love and hate, hope and fear, delight and despair, not to mention a multitude of more temperate sensations. The extraordinary thing is that we all have been captivated and stirred to the core by stories that, upon reflection, cannot possibly be construed as veridical accounts of actual happenings. How can the depiction of patently make-believe events exert such power over our emotions? Oddly, many of those who ventured to answer this question were left bewildered and concluded that the evocation of emotion by fictional narratives eludes compelling rational explanation.

The film scholar Holland (2003), in examining why people respond to fictional events as though they were real, provided a telling illustration. He detailed how, during exposure to the motion picture *Love Story*, he and the rest of the movie audience wept uncontrollably when the college girl Jenny Cavaleri died of leukemia. He then raised the question why he and the others cared, as much as they apparently did, about the plight of a fabricated creature, invented by a writer, played by a healthy actress, recorded by an intrusive camera, and projected onto a screen as a fleeting flicker. The circumstances are undoubtedly artificial in the highest degree, and one should expect that rational beings cannot help becoming cognizant of this artificiality, have a hard time ignoring it, and ultimately be unable to respond as if Jenny were a real person of their acquaintance.

Some time ago, the British writer Coleridge (1960) thought to resolve the irritating recognition of *fictional unreality* by stipulating a faith requirement for reaching what he called the poetic truth of literary works. Specifically, he asked of his readers a 'willing suspension of disbelief for the moment' (p. 169). Given the romantic nature of Coleridge's poetry, the requested suspension of disbelief may well have aided the making of somewhat realistic meaning of his often supernatural settings. However, in view of the extreme fidelity of audiovisual representations of emotional experiences and their causal circumstances that the contemporary digital media customarily offer, it would seem to be utterly unnecessary to require that observers consciously and intently discard their concerns about the unreality of displays of fictional events in order to allow emotional reactions to materialize. Additionally, in the absence of acceptable evidence showing that emotional reactivity truly depends on the proposed continual suppression of doubts about the reality of emotion-inducing conditions, it is perplexing to see the continuing acceptance of Coleridge's suggestion in the teaching of drama appreciation.

Fortunately, recent developments in the neurosciences, primarily, have shed light on the dilemma that Coleridge and others faced and thought to resolve. We shall briefly trace these developments and construct rationales that turn Coleridge's formula on its head: rather than insisting on the squelching of disbeliefs about fictional unreality for the attainment of emotions, this conception projects immediate emotional reactivity that, after its activation, may be squelched by the recognition of fictional unreality.

In semiotic terms, fictional narration is presented in two distinct modalities. It is *iconic*, in which case the representing stimuli mimic the physical features of the stimuli that are represented; or it is *symbolic*, in which case the relationship between representing and represented stimuli is morphologically arbitrary and what is being represented must be arranged by consent. Symbolic representation typifies conventional, natural languages. Iconic representation, evolutionarily speaking the older one of the two formats, is manifest in copies of the represented, these copies having sufficient resemblance with the represented to identify it without necessitating additional explanation. Cinematic presentations epitomize iconic representation within the visual and auditory perceptual domains. However, fictional presentations liberally combine iconic and symbolic modalities of representation – that is, verbal presentations may feature images, and spoken language typically permeates predominantly iconic presentations.

The fact that representations that are characterized by extreme degrees of iconicity are essentially indistinguishable from the physical stimulus conditions that

they represent has momentous implications for emotional reactivity. The reason for this is that if a particular *physical reality* is capable of triggering emotional reactions, so should its iconically mediated *apparent reality*. If, for example, a confrontation with an actual poisonous snake strikes fear, so should the confrontation with a perfect iconic representation of that snake. The argument that respondents to iconic representations would be cognizant of the mediational artificiality and thus could not respond to it emotionally, at least not as strongly as they would to the physical reality that is being represented, is not necessarily compelling. This, because recent neurophysiological research revealed that substructures of the limbic system, mostly the amygdala, continually monitor the environment for indications of threats and dangers, and that upon their encounter, emotional reactions are triggered before the information is passed on to the neocortex – that is, emotional reactions are instigated prior to awareness of the specific emotion-inducing conditions (LeDoux 1996). It has been demonstrated, moreover, that the amygdala not only signals detected threats, but also estimates their severity and thereby determines the intensity of emotional reactivity. Most important here, any analysis and scrutiny of the presentational or representational status of emotion-inducing stimuli can commence only after autonomic and incipient behavioral reactions have been set in motion. In other words, emotional reactions that elude volitional control, including those associated with sympathetic excitation as the pivotal determinant of emotional intensity, have been set in motion before reality could be discerned as actual or fictional. The time priority of amygdaloid response mediation over neocortical stimulus evaluation obviously challenges Coleridge's conception and simply renders a willing suspension of disbelief uncalled for in explaining the evocation of emotions via high-fidelity iconic representations of fictional events (cf. Konijn and ten Holt this volume). Not only is it unnecessary to get rid of doubts and intently embrace an illusion to experience emotions, but the reverse applies in that genuine emotions are to be discounted by rising awareness of the artificiality of their induction.

In principle, then, iconically represented reality functions as actual reality that may or may not be immediately faulted and degraded as pseudo-reality. The iconic representation of images and sounds of an onrushing wall of water, for instance, thus should stir our emotions as apparent reality, much as their physical reality would, and only upon reflection should we appreciate the artificiality of the induction of our emotions. The sequence of events, therefore, is not that cognizance of the pseudo-reality of presentations has to be suppressed before emotions can occur, but that emotions are first induced by apparent reality, which then may be discounted as artificial.

The evocation of emotion via symbolic representations of fictional events is obviously less direct in that apparent realities need to be ideationally constructed. Put simply, symbolic representations, usually conveyed by spoken and written language, have to be translated, through immense associative activity in the neural networks of the neocortex, to mental representations of any kind of presented reality (Damasio 1994; Lang 1979). This activity calls upon experiences that pertain to the symbolic input and thereby personalizes the rendering of its meaning. Via direct connections between amygdala and hippocampus, emotional experiences are afforded long-term storage in the latter structure (LeDoux 1996). The associative pursuit of experiences related to the symbolic input also calls upon this store and activates salient emotional memories. Their activation tends to reinstate, at least in part, the autonomic and

somatic manifestations of the focal emotional experiences. Such revival of emotional memories further personalizes the rendering of the input's meaning. However, notwithstanding such seemingly elaborate conversion of symbolic representations to apparent reality, ideational representations, once constructed, should mediate emotions much as the apparent reality of iconic representations. This is to say that symbolic representations of fictional events also induce genuine emotions that, despite their likely higher degree of subjectification than those induced by iconic representations, again may be discounted by rising awareness of the artificiality of their induction.

Irrespective of the semiotic mode of fictional presentations, the autonomic reactivity associated with the emotions that these presentations evoke is largely independent of volition. Behavioral reactivity, in contrast, is subject to volitional control. This control manifests itself in the inhibition of most, if not all, goal-directed responses that would be meaningful if the presented events were to happen in the respondent's actual environment. But inhibition does not extend to all emotion-linked movements that are given meaning by a presentation. In fact, incipient movements, evident in bodily jerks in correspondence with presented events, may be construed as indicators of genuine emotional action-preparedness (Preston and de Waal 2002). In appreciation of the inappropriateness of any prepared actions, however, their execution is quickly suppressed.

This analysis suggests that respondents to fiction are both (a) lost in the apparent reality of presentations, indeed responding to it as if it were real; and (b) cognizant of the situational artificiality, which demands the inhibition of actions that would be meaningful only within the represented reality. The two states are non-concurrent, however. It is suggested that respondents liberally enter and exit the one or the other state. Fictional presentations abound with indications of artificiality (Tan 1996), and these indications function as cues that discount the apparent reality. It would seem likely, therefore, that respondents to fiction can be held emotionally captive by apparent reality, but not for any length of time. The opportunity for opting out seems ever present.

Emotions thought to arise from identification with others

Although many of those who examined the perplexing illusion of reality in fiction on intuitive grounds came to accept that the apparent reality of fiction suffices in arousing genuine emotions and that a formal determination of the veridicality of portrayed events is immaterial (Allen 1993; Carroll 1988; Smith 1995), a new phantasm entered the reasoning on fiction and emotion and became the explanatory gospel to this day. It is the Freudian notion of *identification* (Freud 1987, 1964) and its recent reformulations as *mimesis* or *simulation* (Currie 1995; Gaut 1999; Oatley 1995). According to all these contentions, respondents to happenings before them, fictional or not, enter into the mentality of perceived agents, primarily persons but also approximations thereof, and then partake in these agents' experiences, emotional ones included. Through identification, then, respondents retain access to the thinking and feeling of perceived others. Although the specifics of this wondrous process are never explicated, respondents are said to co-experience emotions perceived in others and even, if only momentarily, to believe being these others.

The noted film director Martin Scorsese, in televised commercials promoting motion-picture entertainment, expressed the seemingly universal acceptance of the

identification process most succinctly in pointing to the wealth of intriguing fictional characters and proclaiming to his audience that, as you watch these characters, 'You are them!' Among other things he claimed that, when seeing murder committed, each and every member in the audience becomes a murderer and actually feels holding the dagger and forcing it into the victim. Of course, some in the audience might identify with the victim and then feel the dagger penetrate their chest. Moreover, identification might take turns, such that the experiences of both parties can be felt as engaged in or endured.

The indicated character-hopping during dramatic presentations actually exceeds Freudian proposals. Freud, in showing sympathy for those living lives of deprivation, was partial to identification with heroic characters. In his treatise on stage play he suggested that drama creates a pseudo-world that allows the spectator, characterized as

a poor soul to whom nothing of importance seems to happen, who some time ago had to moderate or abandon his ambition to take center stage in matters of significance, and who longs to feel and to act and to arrange things according to his desires [to attain the fulfillment of his thwarted wishes].

(Freud 1987: 656–7)

Following Freud, then, the spectator 'wants to be a hero, if only for a limited time, and playwrights and actors make it possible for him through *identification* [emphasis added] with a hero' (p. 657). Except perhaps for a few sadists, such emotional benefits would obviously not accrue to taking the illusory identity of murderers.

The untenability of the identification concept has been elaborated elsewhere (Zillmann 1994). Suffice it here to point to common observations and some demonstrations that challenge this concept and demand a reconceptualization of the circumstances under which the perception of others' behavior produces emotional reactivity in onlookers.

Compelling evidence against identification comes from the behavior of respondents to social environments, in particular from their communicative actions toward media-presented others. It is common knowledge that respondents to fiction talk to presented characters as if they were present in the flesh. Anybody who has watched children respond to puppet shows will appreciate that young audiences are particularly expressive in these terms. Scenes of a likable protagonist, say Punch, who is obviously ignorant of the fact that an ill-willed crocodile is sneaking up on him, have been used through the ages to tease children into frantically screaming warnings to their hero, this in apparent efforts at safeguarding him. Their behavior demonstrates concern about the character's welfare; and it challenges any identification with him, as they then should feel the unfounded fearlessness of their hero. Moreover, their attempt to intervene in the flow of dramatic events indicates, compellingly so, that they respond to the entire social environment before them, much as if this environment were real.

Children seem to be truly lost, for more than just a fleeting moment, in the apparent reality of fiction (Zillmann and Bryant 1975; Zillmann and Cantor 1977; also Cantor this volume). Adults, although perhaps not likely to be carried away for extended periods, are by no means immune, however, to such total immersion in fictional realities. In a research situation, for example, it has been observed that members of the audience of the horror film *Friday the 13th*, when seeing the heroine cornered by the infamous killer Jason, yelled out to her: 'Watch out! Behind you!'

and 'Take the ax. Hit him! Hit him!' (Zillmann et al. 1986). Approval of effective coping was analogously expressed in exclamations such as 'That's the way!' or 'That will show him!' Again, such communicative acts demonstrate that audiences, based on their emotional involvement with the characters, seek to influence outcomes for the protagonists in accord with their own values and thereby show that they, as on-looking third parties, treat the fictional social situation before them the way they would treat an actual social situation. Research within the paradigm of parasocial interaction (Gleich and Burst 1996) provides further evidence of on-lookers' efforts at communicating with persons, in particular with non-fictional persons who are not immediately accessible, and thereby underscores the immersive power of media-provided apparent reality.

Emotional reactivity from immersion in apparent environments

Recognition of the many problems with the identification concept has led to increased acceptance of a conceptualization that has become known as the *witness perspective* (Tan 1996; Zillmann 1994). This perspective projects that consumers of media displays, analogous to persons exposed to actual environments, are primarily witnesses to apparent environments. Perceptual captivation by such environments is thought to foster sensory immersion that usually entails emotional reactivity. But whether or not emotions are engaged, the immersion does not compromise any person's existential integrity. For environments that invite or demand behavioral adjustments to actual or apparent circumstances, this conceptualization is readily expanded by treating witness reactions as initial responses toward overt actions (e.g., in actual or virtual exchanges, the latter such as in computer games).

Regarding basic emotional reactivity, evolutionary psychology has emphasized the fight-flight reaction. Individuals are thought to continually monitor their environment for danger and to respond with attack or escape when detecting it. A burst of energy is needed to respond in such fashion, and the immediate instigation of sympathetic excitation serves this purpose. The emotions of anger and fear, then, are energized in preparation for action. Such action is obviously not called for when persons respond to media representations of danger. However, because these reactions are organized in archaic brain structures, the amygdala in particular, cinematic scenes of danger, in defiance of rationality, still trigger excitatory reactions (LeDoux 1996).

The fight-flight dichotomy can be extended to a response trichotomy that includes sexual preparedness. Sexual activity, organized in the septum, also requires energy for bouts of exertion, and this energy is likewise provided by sympathetic excitation. As in the case of danger, the media presentation of others' sexual opportunities and actions still elicits sexual excitedness, notwithstanding the fact that sexual targets for consummatory behavior are not immediately available (Zillmann 1986).

Iconic representations of danger and sexual opportunities may be considered basic stimulus conditions that reliably arouse and that, because of it, will foster responses that are construed as emotions. The creation of emotions is by no means limited, however, to displays of perilous happenings and erotic enticements. Dramatic narratives invariably involve people and other animated entities. Floods and fires, but also snarling tigers and murderous villains, threaten others – that is,

they threaten the narratives' principal characters. On occasion, these threats are perceptually presented as threatening audience members personally. But even when presented in this manner, they still only supplement the display of others in peril. For instance, an avalanche presented as rushing at the audience may prove arousing because it more closely than alternative presentations replicates the stimulus conditions of being personally threatened. Such displays tend to be used to create arousal. But they also serve to provide the audience with a better appreciation of the dangers facing those who are seen coping with them (cf. Nabi et al. this volume).

Dramatic narratives undoubtedly evoke emotions primarily by featuring others' confrontation with threatening conditions and fortuitous circumstances, as well as by displaying these others' reactions, including emotional ones, to their demise or to their enrichment as such outcomes materialize (cf. Oliver and Wooley this volume). Unless the narrative is interactive and makes respondents active participants in its flow (Grodal 2000), respondents remain mere witnesses to the fate of others (Tan 1996; Zillmann 1994). Given that, spectators to fictional narratives respond nonetheless with emotions, at times with emotions of extreme intensity, to the fortunes and misfortunes they see others enjoy or suffer. In order to explain such strong emotional involvement with others and their fate, it is necessary to call upon the phenomenon of empathy.

Empathic emotionality and its reversal in ill-wishing and schadenfreude

Empathy can be construed as an archaic mechanism that, through the millennia, served emotional contagion and the coordination of action (Plutchik 1987; Preston and de Waal 2002; Zillmann 2006b). It ultimately served the preservation of individuals and their species. In a group's confrontation with danger, for instance, it proved adaptive to get jointly excited and thus prepared for vigorous action (cf. Schwab and Schwender this volume). The contagious effect of one individual's expression of fear could instantly permeate the group, readying all for flight; or the expression of anger and assertive behavior could instantly foster preparedness for concerted resistance and attack.

The conditions of life in contemporary times have, of course, deprived empathy of much of such utility. However, as a mechanism of excitatory contagion, empathy has been retained in the paleomammalian structures of the brain (MacLean 1967). If this were not the case, it would be difficult to explain, for instance, why observers experience distress when seeing a construction worker fall off the scaffolding and hit the ground, cringing in pain; or for that matter, when watching a movie that shows the protagonist cling with his fingertips to a cliff, apparently about to fall to his death.

Common observation and research evidence (Hoffman 1987; Stotland 1969) leave no doubt about the fact that people, in responding to the emotions displayed by others in actual situations or in fictional presentations, tend to experience emotions that are hedonically similar to those witnessed and that often have considerable depth. Some time ago, Adam Smith (1971), in connection with his theory of moral sentiments, recognized the lack of ulterior benefits from such emotional investment. In his words:

How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it except the pleasure of seeing it.

(Adam Smith 1971: 1)

Empathy with others' experience and expression of emotion is by no means a necessary response, however. There obviously exist circumstances under which empathic sensitivities diminish or are entirely abandoned and overpowered by alternative response mechanisms. Under these circumstances, those who witness others' misfortunes are free to take pleasure in these others' demise. The circumstances in question have been well understood since antiquity. Regarding dramatic narratives, Aristotle articulated them succinctly, although in negative form. Specifically, he found fault with two principal narrative transitions, deeming them utterly unenjoyable. In his *Poetica* (Aristotle 1966), he stipulated that a good man must not be seen passing from happiness to misery and a bad man from misery to happiness.

By implication, he recommended as joy-producing plots those that feature (1) a good person passing from misery to happiness, or (2) a bad person passing from happiness to misery. Whether presented in negative or positive form, however, the propositions concerning negatively judged persons indicate the absence of empathic reactions to the projected outcome. Apparently, only good characters warrant empathic concerns. Bad characters do not. Bad characters' joy from coming to glory cannot be affectively shared. Their joy may prove distressing, instead. Analogously, their pains from coming to harm are not to be shared either. Those who witness the demise of bad characters can freely applaud it, instead.

Aristotle thought it self-evident that the narrative transitions on which he had focused could not foster joy. He simply stated that these transitions would be odious. In discussing tragic plots, however, he articulated his reasons for projecting reactions of displeasure and vexation. Aristotle specifically implicated *moral judgment* with the mediation of reactions of joy versus revulsion to the resolution of various forms of dramatic narrative. He essentially argued that persons pursuing good causes (i.e., consensually approved causes) are considered good people, and that good people are judged deserving of good fortunes. Analogously, persons pursuing bad causes (i.e., consensually condemned causes) are bad people, and bad people are judged deserving of bad fortunes; or, at the very least, undeserving of good fortunes. Outcomes in accord with moral considerations thus can be enjoyed. In contrast, outcomes that violate moral considerations are those thought to squelch enjoyment and to foster irritation and contempt, instead.

These suggestions can be used to expand Smith's reflections about empathy and complete them by considering the abandonment of empathy in the hedonic reversal of emotional reactivity.

There are evidently some principles in human nature that make individuals take an interest in the fortunes of others and that, in case good fortunes are judged unwarranted and bad fortunes are deemed just and called for, render these others' misfortunes and demise necessary, although onlookers derive nothing from it except the pleasure of seeing it.

Implicit in such reasoning is that empathy functions as a default system that applies to most situations of witnessing others' fortunes and related actions. It is

rendered defunct, however, when pronounced negative dispositions toward others exist. This morally defined phenomenon is known as *dispositional over-ride* (Zillmann 2006a, 2006b). If persons, whether real or fictional, are deemed undeserving of particular fortunes, empathy not only fails but the hedonic valence of emotional reactivity reverses in what has been labeled *counter-empathy* (Stotland 1969). Most obvious is the case in which a detested person is witnessed suffering severe punishment. To the extent that this person's suffering is deemed just, empathic concerns are inactivated and counter-empathic reactivity is allowed to occur. The ultimate result is that the person's expressed misery now can foster unrestrained joy – that is, *schadenfreude*.

Considerations of morality thus have rightly assumed a central position in drama theory (Bordwell 1985; Carroll 1988; cf. Raney this volume). In the form of *moral sanctions* they have entered into the contemporary psychology of drama appreciation as well (Tan 1996; Zillmann 2006a). In particular, moral assessments have become an integral, pivotal part of the disposition theory of emotion that has been employed to explain the enjoyment of drama in subordinate plots as well as in major, overarching plots.

An appraisal paradigm for media characters and the emotions they evoke

The indicated intertwined operation of moral judgment, emotional disposition, and dependent emotional reactivity can be expressed in a two-pronged paradigm in which sequential stages are parallel but diametrically opposite at each stage. At Stage 1, characters are observed and the motives and objectives of their actions extrapolated. At Stage 2, the actions are subjected to moral evaluation (i.e., they are judged to be good or bad to some degree). Characters whose actions are deemed commendable and praiseworthy are assuming *protagonist* status; those whose actions are deemed deplorable and appalling assume *antagonist* status. At Stage 3, affective dispositions are formed. Protagonists inspire liking and caring, antagonists dislike and resentment. At Stage 4, anticipatory emotions develop. Dispositions toward protagonists spawn hopes for good fortunes and fears of bad ones, whereas dispositions toward antagonists spawn hopes for bad fortunes and fears of good ones. The disposition toward antagonists defines the phenomenon of ill-wishing. At Stage 5, the hoped for or feared outcomes materialize and are witnessed. At Stage 6, witnessing the protagonists' good fortunes is met with approval and thus liberates joy, whereas witnessing their bad fortunes is met with disdain and thus evokes feelings of dejection and gloom. In complete reversal, witnessing the antagonists' good fortunes is met with disdain and evokes feelings of dejection and gloom, whereas witnessing their bad fortunes is met with approval and liberates the ecstatic emotionality of *schadenfreude*. Stage 7 entails a final moral assessment of the characters' actions relative to the rewards or punishments manifest in the chain of events to this point. If received rewards or punishments are considered inappropriate, if not outright unjust, the assessment feeds back to the formation of dispositions at Stage 3 and modifies the dispositions toward characters for the continuing flow of occurrences. In particular, if protagonists are deemed under- or over-rewarded, the positive dispositions toward them will be corrected upwards or downwards, respectively. If antagonists are deemed under- or over-punished, the negative dispositions toward

them will analogously be corrected upwards or downwards, respectively. Such corrections are recursively applied during the course of revelations of consequence. Recursion also applies to the aggregation of minor plots to overarching dramatic schemas. Specifically, following Stage 7 of each and every concluded minor plot, Stage 1 is reset with appropriate dispositional modification.

It should be noted that the proposed chain of moral evaluations, affective dispositions, and emotional reactions accords well with theory focused on the moral concept of deservingness (Feather 1999). The indicated dynamics of evaluation-driven disposition formation and modification have been experimentally demonstrated also (Feather and Sherman 2002; Zillmann 2006a).

The described paradigm leads to the following specific, testable predictions for emotions of joy versus disdain to dramatic transitions.

For occurrences deemed just: (1) witnessing the victimization of a disliked antagonist at the hands of a liked protagonist fosters delight, the experiential intensity of which increases with (a) the liking of the protagonist; (b) the disliking of the antagonist; and (c) the extent to which the antagonist is deemed deserving of a particular victimization. (2) Witnessing the benefaction of a liked protagonist fosters delight, the experiential intensity of which increases with (a) the liking of the protagonist; and (b) the extent to which the protagonist is deemed deserving of a particular benefaction.

For occurrences deemed unjust: (3) witnessing the victimization of a liked protagonist at the hands of a disliked antagonist fosters repugnance, the experiential intensity of which increases with (a) the liking of the protagonist; (b) the disliking of the antagonist; and (c) the extent to which the protagonist is deemed undeserving of a particular victimization. (4) Witnessing the benefaction of a disliked antagonist fosters repugnance, the experiential intensity of which increases with (a) the disliking of the antagonist; and (b) the extent to which the antagonist is deemed undeserving of a particular benefaction.

Support for these predictions comes from research on the enjoyment of a variety of dramatic formats. It comes, obviously, from the exploration of drama generally, including specific genres such as comedy, tragedy, and suspenseful drama (Konijn and Hoorn 2005; Zillmann 1996b). Moreover, it comes from the exploration of nonfictional dramatic expositions such as sports (Zillmann and Paulus 1993) and the news (Feather 1993; Konijn and Bushman 2007; Zillmann and Knobloch 2001). The explanatory capability of the outlined paradigm thus bridges the reality–fiction divide. It must suffice here, however, to exemplify the outlined moral-dispositional mechanisms with two selected investigations.

The most direct demonstrations of the power of moral judgment in the mediation of emotions from witnessing others' emotions come from empathy research (Wilson et al. 1986; Zillmann and Cantor 1977). School children were exposed to specially produced films in which either a loved or a hated character was developed, and in which this character was either victimized or benefited during resolution. His victimization showed him in excruciating pain, his benefaction in extreme joy. The children's facial reactions to these final scenes were unobtrusively recorded and then scrutinized. The findings were entirely in line with the specifications of Stages 5 and 6 of our paradigm. Respondents empathically cringed when the beloved character was in pain, and they exhibited joy when he was euphoric. They responded counter-empathically, however, to the behavioral displays of the resented

character. They cringed when he jumped for joy, and they expressed pleasure when he was hurt. In the latter condition, he apparently got what he deserved; in the former, the outcome was unjust and hence annoying and detestable. Interestingly, when the character was neither disliked nor appreciably liked in a control condition, responses were empathic throughout, much like in the case of the beloved character. This finding underscores that empathic reactivity is blocked only when affective dispositions are clearly negative.

A parallel investigation with mentally challenged children demonstrated that, when the capacity for moral judgment at the level of equitable retribution is not developed, empathy becomes mechanical. In particular, counter-empathic reactivity does not materialize. Such mentally challenged children invariably expressed joy in response to witnessed joy, and they invariably expressed distress in response to witnessed distress. Whether the witnessed emotions were exhibited by a beloved or by a resented character was immaterial.

This latter investigation shows compellingly that empathy functions as a basic default mechanism that, if not opposed and overpowered by affective dispositions that derive from assessments of deservingness, governs emotional reactivity to the observed fate of others. The condemnation of others' conduct and the resulting disliking, then, are indeed prerequisite to joy over others' demise as well as to distress over others' good fortunes.

On compact narration, excitation transfer, and emotional intensity

Emotions evoked in actuality are usually allowed to run their course. A person, after achieving an important goal, may be ecstatic for minutes and jubilant for hours. Alternatively, a grievous experience may foster despair or sadness that similarly persists for comparatively long periods of time. Mostly for physiological reasons, but also because of continuing situational appraisals, emotions are not momentary experiences. Cinematic narratives, however, treat them as if they were. As a rule rather than the exception, featured events that instigate emotions are followed by the presentation of other events long before all relevant aspects of the instigated emotions have subsided. Such compression of emotional events has intriguing implications for emotional experience.

As the experienced intensity of emotional reactions is primarily determined by activated sympathetic excitation, and as the dissipation of this excitation is known to be sluggish, residual amounts of the excitation from an initial emotion-evoking episode will still be active when a following emotion-evoking episode is presented. On these grounds, the theory of excitation transfer (Zillmann 1996a, 2006a) predicts that whatever amount of sympathetic excitation may be produced by the subsequent episode will inseparably combine with the residual excitation from the earlier episode and thereby increase the experienced intensity of the emotion evoked by the subsequent episode. This kind of emotion intensification by excitation carry-over abounds in cinematic drama, obviously as a result of the density of episodic chunking that characterizes audiovisual media presentations generally.

Excitation transfer can occur in any chain of emotional episodes. Perhaps the best established transfer intensification concerns the phenomenon of suspense. Here, an episode of challenge is routinely followed by an episode of its overcoming.

In more dramatic terms, a protagonist faces imminent harm from hostile adversaries but through skilful actions fights them off and becomes victorious. Residual excitation from empathic distress over his anguish ultimately supplements excitation from his success and triumph. It can therefore be expected that the experience of relief and joy will benefit from the intensity of preceding suspenseful distress. More generally, transfer theory explains why the agony of suspense is widely considered a prerequisite for particularly intense joyous experiences (Zillmann 1996b).

The seemingly artificial intensification of emotional reactivity by the transfer of excitation from preceding scenes does not stand alone, however, as a means of emotion manipulation in cinematic presentations. The aggregation of excitation for the enhancement of emotions to targeted episodes can also be accomplished by involving basic perceptual means such as the orienting response and similar defensive reactions. The inclusion of unexpected, abrupt, and drastic visual and auditory stimulus changes, along with such things as apparently onrushing objects, can greatly enhance emotional intensity. But granted that the creation of intense emotions is the primary objective of many entertaining endeavors, the need for gratifying emotions of low intensity should not be overlooked. Instead of rousing us to the brink, drama may intrigue and captivate us in cognitive rather than in emotional terms and thereby provide relaxing gratification. A good mystery, for instance, may engage our curiosity and test our problem-solving skills (Knobloch-Westerwick and Keplinger 2006); or a tragedy may inspire us by revealing a higher cause that was served by the sacrifices of some (de Wied et al. 1994; Zillmann 1998). As the research on mood management shows, such drama of subdued emotionality holds great appeal to audiences who seek diversionary stimulation to reduce, not to elevate, the intensity of presently experienced noxious emotions (Zillmann 2000).

Persisting uncertainties and remaining challenges

There can be no doubt that music constitutes a primary form of media entertainment and that, in its pure form, music is capable of evoking emotions of different kinds and greatly varying strength (Hargreaves and North 1997; Juslin and Sloboda 2001). Whatever particular mechanisms may be invoked to explain these capabilities, they seem to be independent of paradigms based on the consideration of morality, affective dispositions, and the fortunes of involved personnel. In fact, the paradigms that can explain emotional reactivity to dramatic events seem to be at a total loss in explaining emotions in response to pure music.

It may be considered the exception, however, that music is presented in its pure form. Music tends to confound its pure rhythmic and melodic properties with dramatic elements that undoubtedly influence its overall emotional impact. In many musical formats, such as the opera and ancient through contemporary music that entails lyrics and therewith relates a tale, pure musical elements seem inseparably intertwined with dramatic formats. The contexts in which music is presented, such as the pageantry and demeanor of performers, usually add further drama that compromises music's purity. For example, research on music videos revealed that the dramatizing involvement of sexual or violent imagery can greatly enhance the enjoyment of the music (Hansen and Hansen 2000; Zillmann and Mundorf 1987). In a similar vein, lyrics of defiance are known to enhance the appeal and enjoyment of music in those who harbor rebellious dispositions (Bleich et al. 1991; Robinson

et al. 1996) and lyrics about lost love do likewise for dejected lovers (Gibson et al. 2000; Knobloch et al. 2004). It should be obvious, then, that emotional reactivity to music is substantially influenced by the music's dramatic accompaniments manifest in lyrics and images. What remains unclear concerns the causal apportionment of this reactivity. Which portion can be attributed to the music proper and which to its various dramatic embellishments? It should be noticed that this uncertainty also exists in the reversal of circumstances. As music continues to be an accompaniment to almost all drama presented cinematically, the music's impact on emotions from drama should be subject to careful determination rather than remain a matter of conjecture.

The indicated ambiguities thus call for the systematic empirical exploration of the relative degree of influence of dramatic components on music appreciation and of musical components on the enjoyment of drama. At the conceptual level, they constitute a challenge for theorists to integrate paradigms of emotionality from drama and music such that they can operate in concert.

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7 Media-based emotional coping

Examining the emotional benefits and pitfalls of media consumption

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It goes without saying that media, in its myriad forms, has become integrated into the fabric of our daily lives. Although much media research has focused on the cognitive and behavioral effects associated with media exposure, there is increasing attention to the role of emotion as both a cause and a consequence of media consumption (see Nabi 2009). For example, notable lines of media effects research have considered the use of media to regulate affective states (e.g., mood management) (Zillmann 1988), fright reactions to media content (Cantor 2002 this volume), and the persuasive effects of emotionally-arousing messages (e.g., Nabi 1999).

In this chapter, we diverge from these more traditional orientations to emotion and media research in that we begin from the assumption that media messages serve not simply as stimuli for arousing or regulating emotion, but rather they possibly play a more complex role in an audience's emotional development and social relationships than previously acknowledged. Based on the available extant evidence, we argue that emotional depictions in the media have the potential to contribute to the socialization of emotional responses, the ability to cope with negative emotions, the likelihood of experiencing the benefits of more positive mental states, and the formation of more cohesive social relationships. Despite these potential positive outcomes, there are potential pitfalls within each of these domains that are important to address. Thus, we will tackle each of these areas of what we will generally term *media-based emotional coping*, discussing related theory and evidence as available, and we will conclude with potential areas for future research in this domain. Throughout our discussion, we are guided by Lazarus' (1993; Lazarus and Folkman 1984) conception of emotion-focused coping as the process of managing or regulating the internal consequence of a stressor, which typically involves attempts to minimize or alleviate negative affect. Further, given the emphasis in the extant research on television and film, our review reflects this perspective; however, other chapters within this volume address emotion in other media contexts, such as video games (e.g., Barlett and Gentile this volume), that are certainly relevant to the issues addressed herein.

Media and the learning of emotional responses

One of the more basic ways in which we imagine the media can contribute to viewers' emotional lives is as a source for learning adaptive or socially appropriate emotional responses to situations they might face in their life experiences. For example, how do we learn how to respond to being teased? To a relationship break-up? To the

illness or death of a close friend or relative? From a cognitive appraisal standpoint (e.g., Lazarus 1991), the thoughts one has about the environment relative to one's goals underlie one's emotional response. So a related question might be: how do we learn to think about these situations such that particular emotions arise when we are in them? Surely natural predispositions toward a certain style of thinking (e.g., optimism vs. pessimism) have influence, so those who tend toward depression, for example, are likely to experience deeper and more prolonged sadness than those who do not. However, there is still plenty of room for media influence, including teaching about emotions, modeling appropriate emotional behavior, and socializing audiences to appropriate norms of emotional expression.

Media content and learning about emotions

Perhaps the most fundamental question we might ask regarding media effects and emotion is what role might the media play in teaching people about emotions and emotional processes. After all, to the extent we observe the precursors, onset, and consequences of emotional expression in the media, it makes sense that we would learn about the phenomenon of emotion itself. Yet – though there has been much attention to the effect of the media on affect-related behaviors, such as aggression (see Bushman et al. in press) – as Wilson (2008) notes, there is little evidence speaking to the issue of media's role in teaching people, children in particular, about emotions per se.

Still, some evidence on this point does exist, suggesting that TV content may be effective in educating children about emotional processes. For example, Bogatz and Ball (1971) found that, although children learned more about academic content than emotional norms, *Sesame Street* did help preschoolers learn to recognize emotions and emotional situations. Indeed, more recent evidence is even more supportive of the notion that educational programming can teach children about emotions. For example, Calvert and Kotler (2003) – in contrast to Bogatz and Ball (1971) – found that educational programs taught second through sixth graders more about emotions than about academic content. Specifically, children reported learning more about overcoming fears and labeling different feelings than about science or history. Further, children learned more socio-emotional lessons from educational programming than from entertainment programming. Most recently, Wilson (2008) has argued that more current episodes of *Sesame Street* place greater importance on emotions and emotional coping and thus have a stronger potential for educational impact. For example, story arcs in recent years have included Big Bird's friends helping him cope in the aftermath of a hurricane that destroyed his home and attempts to help children understand and cope with the terrorist attacks of September 11.

Additionally, technology now exists that can enable the development of virtual human beings that can be programmed to assist children and adults in learning to identify, express, understand, or manage emotions. Konijn and Van Vugt (2008) review a number of applications of such technology, such as the 'Fearnot!' system aimed at curbing bullying behavior in schools (Aylett et al. in press). Within this program, children witness one virtual human bullying another virtual human, and the victim character then asks the child for help in coping with the bully. The child users may experience 'empathetic engagement' with the virtual victim and better

understand the emotional consequences of their bullying behavior. And evidence suggests that children may transfer the emotional lessons they learn from such mediated experiences into real life. As Weiss and Wilson (1996) found, elementary school children who watched a sitcom episode with a fear plot and a humorous subplot evaluated the fearful event (an earthquake) as less severe than those who saw the episode without the subplot.

Based on this small body of research, we can conclude that media content has the potential to teach audiences about emotions and emotion processes. And given the increasing attention paid to constructs such as emotional intelligence (e.g., Salovey and Mayer 1990), in which the skills of perceiving, understanding, and managing emotions are deemed to be critical to successful personal and professional relationships (Salovey et al. 2008), it would be particularly important to consider the role that various media content play in helping to develop these skills.

Modeling emotional responses

Another key dimension of emotional learning focuses on the observation of the adaptive emotional reactions of others in relevant circumstances. Social cognitive theory (SCT) (Bandura 1986) certainly supports this view. In essence, SCT suggests that through observing others' behaviors – including those of media figures – one may develop rules to guide subsequent actions. Although moderated by observers' cognitive development and skills, observational (or social) learning is guided by four processes: *attention* to certain models and their behavior based on source and contextual features; *retention* of the observed behavior and its consequences; *production* of the observed behavior in appropriate contexts; and *motivation* to selectively engage in observed behaviors based on positive or negative reinforcement from one's own behavior, the observed feedback given to others, or internal incentives (e.g., self-standards). As observational learning occurs via symbolic representations, the effects are potentially long-lasting, and self-efficacy is believed to be central to behavioral performance.

With SCT in mind, it is reasonable to imagine that audiences might learn appropriate emotional responses based on the emotional responses they observe in media characters. As Bandura (2001) suggests:

What gives significance to vicarious influence is that observers can acquire lasting attitudes, *emotional reactions*, and behavioral proclivities toward persons, places, or things that have been associated with modeled emotional experiences. They learn to fear the things that frightened models, to dislike what repulsed them, and to like what gratified them.

(Bandura 2001: 281, emphasis added)

Further, as Bandura suggests that audience members can experience vicarious arousal by observing the emotional expressions of mediated characters, not only might they learn, via observing the character, what an appropriate emotional response might be in a particular situation, but also their own emotional reaction to their viewing might reinforce the integration of this lesson into their schemas or scripts.

Despite this intriguing notion that media depictions may influence emotional reactions to objects and events in the real world via modeling processes, there is

minimal research on this point. Still, some suggestive evidence does exist. For example, Mumme and Fernald (2003) found that children as young as 12 months could adjust their behavior in response to televised depictions of emotional responses. Specifically, when exposed to a female TV character's neutral, positive, or negative emotional reactions to one of two objects, infants who saw the negative-emotion scene avoided the object and displayed increased negative affect – an outcome suggestive of social learning.

Perhaps the best known line of research that touches on this subject actually focuses on the negative consequences of this process – that is, the modeling of aggressive behavior. Numerous studies have shown that children may imitate the aggressive and violent behaviors of mediated characters when violence is rewarded (or at least not punished). For example, in their classic social learning theory-based studies, Bandura and colleagues (Bandura 1965; Bandura et al. 1963) found that children exposed to a video of an adult ordering an inflatable doll out of her way and hitting it when it did not comply were more likely to imitate that aggressive behavior when the model was not punished for her behavior. Using more naturalistic media content (e.g., *The Untouchables*, *Mighty Morphin Power Rangers*, World Wrestling Federation programming), other researchers have also found that children are more likely to demonstrate apparently aggressive behavior after viewing media with violent content, especially when such behavior is rewarded in the programming (see Boyatzis et al. 1995; Lemish 1997; Liebert and Baron 1971) or if the media consumer identifies with the aggressive character (Konijn et al. 2007).

As intriguing as this research may be, however, it is not evident that emotion is mediating this effect. That is, although the behavior may appear aggressive, and though aggression is often linked to anger, it is not clear that the programming is inciting anger or that viewers are learning to respond with anger to similar events they may encounter in the real world. In essence, this line of research does not provide evidence that media viewers are learning emotional reactions to events that, in turn, influence behaviors. Current theorizing, however, does attempt to make this link. Most notable is the General Aggression Model (GAM) (Anderson and Bushman 2002), which suggests that aggression is a function of the learning, activation, and application of aggression-related knowledge structures. Thus, exposure to violent media content can promote short-term aggressive behavior by priming aggressive cognitions, increasing arousal, and (most central to our line of argument here) generating an aggressive (i.e., angry) affective state. Further, the GAM suggests that over time, people learn seemingly appropriate responses to the social environment. Thus, each exposure to media violence is another opportunity to learn that aggression is an appropriate way to deal with life's obstacles.

Clearly, emotions (e.g., anger, shame) play a central role in explaining the link between media exposure and aggressive behavior according to this perspective (see also Baumeister and Bushman 2007), and as Anderson and Bushman (2002) suggest, 'Long-term consumers of violent media ... can become more aggressive in outlook, perceptual biases, attitudes, beliefs, and behavior than they were before the repeated exposure, or would have become without such exposure' (p. 47). Thus, this research suggests that exposure to certain media content might lead to predispositions to react emotionally to events in the real world. However, it is important to note that this work does not speak very directly to the predisposition to react emotionally to specific objects, people, or events, based on the feedback

one perceives, and thus moves us away from notions of modeling and more toward those based on the more simple process of priming. Further, beyond aggression, we are hard-pressed to find much literature on this topic, despite the fact that emotion is likely central to other behaviors that have been linked to media exposure, such as those related to body image (see Harrison 2009; Nabi 2009). Thus, future research would do well to examine the extent to which a range of audiences might learn a range of emotional responses – both positive and negative – to events based on the media depictions to which they are exposed.

Media and emotional socialization

Although related to the notion of modeling responses, the idea that repeated exposure to certain content can lead to general expectations about how one will respond emotionally, as suggested by the GAM, speaks to a deeper issue of emotional socialization. Generally speaking, emotional socialization refers to the conveyance and adoption of norms of appropriate emotional experience and expression. For example, many cultures have different emotional expectations of men and women. The adages that ‘men don’t cry’ and ‘keep a stiff upper lip,’ or, conversely, the notion that one might ‘scream like a girl,’ often bring to light the emotion-based expectations that we have of different group members.

Media can play a role in promoting or accentuating these gender-based stereotypes, and media viewing can, in turn, provide an arena in which viewers can demonstrate gender-stereotypical, emotion-based behaviors. Regarding the latter, evidence suggests that horror film viewing provides the opportunity for gender-appropriate expressions of affect that can produce gender-socialized gratifications (Tamborini 2003). Specifically, young men enjoy watching horror films more when viewing with female companions who are afraid, whereas young women enjoy the film more when their male companion displays mastery, and these gender-appropriate viewing behaviors can increase attraction to these opposite-sex companions (Zillmann et al. 1986). Although media effects research in this vein has made important contributions to our understanding of certain gender-stereotypical behaviors, it is not the purpose of this chapter to delve into the specifics of these stereotypes or expectations (though for more on this matter see Fischer 2000). Rather, our interest is more in the role of the media in helping to develop and perpetuate such expectations in the first place.

Consistent with this line of thought, there is evidence that men and women differentially portray emotions in the media. In accordance with Ekman and Friesen (1975), who proposed that, in public, American males suppress facial expressions of sadness and fear and females suppress facial expressions of anger, Wallbott (1988) found evidence that, based on the coding of actors’ expressions, female actors were rated as better able to communicate fear and sadness via facial expression, whereas male actors were seen as more successful at communicating anger.

Beyond the actor’s ability to convey particular emotions, though, is the more important issue of what emotions they are asked to portray in light of how the scripts and characters are drawn. To the extent that media portrayals conform to stereotypical expectations of emotional expression, they reinforce and perpetuate these norms. The research that perhaps speaks most directly to this point addresses the role of sports media and the socialization of men to ideas of masculinity. Specifically, Messner and colleagues (Messner 2000; Messner et al. 2000) argue that emotional

socialization can result from young men consuming mediated sports programs, which help to instill and reinforce the culture's established (i.e., hegemonic) gender roles. In a content analysis of televised sports programs, the authors specified components of the ideological sports narrative, many of which reinforced ideals of aggression and violence as well as the restraint of emotions, such as fear. Messner et al. (2000) suggest that 'viewers are continually immersed in images and commentary about the positive rewards that come to the most aggressive competitors and the negative consequences of playing "soft" and lacking aggression' (p. 385). Additional research supports the view that sports programming emphasizes aggression and toughness as associated with masculinity (Koivula 2001) and discounts more vulnerable emotional expression (e.g., fear, sadness) as weak or feminine (Soulliere 2006). As Soulliere argues regarding wrestling programs, men are 'expected to be physical rather than emotional' (p. 6). Of note, although men were expected to exercise restraint with respect to emotional displays that are considered more conventionally feminine (e.g., crying, whining, complaining), they were encouraged to express anger and frustration. Thus, in the case of sports programming, it is likely that as male viewers are socialized to norms of masculinity, they are simultaneously being socialized into norms of appropriate emotional expression.

This view is clearly in line with cultivation theory, which addresses the relationship between TV content and viewers' beliefs about social reality. In essence, cultivation theory asserts that compared to light TV viewers, heavy viewers perceive their social environment as more similar to the world as portrayed on TV than it really is (e.g., Gerbner et al. 2002; see also Morgan 2009). Thus, if themes of programming within and across genres (or at least across the programming in a person's media diet) convey particular patterns of emotional expression for men and women, cultivation theory would predict that viewers would be likely to internalize these patterns as norms and be more likely to conform to them – and to hold others to them in their own life experiences. Although related to the arguments regarding social learning, this form of socialization is arguably more subtle and less conscious in the continuum of knowledge acquisition, given it is a consequence of repeated exposure to themes of programming. Whether this is positive, in that it helps people meet the expectations of those in their social world, or negative, as it leads to stereotypes and negative judgments of natural expressions, is not for us to judge. But it is up to media effects scholars to be aware of and to continue to investigate the role that media plays in creating these expectations.

Before moving forward, we wish to make a small comment about another media effect associated with multiple message exposure – desensitization. Drawing from the therapeutic technique designed to help people overcome phobias (e.g., fear of spiders), media desensitization research suggests that repeated exposure to messages that typically evoke an emotionally based physiological response (e.g., those that contain violence) lose their capacity to do so (e.g., Carnagey et al. 2007; Cline et al. 1973). Although a strict interpretation of desensitization focuses on physiological response, research has expanded to consider self-reported arousal along with emotional and cognitive reactions (e.g., Mullin and Linz 1995). Unlike the socialization research described above, desensitization focuses not on the development of emotional responses but on their dampening. It is further distinguished in that its emphasis is not on norms of appropriate emotional expression per se but on the suppression of an individual's more instinctual responses that have, at best, only a tangential link

to the internalization of social norms. The concern associated with desensitization, of course, is that this emotional dampening will transfer to the real world such that people will also have reduced emotional reactions to situations that might benefit from action (e.g., offering aid to someone in need), or may minimize the disincentive to engage in antisocial behavior (e.g., aggressive behavior) (Bartholow et al. 2005). However, given its psychiatric roots, it is quite likely that desensitization based on media exposure might have positive emotional benefits in terms of coping – an issue we address in more detail in the following section.

Coping with negative emotional experiences

Beyond issues of learning and socialization, another general way in which media might contribute to our emotional lives is to help audiences cope with the negative emotions experienced as a result of the difficult life circumstances encountered throughout the lifespan. Although, extant media theory has a history of recognizing the important role emotional needs play in media consumption, particularly the uses and gratifications perspective (for a recent review see Rubin 2009), the most well-developed line of research in this area stems from Zillmann's (1988, 2000b) mood management theory (MMT). MMT in essence asserts that people use media to modulate their affective states. More specifically, Zillmann argues that people, driven by hedonistic desires, strive to alter negative moods as well as maintain and prolong positive ones. Consequently, they will arrange their environments to adjust a wide variety of mood states, using any genre or specific type of communication available. He further argues that because mood management processes are based on operant conditioning, people may, but need not, be cognizant of the reasons for their choices. Zillmann goes on to note four message features that might impact message selection based on mood: excitatory potential, absorption potential, semantic affinity, and hedonic valence. For each, the underlying principle is the same. If a message reflects one (or presumably more) features that might perpetuate the negative state – for example, high absorption potential or mood-related content – the message is likely to be avoided in favor of one that would interrupt the negative state, such as a message of an opposite valence or on a topic unrelated to the mood source.

Much research supports the predictions of mood management theory (for a recent review see Oliver 2003). However, its boundaries have been challenged by paradoxes of media selection, such as the enjoyment of watching horror movies or tearjerkers that are designed to evoke negative affect, seemingly in contradiction to MMT's assumption of hedonistic motivation (e.g., Oliver 2003). Thus, recent research has sought to examine alternative motivations linking affect to media selection, such as mood optimization (Knobloch 2003) and eudaimonia, or happiness rooted in greater connection to and insight into the human experience (Oliver 2008).

This line of research has predominantly focused on general moods, although a smattering of research has considered more specific emotions. For example, Boyanowsky (1977) found that women under threat (i.e., who believed an attack to have recently occurred on campus) preferred more arousing content (i.e., male on male violence and sexual content) than those who were not primed with the notion of attack. More recently, Knobloch-Westerwick and Scott (2006) found that when angered and expecting an opportunity for retaliation, women sought more positive

news. Men, however, not only sought out less news but the news they did consume was more negative, which was presumed to maintain their anger in preparation for the impending confrontation. Most recently, Nabi et al. (2006) examined the effects of regret on media message preference and found, counter to the predictions of MMT, that people experiencing lingering regret over a past experience were more, not less, likely to indicate desire to see programming on the topic of their regret. These studies suggest that discrete emotions may work differently than moods, in that media selection may be driven by coping, rather than simple regulation, needs. Indeed, additional research has linked media use to coping with emotion-related issues, such as stress (Lohaus et al. 2005) and past victimization (Minnebo 2006). Specifically, Lohaus et al. (2005) found, based on a survey of fifth graders, that both girls and boys reported using a range of media (TV, print, audio) for coping needs. Relatedly, Minnebo (2006) found that among recent crime victims, high distress was associated with greater TV viewing for the purposes of escape and distraction.

The notion that media messages are not simply tools for regulation of arousal but a means of coping with emotionally charged life events brings a deeper and more nuanced flavor to previous perspectives on the role of media in viewers' emotional lives. By recognizing that the media – whether news or entertainment, television or computer, audio or video – can aid in people's adjustments to life events, the research possibilities are greatly expanded in part because rather than simply looking at the emotional outcomes associated with media consumption, we are encouraged to look at the cognitive underpinnings of those emotional states that might be altered (or enhanced) through media consumption. As Nabi et al. (2006) argue, if media content changes the cognitive appraisals that underlie an audience member's perceptions of life events, their emotions will follow suit. Recognizing these two different routes of influence – arousal level and cognitive appraisal – allows us to better understand the ways in which media consumption might aid in the coping process.

The benefits of media enjoyment

Looking beyond coping and at a more general level, we can consider the research on media enjoyment as a form of affective response to media exposure, and one that has the potential to lead to some benefits to the viewer both psychologically and perhaps even physically. Although the notion of media enjoyment has been conceptualized in a variety of ways in the literature (for a series of articles on this issue see Oliver and Nabi 2004), and likely derives from a collection of affective, cognitive, and even behavioral elements (Nabi and Krcmar 2004), it has primarily been considered in the media literature as an affectively driven construct that largely represents the degree of liking for media fare (Raney and Bryant 2002). Given the importance of liking to continued exposure to media messages, understanding why people enjoy what they do is an important question. Apart from examination of personality traits' role in predicting media enjoyment (see Krcmar 2009; Weaver 2000), the most systematic line of research in this domain focuses on disposition theory (e.g., Raney and Bryant 2002; Zillmann 1980, 1991), which in essence suggests that viewers' enjoyment of media fare is based on their affective dispositions, or feelings, toward media characters, and the outcomes they experience. More specifically, we enjoy seeing good things happen to liked characters, and bad things happen to disliked characters. It is less enjoyable,

however, to watch bad things happen to the good guys, and good things happen to the bad guys (see Raney 2003). The role of moral judgments and empathy have traditionally been considered integral to this process, though recently the role of schemas in setting expectations for various characters has been asserted (Raney 2004) such that the type of character (protagonist or antagonist) may influence character liking first and assessment of behavior morality second (see also Raney this volume; Konijn and Hoorn 2005).

Although enjoyment is a predominantly affectively derived construct, there is little discussion in the literature that fleshes out this construct to help us better understand how we might achieve this desired state, and – perhaps more importantly – what the implications of this pleasurable state might be in terms of bringing about beneficial (or perhaps costly) outcomes. In their tripartite model of media enjoyment, Nabi and Krcmar (2004) suggest that enjoyment, once achieved, can influence processing style and resource allocation that, in turn, might impact subsequent affective, cognitive, and behavioral outcomes. For example, the more one enjoys makeover reality programs, the more likely one is to watch such programs and thus perhaps (a) feel happy (or depressed) about one's own physical appearance; (b) believe that one's appearance is more (or less) important to one's life satisfaction; and (c) be more (or less) likely to pursue makeover options, such as a new wardrobe or cosmetic surgery. Clearly the outcomes of enjoyment could lead to either positive or negative subsequent effects. The direction of these effects could be contingent on numerous factors, including personality traits, prior experiences, identification with the characters, and so forth. The point, however, is that enjoyment is likely a strong predictor of one's media diet, and to the extent one's pattern of media consumption shapes one's world view (e.g., via cultivation), presents behavioral options (e.g., via social cognitive theory), or influences one's motivation (though emotional arousal), one's behaviors are likely to be shaped to some degree.

Apart from considering the consequences of media enjoyment, however, it is still important to consider the psychological benefits of media enjoyment itself. That is, to the extent one is in a state of enjoyment, and thus experiencing positive affect akin to happiness, one may receive the psychological benefits associated with that state, such as more creative thinking and an expansive view toward others (e.g., Isen 1999). Further, to the extent one is in a positive state, the resulting feelings of relaxation might have physical benefits by reducing stress and thus mitigating the negative effects stress can have on the body (e.g., Lazarus and Folkman 1984). Consistent with this argument, Kubey and Csikszentmihalyi's (1990) research on viewers in situ suggested that negative affect earlier in the day predicted heavier TV consumption and greater relaxation during (but not after) viewing. Further, our current research is examining the stress-based, physiological effects of media consumption with an eye toward better understanding how media enjoyment might aid in physical well-being. By taking this approach, we by no means intend to suggest that watching television or sitting at the computer for hours on end, as enjoyable as that might be, is uniformly positive. Certainly the sedentary nature of the activity, coupled with the negative health messages one might receive via music, film, or the internet, can have deleterious effects on health. Rather, we simply wish to assert that rather than assume that media enjoyment is merely frivolous, it may indeed, in moderation, have psychological and physical benefits associated with coping with stress. Thus, in sum, we suggest that an understanding of both the

feeling of enjoyment itself and its consequences are critical to a more complete understanding of the psychological and behavioral effects of media consumption.

Media consumption and the social sharing of emotion

A final way in which the emotions associated with media consumption can enrich or deepen our personal and social lives is through the social sharing that occurs as a result of exposure to emotionally charged media. Clearly, emotion-laden media have been discussed in the extant research, with most of this attention focused on fear, as in fright reactions to films (Cantor 2002; this volume), fear appeals in health campaigns (Turner this volume), and scary new stories regarding mad cow disease (Nerlich and Halliday 2007) or terrorist attacks (Wyatt 2000; Altheide this volume). To a lesser extent, we also see some attention paid to sadness, as in sad movies (Oliver 1993) or news stories (e.g., Browne and Arther 2001), and to more light-hearted fare, such as humor in advertisements (e.g., Weinberger and Gulas 1992), humorous entertainment (Zillmann 2000a), and interesting news bits, such as celebrity gossip. However, rather than simply considering how such consumption experiences impact the individual, it is important to consider how such experiences motivate sharing with others – either during the consumption experience itself or especially with those who were not exposed to the message at all.

Exploring this intersection between media consumption and interpersonal communication is a critical, yet often overlooked, area of media and emotion research (for discussion of mediated interpersonal communication, a related, though distinct phenomenon, see Konijn et al. 2008). Indeed, though the social sharing of information obtained through the media is at the foundation of one of the earlier models of media effects (two-step flow model of communication) (Katz and Lazarsfeld 1955), this research focused on the information itself rather than the affective valence associated with it.

Yet, there is a growing body of literature on the social sharing of emotions (Rimé 1995) that indicates that people have an instinctive need to disclose to other people when they experience emotionally charged events. There are multiple explanations for this need. First, we need to verbalize our experiences to help make sense of them. Second, emotional experiences – either positive or negative – can challenge our self-images, and thus we seek out others to help validate the self, that is, to confirm that we are still ourselves, despite this event. Third, by sharing emotional experiences with members of our social group, the group develops collective social knowledge on emotional experience which provides ‘the person exposed to an emotion antecedent with 1) better anticipation, 2) smoother cognitive processing, 3) more appropriate responding, and 4) smoother cognitive integration afterwards’ (p. 476). In other words, social sharing of emotions has an adaptive function, both for the individual and for the social group.

This need to share emotionally charged information has been widely documented across cultures, gender, and age groups (Rimé 1995). Indeed, the more intense the emotional experience or the greater the emotional disruption, the more likely it is to be socially shared (Rimé et al. 1991, 1994). In addition, whereas mild or innocuous emotional states are likely to be shared to a limited extent, strong and important states elicit an urge to socially share them repetitively over an extended period of time (Rimé 1995). Indeed, there is evidence that emotionally

evocative events shared with one set of individuals can be further shared by those individuals to others, a process called secondary social sharing (see Christophe and Rimé 1997). Thus, it is evident that emotional experiences can be the stimulus for sharing experiences, which spreads not simply the information but the emotion associated with it to others.

Recently Harber and Cohen (2005) introduced their emotional broadcaster theory (EBT) of emotional disclosure in which they propose that the intrapsychic need to share emotional experiences results in both emotion and information traveling across social networks. In their research, they document that the extent to which stories travel reflects the degree to which the original teller was affected by the experience shared. For example, those most emotionally affected by their experience of visiting a hospital morgue predicted how many people they told (primary sharing), how many people their friends told (secondary sharing), and how many people their friends' friends told (tertiary sharing). Within ten days, nearly 900 people heard about the morgue experience from the thirty-three original visitors through these levels of disclosure.

Given the emotional nature of much media content, it is only logical to imagine that media messages may be the source of much social sharing. Yet surprisingly, there is minimal research that discusses the extent to which media content forms the basis of conversation (though as noted earlier, see the two-step flow model of communication) (Katz and Lazarsfeld 1955) and the role of emotion in that process. Still, there are a few lines of research that speak meaningfully to this issue. For example, Buckingham's (1993) focus group interviews with 7–12-year-old children revealed that from a very young age, children demonstrate the basic need to share emotional stories they have watched in films or television programs, and the collective recall of the 'good bits' of the media consumed is often accompanied by emotionally charged gestures and sound effects. Further, Buckingham concluded that the retelling of film and television narratives takes up a large part of the children's everyday social activity.

Also, research on communication campaigns has long acknowledged the importance of 'getting people talking' about the message. Indeed, research on entertainment-education indicates that 'E-E interventions tend to spur a great deal of interpersonal communication among audience members and also among audience members and their spouses, children, relatives, and friends, who may not be directly exposed to the E-E intervention' (Singhal and Rogers 2002: 131). Although Singhal and Rogers do not specifically mention the role of emotion, the notion that the educational messages are embedded into dramatic programming to maintain audience interest implies that emotional arousal plays a role not simply in capturing audience attention but also in generating discussion about that programming with others.

Research on the diffusion of emotionally charged news stories further speaks directly to the role of media in generating social sharing. Indeed, Kubey and Peluso (1990) examined the diffusion of news in the wake of an unanticipated news event (i.e., the explosion of the space shuttle *Challenger*), finding that those who felt stronger emotions upon learning of the disaster or upon first seeing the footage were more likely to inform more people about the event. They further found that 'informers' were more likely to report feeling better when talking to others than 'non-informers.' This supports the notion not only that emotional reactions to news events can fuel the diffusion of that information, but also that such spreading appears to be driven, in part, by emotional coping needs (for a replication of

these findings in the context of the space shuttle *Columbia* disaster see also Ibrahim et al. 2008).

In sum, despite the paucity of research on the social sharing of emotional media content, it is likely that this phenomenon is as widespread as the existence of emotional media content itself. Assuming this form of social sharing is prevalent, we can then consider multiple outcomes of interest. For example, what types of emotional media are spread, how often, and to whom? What is the emotional effect of this spreading of emotional information on both the sender and the receiver? What types of communication aid in the coping of emotional upset on the part of the ‘informer’ and the ‘informed’ in light of this information transmission, and what communication forms might unintentionally intensify negative affect? What are the social repercussions of this process? Does it lead to closer emotional relationships or might it lead to greater stress and distancing? And perhaps most interesting, how does this process impact subsequent patterns of media consumption? Ultimately, a better understanding of the process of diffusion of emotionally charged, media-generated stories and information will not only give us a greater sense of cognitively based media effects, but also those based on emotion and social integration as well.

Future directions

Our goal in this chapter was to look beyond the more specific effects of emotions within particular media contexts and to consider the role of a wide range of media and media concepts in the emotional development and experiences (both emotional and social) of audiences. In our review, we focused on the ways in which the media might play a role in learning about, coping with, seeking out, and socially sharing emotions. On the basis of this discussion, it is quite evident that there is great inconsistency in the depth to which each of these issues has been considered in the extant research, and thus, there are exciting directions in which future research might proceed. Here we would like to offer some of our thoughts on what we believe might be productive directions for such research.

Focusing first on emotional learning and socialization, our review revealed very little research in this domain of inquiry. Thus, there are many promising research directions that might be pursued. Starting at the beginning, a more thorough understanding of the depictions of emotion across a range of media fare would help shed light on the role media plays in developing, shaping, and reinforcing the norms of emotional expression in various groups across cultures and across the lifespan. Second, understanding the role the media play in the development of emotional skills, emotional intelligence especially, is of particular interest. Research might consider the types of programs – and indeed the types of media – that might enhance or stunt its development. For example, does greater reliance on computer-mediated interaction encourage one to be more attuned or more oblivious to subtle emotional cues? Building on such questions, we could also examine how emotional intelligence might moderate the effects of media consumption of subsequent emotional reactions to media fare. For example, those low in emotional intelligence might be frustrated while watching a complex suspense film or a subtle Elizabethan drama, whereas those high in emotional intelligence might enjoy applying their skills in emotional perception to the characters’ movements and expressions. Conversely, one low in emotional intelligence might enjoy a slapstick comedy

tremendously, whereas one high in emotional intelligence might simply be annoyed by the blatant attempts at humor. Finally, within the domain of emotional learning, we have seen the most attention paid to issues related to aggression. What of other emotions and especially positive ones? Clearly, much remains to be uncovered regarding the role of media in emotional learning and socialization.

Regarding coping, the mood management literature has given us quite a nice foundation, although here, too, there is still room for development. First, as Nabi et al. (2006) argue, it is important to look beyond mood and mood regulation to consider how media content might be used to cope with specific emotions and emotion-laden experiences. Given that entertainment programming often reflects the most dramatic life experiences people might encounter, it may serve as a legitimate source of insight into those experiences and thus aid in the reappraisal of events such that negative emotions are successfully resolved, or at least minimized. However, it is important here that we also look beyond traditional entertainment to consider how newer media can be used more generally to aid in coping needs. Examining, for example, the role of video game play, online information seeking (e.g., Turner et al. 2006), or online support groups in coping with emotional distress (e.g., Wright 2002) will help researchers paint a more complete picture of media's role in emotional coping.

Moving to the work on generating positive experiences (not just positive outcomes) via media use, future research should build on the sizable literature on the concept of enjoyment to consider most especially how the experience of enjoyment associates with other positive states, both psychological and physical. If it is the case that enjoyment is associated with relaxation at least some of the time, and if relaxation is associated with more positive states of mind and body, then it is important to understand the conditions under which these associations exist. For example, despite the anecdotal evidence that humorous media can help the body heal, there is little evidence that speaks to this claim (Martin 2002). Shedding light on these processes, then, could be both theoretically and practically advantageous.

Finally, as we consider issues regarding media-generated social sharing of emotion, we hit a nerve that runs through the center of the body of media effects research – that is, its surprisingly minimal consideration of how interpersonal communication and media communication intersect. Given the potential of media to evoke strong and varied emotions, it is only logical that we consider how these messages generate interpersonal communication. Further, in the age of new media, we might consider not simply how individuals discuss media face to face or over the telephone, but also how emotional media experiences generate blogging, Facebook status updates, and the sharing of media messages themselves. Indeed, Nabi (2009) notes that emotions likely explain the online phenomenon of videos that 'go viral,' or spread rapidly to viewers, as they likely strike emotional chords in their audiences. By applying an emotion-based frame to these and related phenomena, we can examine not simply how information is diffused but how the emotions associated with that information is spread and to what effect.

As we consider the possible research directions above, it should be evident that each has implications for the social interactions that ensue. That is, the lessons we learn about emotional expression impact how we interact with those we meet. Our ability to cope has implications not simply for the amount of social interaction that we seek out or avoid but also for the quality of those interactions. The extent to

which we enjoy our media experiences has implications for who we might share them with not simply after, but also during, exposure. Indeed, how much we enjoy (or not) those experiences themselves can be very much tied to who is present (or absent) during consumption. Further, the social sharing of emotional media messages may help bond individuals and social groups, or conversely, threaten those ties. As media scholars, we do ourselves a disservice to think of emotional responses to media as strictly intrapersonal phenomena. Considering the context in which such reactions arise and the implications they have for social interaction will be an important step forward as we continue to develop our understanding of the emotional benefits and pitfalls of media-based coping experiences.

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8 Tragic and poignant entertainment

The gratifications of meaningfulness as emotional response

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It is understandable that media entertainment is most often associated with gratifications and responses related to pleasure and diversion (see Bryant 2004). The landscape of entertainment is populated with genres such as sitcoms, action movies, teen romance comedies, and game shows. Such fare affords individuals ample opportunity to laugh at buffoons, cheer for antagonists, and fall in love with heart-throbs on the screen. Perhaps as a result of the popularity of funny, cheerful, and thrilling entertainment, theorizing in media psychology has tended to broadly characterize the predominant desired and experienced outcome of entertainment consumption in terms of *enjoyment*. Scholars routinely use this term to assess favorable responses to entertainment (e.g., ‘Please rate the extent to which you enjoyed the program’) or to measure anticipated gratifications (e.g., ‘How much do you think you would enjoy this movie?’) (see Oliver and Nabi 2004 for a discussion of this issue).

One potential problem in conceptualizing entertainment in terms of enjoyment is that the term can be understood in overly narrow terms. Given that the root word of ‘enjoyment’ is ‘joy,’ it follows that *enjoyment* of entertainment may be understood as meaning that the entertainment was fun, pleasant, or positively valenced. Yet it is clear that there exist many examples of entertainment that, although ‘enjoyed’ by viewers, provide gratifications that do not necessarily rely only on positive affect. Mournful love songs, tear jerkers, tragic dramas, and disturbing documentaries are but a few examples of entertainment genres that are difficult to understand if positive affect is assumed to be the desired end (Oliver 1993; de Wied et al. 1994; Zillmann 1998). Nevertheless, the enduring popularity and perceived artistic accomplishment of these forms of entertainment throughout history attest to the idea that they provide some form of gratification, though enjoyment or hedonic pleasure (e.g., positively valenced affect, see Zillmann 1985), may not be the most apt descriptor. What form, then, might these gratifications take? This chapter suggests that entertainment, in addition to providing viewers with pleasure, can also provide viewers with insight about the human condition. By recognizing the importance of meaningfulness as an additional gratification, entertainment theory may be in a better position to consider the appeal of entertainment that may seem puzzling in light of assumed hedonic considerations.

We begin this chapter by considering various explanations for the appeal of ‘sad’ or ‘tragic’ entertainment that *are* consistent with hedonic concerns. We then turn to explanations that focus on meaningfulness as an additional dimension of gratifications that individuals may experience. Finally, we end our chapter by overviewing the phenomenology of meaningfulness – in terms of its emotional qualities, its

cognitive qualities, and what it may imply about enjoyment as the predominate response to media entertainment.

Hedonic motivations and the enjoyment of tragedy

In attempting to unravel the seeming paradox of the enjoyment of sad films, a number of explanations have been considered – all of which are plausible (e.g., Feagin 1983; Mills 1993; Zillmann 1998; cf. also Schwab and Schwender, this volume). Further, these explanations have intuitive appeal, as they are consistent with the notion that sad films may ultimately result in the experience of positive affect (or the repair of negative affect).

Tragedy as ultimately uplifting

Perhaps one of the most straightforward explanations for the enjoyment of sad films is that they generally end on positive or uplifting notes, leading to what is ultimately a positive emotional experience on the part of the viewer. From this perspective, such uplifting experiences may be contingent upon eventual narrative resolution (Bryant and Miron 2002), success of liked characters (Zillmann 1991), or thematically inspiring endings. In the first case, it is possible that the affective relief due to narrative resolution is actually *augmented* by feelings of distress in reaction to narrative events (de Wied et al. 1994). In the second case, as described by disposition theory, enjoyment is dependent on the outcomes for characters with whom audiences identify or empathize (Bryant and Miron 2002; Raney 2003, 2004). This approach assumes that liked characters eventually ‘win in the end’ – which is obviously not always the case. One might argue, then, that although the outcomes for liked characters are not as one might hope, audiences may recognize that the moral values reinforced by the film transcend the outcomes for individual characters.

Cathartic functions

Although a number of sad films or tear jerkers undoubtedly end on inspiring or uplifting notes, this explanation alone has a difficult time accounting for films with decidedly tragic or somber endings (e.g., *Leaving Las Vegas*, *Midnight Cowboy*, or *Dancer in the Dark*). In the absence of thematically inspired endings as noted above, how might such films and other tragic stories ultimately engender positive affective experiences? Perhaps one explanation harkens back to Aristotle’s (1961) observation that one effect of tragedy is the arousal and purging of pity and fear. From this perspective, sad films or other forms of tragic entertainment should elicit negative emotions during the process of viewing, but should ultimately result in improvements in affect subsequent to viewing after negative affect has been ‘purged.’ Although evidence for cathartic effects of other types of behaviors or emotions such as aggression and anger has received limited empirical support (Bushman 2002), there appears to exist considerable popular appeal for the notion that sad films or tear jerkers can purge viewers of negative affect. For example, references to ‘having a good cry’ or ‘getting it all out’ are very common, with popular books such as *Cinematotherapy: The Girl’s Guide to Movies for Every Mood* (Peske and West 1999) encouraging readers to select ‘weepies’ and ‘tear jerkers’ when feeling blue or melancholy as a means of purging and venting.

Similarly, Cornelius' (1997) review of popular advice columns concerning weeping and catharsis revealed that almost all of the columns (94 percent) advised readers that crying and weeping was healthy and beneficial.

Although the cathartic functions of tragic entertainment appear to hold wide-scale appeal, the idea that the expression of sadness or crying serves to reduce sad affect has been called into question (e.g., Zillmann 1998). If crying at a sad film fails to lead to lower levels of sadness, what, then, might explain the popularity of cathartic explanations for the appeal of tragedy? Perhaps one explanation rests on individuals' tendencies to misattribute or mischaracterize their affect to what is most salient in their surroundings (Loewenstein and Schkade 1999). With this in mind, given that crying and expressions of grief often result in soothing or supportive behaviors by others (Vingerhoets et al. 2000), individuals may misattribute feelings of positive affect to the expression of grief per se rather than the positive emotional support that often accompanies it. Likewise, Miceli and Castelfranchi (2003) argued that although people routinely report that crying allows for the venting of sadness, the more probable explanation is that crying allows for the venting of tension that accompanies the inhibition of emotional expression.

Therapeutic functions

The aforementioned discussion of catharsis implies that the expression of sadness may not lead directly to the reduction of negative affect (or to the enhancement of positive affect). Yet the idea that tragic entertainment somehow makes viewers 'feel better' can be explained by processes other than catharsis. Zillmann (2000) employed such reasoning in his discussion of telic hedonism, noting that, at times, people's entertainment choices may reflect the delaying of immediate pleasure for some longer-term good. Consistent with this argument, a number of researchers have suggested that sad films or negatively valenced content can assist viewers in coping with or reflecting upon their own lives, thereby ultimately increasing positive affect.

For example, Mares and Cantor (1992) argued that the viewing of sad or tragic media portrayals may lead to more positive affect among some viewers (e.g., those who are lonely or sad), as such portrayals allow for downward social comparison (Festinger 1954) to characters who are even worse off than themselves. In support of this reasoning, Mares and Cantor found that higher levels of loneliness were associated with a greater preference for viewing negative over positive media portrayals, and particularly for characters who were similar to themselves. Further, for lonely participants, viewing a media portrayal of a sad, downtrodden character resulted in higher levels of positive affect, whereas viewing more cheerful portrayals was ineffective at breaking the lonely viewers out of their bad moods. Although Mares and Cantor interpreted their results in terms of downward comparison, Zillmann (2000) suggested an additional interpretation of these findings. That is, it is possible that sad or unhappy portrayals may hold informational utility for those who are sad themselves, which may ultimately prove beneficial in helping viewers overcome their undesirable states.

The idea that mournful or tragic media may provide viewers with assistance in coping has been considered by a number of scholars (see Nabi et al., this volume). For example, Nabi et al. (2006) found that viewers experiencing regret reported greater interest in viewing media content featuring a character who also experienced a similar regretful experience. These authors suggested that, at times, individuals

may be motivated to consume media portrayals that are negatively valenced but relevant to their life experiences, thereby helping them cope with negative life events. Similar findings have also been obtained in terms of individuals' musical selections. For example, Knobloch and Zillmann (2003) found a tendency for individuals who lacked (but desired) romantic companionship to prefer love-lamenting over love-celebrating music. These results were interpreted, in part, as suggesting that lovelorn individuals take comfort or consolation in realizing that they are not alone (see also Gibson et al. 2000; Knobloch et al. 2004).

Summary

Many of the aforementioned explanations for the appeal of tragic or sad entertainment have received empirical support, and all are basically consistent with hedonic explanations of entertainment selection and enjoyment. Whether it be coping, venting, or ultimately feeling uplifted after viewing a sad film, these explanations rely on the notion that entertainment plays an important role in assisting individuals in their quest for positive affect. Undoubtedly, this motivation plays a crucial role in the entertainment experience for most people. At the same time, though, this type of explanation has forced us to expand the boundaries of what is meant by 'pleasure' in order to accommodate entertainment fare that appears to be at odds with hedonic concerns. In the next section we suggest that an additional motivation – the search for and experience of meaningfulness – may be a fruitful additional direction in explorations of the gratifications associated with more somber or contemplative entertainment.

The gratifications of meaningfulness

When considering what makes for 'happiness,' one naturally conjures up notions of pleasure or delight. At the same time, though, many ancient writers and contemporary scholars suggest that such hedonic concerns may be only one aspect of individuals' experience of well-being. For example, Aristotle in *Nicomachean Ethics* (1931) distinguished between hedonic happiness and 'true' happiness – labeled 'eudaimonia,' with the latter being characterized as the expression of virtue or living a life that is worth living. Recent theorizing has similarly adopted these distinctions. Based on Aristotelian writing, Waterman (1993) employed the terms *eudaimonia* to refer to happiness that is conceptualized in terms of personal expressiveness, and *hedonic happiness* that is conceptualized in terms of pleasure. Although Waterman reported that these two conceptualizations of happiness were empirically correlated, he also argued that eudaimonic happiness was more closely akin to feelings of self-realization and personal development.

Keyes et al. (2002) also argued for the importance of distinguishing between *subjective well-being* and *psychological well-being*, with the former being associated with high levels of positive affect and low levels of negative affect, and the latter being associated with feelings associated with personal growth, self-acceptance, and purpose in life. Similar distinctions were also noted by Ryan and Deci (2001) in their description of the role of affect in hedonic and eudaimonic conceptualizations of well-being. For hedonic conceptualizations, well-being is signified by higher levels of positive affect and lower levels of negative affect; for eudaimonic conceptualizations, the valence of

affect is secondary to the extent to which a person is engaged or ‘fully functioning.’ As these authors described, ‘under some conditions (e.g., the death of a loved one) a person would be considered to be more fully functioning, and, ultimately, to have greater well-being, if he or she experienced rather than avoided the negative feeling of sadness’ (pp. 150–1).

Applying these distinctions to the entertainment experience suggests that whereas media selection and gratification may often (or even primarily) reflect hedonic motivations such as the experience of fun, pleasure, or thrills, other entertainment consumption may reflect alternative *eudaimonic* motivations – greater insight about what makes life valuable, self-reflection, or contemplations of poignancy (Oliver 2008; Oliver and Raney 2008). Such a motivation is consistent with Zillmann’s (1998) discussion of the most apt descriptor of the gratifications associated with tragedy:

It may be considered ill-advised, in fact, to focus on enjoyment as a redeeming value of tragedy. Perhaps we should return to Aristotle’s (*Poetica*) declaration of tragedy’s object, namely the evocation of pity, and grant redeeming value to tragic drama’s capacity for honing our empathic sensitivities and for making us cognizant of our vulnerabilities, compassions, and needs for emotional wellness – a capacity that tragedy seems to possess to a greater degree than alternative dramatic forms.

(p. 12)

The extent to which entertainment can provide viewers with the opportunity to contemplate human poignancies has long been recognized by scholars in the humanities, and particularly for some forms of entertainment such as music or cinema. In contrast, social scientific explorations have been much more infrequent. However, some research from a uses-and-gratifications perspective points to the idea that insight, meaningfulness, and contemplations of the human condition may be important gratifications offered by entertainment. For example, Tesser et al.’s (1988) research on motivations for movie consumption identified three primary motivations: self-escape, entertainment, and self-development. Hedonic considerations appear most evident for the self-escape and entertainment motives, as these motives were characterized by selecting movies to forget problems, to escape bad moods, and when there was simply free time available. In contrast, eudaimonic considerations appear most evident for the self-development motivation, as this motivation was characterized by wanting to view movies to see how others think and feel, by selecting films that were successful in producing strong emotions, and with greater preferences for films such as *Kramer vs. Kramer* and *Ordinary People* over more light-hearted comedy movies. Similar uses-and-gratifications research points to analogous distinctions between hedonic and eudaimonic gratifications for media use in general. Namely, Katz et al. (1973) found that ‘self-gratification’ was an important need routinely fulfilled by media consumption. Although this gratification was associated with using media for purposes of entertainment and release of tension (consistent with hedonic concerns), this gratification was also associated with using media for purposes of raising morale and experiencing beauty – purposes that are more akin to eudaimonic considerations.

Whereas prior research in uses and gratifications implies the utility of distinguishing between hedonic motivations (seeking pleasure or positive affect) and

eudaimonic motivations (seeking meaningfulness), investigations into the specific, empirical viability of these distinctions have only recently begun to be undertaken. However, this growing body of research does suggest that these two motivations may reflect both trait-like motivations or enduring preferences, and state-like motivations or more transient interests. Recently, Oliver and Raney (2008) provided evidence of the validity of trait-like eudaimonic motivations by showing that these motivations (unlike hedonic motivations) were predicted by individual differences such as need for cognition (Cacioppo et al. 1984), self-reflectiveness (Trapnell and Campbell 1999), and search for meaning in life (Steger et al. 2006). Further, these motivations were associated with greater preferences for film genres such as dramas, documentaries, and sad films. In contrast, individual differences such as optimism, humor, and spontaneity (Goldberg 1990) predicted greater hedonic motivations, with these motivations in turn being associated with greater preferences for comedic films, action movies, and (to a slightly lesser extent) romances.

It is important to note that across these studies, scores on the hedonism sub-scale were generally significantly higher than were scores on the eudaimonic sub-scale, pointing to the prevalence of hedonic concerns as a primary entertainment motivation. At the same time, however, it is also worth highlighting that across the different samples that have completed the hedonism and eudaimonic scales (e.g., college students, adults, elderly populations), hedonism and eudaimonia scores were only weakly correlated. In other words, higher levels of hedonic motivations did not necessarily imply low levels of eudaimonic motivations or vice versa. Rather, the two dimensions appear to be orthogonal to one another. This finding is important to stress, as it suggests that it may be misguided to characterize the enjoyment of tragedy as necessarily 'counter-hedonistic.' Rather, such gratifications appear to represent an additional dimension that is not clearly described in terms of pleasure (or lack thereof) per se.

Research on eudaimonia as a state-like motivation is only beginning to emerge and is therefore merely suggestive at this point. However, recent findings suggest that it may be a viable explanation that could help to account for situations in which seemingly sad or melancholy individuals appear to prefer sad or tragic entertainment. Namely, Oliver (2008) recently reported a series of studies suggesting that people seeking meaningfulness or insight (a quest that may be associated with feelings of sadness) tend to prefer entertainment that focuses on the human condition, including both its joys and its tragedies. These studies supported the idea that tender affective states (characterized by feelings of tenderness, kindness, and sympathy) predicted greater interest in entertainment focused on human relationships (e.g., sad films, dramas, and romantic films), but that feelings of sadness or happiness specifically were largely unrelated to these preferences. One implication of these findings is that positive and negative affective states per se (i.e., pleasure and displeasure) are not always predictive of media preferences, whereas mixed affective states signifying greater meaningfulness may serve as useful predictors for some genres or types of portrayals. Future research that more specifically assesses hedonistic and eudaimonic states is clearly in order, not only to establish how and why these states may fluctuate over time, but also to assess the specific affective and cognitive elements that may accompany such states.

To summarize, research growing out of scholarship on notions of well-being and happiness suggests that a fruitful explanation for the seeming paradox of the enjoyment of sad films may rest on the recognition of an additional entertainment

motivation – meaningfulness or eudaimonia. By recognizing that entertainment can serve functions of both pleasure *and* insight – functions that are not necessarily polar opposites – the gratifications associated with more somber, contemplative, or even tragic entertainment may begin to seem less puzzling. Given that the exploration for this line of reasoning is relatively new, however, many questions remain concerning meaningfulness as an entertainment experience. Among them are questions regarding what meaningfulness *feels like* while viewing and how the viewing experience may best be characterized. It is toward these sorts of questions that we direct our attention in the last section of our chapter.

The phenomenology of meaningfulness as an entertainment experience

The experience of viewing many types of entertainment is often identified by reference to a primary emotion: comedies – humor; horror – fear; action – thrill. Tragedies in particular are often referred to in terms of the primary emotional response that they are thought to elicit: tear jerkers, weepies, three-hankie movies. Yet emotional and cognitive responses are clearly more complex than these singular descriptors, as affective reactions undoubtedly fluctuate throughout the viewing experience. Further, how individuals interpret their responses certainly plays an important role in the overall evaluation of the entertainment process (Oliver 1993; Bartsch et al. 2008). Likewise, affect and cognition surely facilitate engagement in narratives, and engagement itself – separate from the valence of the affect that may accompany it – undoubtedly represents a crucial part of enjoyment.

This brief discussion alone illustrates the complexity of the role of affect and cognition in *entertainment*, but applying these concepts to the experience of *meaningfulness* is even more tricky, as the experience of meaningfulness does not appear to be associated with any single discrete emotion or any identifiable valence. Further, we believe that the feeling of meaningfulness may be closely tied to cognitive engagement (as suggested by the positive correlations between eudaimonia and need for cognition). Consequently, we divide this final section of the chapter into three related discussions. First, we review research on engagement and transportation, as these perspectives differ from hedonic considerations in terms of the emphasis placed on affective valence. We then turn to a discussion of the affective and cognitive elements that may best characterize engagement in terms of meaningfulness or eudaimonic concerns. Finally, we suggest, as did Zillmann (1998), that terms other than ‘enjoyment’ may be better descriptors of viewer response when meaningfulness is the most salient gratification.

Engagement

Many scholars argue that experiential engagement with entertainment narratives is in and of itself an enjoyable experience, regardless of the valence of the affect associated with that experience. Transportation theory, for example, holds that affective, cognitive, and imagery involvement in a narrative leads to greater enjoyment, irrespective of content valence (Green et al. 2004). In this sense, transportation is related to concepts such as absorption (Zillmann 1988), presence (Lee 2004), and flow (Sherry 2004). In the case of absorption, however, engagement with

media content may ultimately be gratifying because it serves to diminish negative mood states by interfering with the cognitive ‘rehearsal process’ (Zillmann 1998). In contrast, according to transportation theory, engagement is not necessarily premised upon hedonic gratifications in particular.

A recent conceptualization which illuminates the process of transportation is Busselle and Bilandzic’s (2008) model of narrative engagement. Their model is based upon the idea that building an understanding of narrative events is an ongoing and absorbing mental exercise. This explanation of narrative engagement is closely related to the concept of flow, in which the challenge of building mental models in response to narrative events is an enjoyable experience, irrespective of the mood it may accompany (Busselle and Bilandzic 2008).

Transportation could also explain positive evaluations of viewers’ negative emotions due to the ability of the transportation experience to facilitate identification, understanding of one’s own life circumstances, and ‘self-transformation’ (Green et al. 2004; Green 2005). Feelings of identification with story characters may precede, follow, or occur simultaneously with experiences of transportation (Bilandzic and Busselle 2006). To the extent that transportation increases identification with story characters, such experiences may thus be found enjoyable based on the human desire for companionship, belonging, and connectedness (Green et al. 2004). In the case of negatively valenced content, Green (2005), citing the earlier work of Oatley (1999), argues that the transportation experience may also ‘provide a middle ground where emotions are experienced enough for their meaning to be understood, but where these emotions do not overwhelm the reader’ (p. 61). Such a process could allow a space in which viewers are allowed a reflective experience of negative mood, even while that mood is not necessarily diffused.

Meaningfulness and affect

Engagement and transportation is clearly a crucial part of the entertainment experience, and it speaks to the idea that enjoyment may not necessarily directly correspond to the valence of the affect that is elicited. We also believe that it is an important component of eudaimonic experiences, as the importance of meaning (or meaning-making) is crucial to both perspectives. With that said, though, we further suggest that feelings of meaningfulness may be associated with unique affective reactions, though not ones that are as easily identified as discrete, primary emotions such as joy, sadness, fear, or disgust. Namely, we take the position that the affective state that we characterize as ‘meaningfulness’ may be better described by conceptualizing it not only in terms of affective blends, but also in terms of the cognitive elements that are *part of* the affective state. Rather than conceptualizing the role of cognition in meaningfulness only as an instigator of the state (i.e., cognitive appraisal leading to the state), our conceptualization of meaningful affect includes cognitive elements such as introspection or contemplation (as well as affective elements such as warmth and tenderness) that are part of the experience of the state itself. Below we first review research on nostalgia, poignancy, and elevation to suggest that meaningfulness is likely associated with mixed affective states. We then turn to research on viewers’ responses to tender, meaningful, and tragic media entertainment, and we ultimately suggest that affective responses that accompany meaningful or eudaimonic entertainment consumption likely reflect a blend of cognitive and affective components that signify higher levels

of contemplativeness and introspection, and mixed affective reactions that reflect *both* positively and negatively valenced feelings.

The experience of nostalgia is one example of the types of affective reactions that we believe are related to meaningfulness. Although research on nostalgia is arguably only recently beginning to attract systematic scholarly attention, this growing body of research suggests that nostalgia reflects the co-occurrence of positive and negative affect as it relates to feelings of meaningfulness. Sedikides et al. (2004) highlighted the importance of meaningfulness and human connection in the experience of nostalgia: 'Nostalgia is an existential exercise in search for identity and meaning, a weapon in internal confrontations with existential dilemmas, and a mechanism for reconnecting with important others' (pp. 202–3; see also Routledge et al. 2008).

Importantly, too, research on nostalgia suggests that it reflects both positive and negative elements. For example, Holak and Havlena's (1998) research reported that when describing nostalgic events, individuals often refer to both pleasant emotions (e.g., warmth, affection, tenderness) and unpleasant emotions (e.g., sorrow, wistfulness). Likewise, Wildschut et al. (2006) found that although the experience of nostalgia was primarily associated with positive affect, participants in their research reported both positive and negative features of nostalgia (e.g., being happy, remembering fun times, feeling sadness, feeling loss).

'Poignancy' is an additional affective response related to the experience of meaningfulness, and like the experience of nostalgia, appears to be associated with the co-occurrence of positive and negative affect. Indeed, Ersner-Hershfield et al. (2008) recently argued that feelings of poignancy can be conceptualized and operationalized as 'a mixed emotional experience that occurs when one is reminded of the passing of time during a meaningful experience' (p. 165). In this research, meaningful endings could refer to the awareness of the loss or potential loss of something that holds particular meaning (e.g., a person, a period of time, an important event), including the broad awareness of one's life as ultimately fleeting. Importantly, an awareness of the fragility of human life may result in poignant feelings – feelings associated with the simultaneous experience of positive and negative affect.

The feeling of inspiration is a final affective state that some researchers believe is related to meaningfulness. Recent research in positive psychology has turned its attention to the types of affective responses associated with perceptions of morality. Specifically, Haidt's (2003a) research on 'moral emotions' has identified an affective state that he labeled 'elevation.' Elevation, similar to notions of inspiration, is broadly characterized as feeling emotional or moved in response to 'seeing humanity's higher or better nature' (p. 864), including such acts as kindness, sacrifice, and loyalty. Further, Haidt (2003b) suggests that elevation is associated with unique affective experiences, such as feeling uplifted or optimistic about humanity, unique physiological reactions, such as a warmth or tingling in the chest, and unique motivational tendencies, such as wanting to help others or desiring to be a better person. Although elevation is generally characterized in terms of positive affective reactions, Silvers and Haidt (2008) recently noted that elevation is also often associated with tinges of sadness. In their research, participants watched either an amusing comedy clip or a moving musical tribute (designed to elicit elevation). Although both groups reported equally high levels of happiness and joy, participants in the elevation condition also reported greater feelings of chills or goosebumps, and experienced a

greater frequency of tears or crying. These authors interpreted their findings as suggesting that elevation may be associated with tender feelings that signify a tendency toward comforting and caring for others.

To summarize, extant research points to a host of affective states that seem relevant to explorations of sad or tragic entertainment. Nostalgia, poignancy, and elevation are all examples of states related to feelings of meaningfulness, be it in terms of meaningfulness of life itself, meaningfulness of human virtue, or meaningfulness of life purpose. Importantly, too, all are composed of complex blends of cognition and positive–negative feelings.

Unfortunately, research in media psychology has not tended to explore the complex affective reactions that may form the basis of meaningful viewing. Rather, media scholars have more frequently measured more basic emotions (e.g., sadness, happiness, fear), and have further tended to treat positive and negative affect as opposite ends of a bi-polar continuum. However, the few studies that have examined more complex affective states suggest that ‘meaningful affect’ may be a unique response that occurs in reaction to moving and poignant portrayals of the human condition, including both joyful and tragic portrayals. For example, Larsen et al. (2001) examined the relationship between happiness and sadness in a variety of different circumstances, including after viewing the film *Life is Beautiful*. These authors found that although many people reported feeling either happy or sad, the co-occurrence of these emotional responses was not atypical. Likewise, Schaefer et al. (2005) reported that a variety of film stimuli (e.g., *Ghost*, *Forrest Gump*, and *Dead Poets Society*) resulted in what they labeled ‘tender’ emotions representing a blend of affective reactions (e.g., moved, loving, affectionate, sad). Even research on more moving or sentimental television commercials has revealed similar findings. For example, Edell and Burke’s (1987) factor analysis of feelings while viewing a series of advertisements resulted in a ‘warmth’ factor that included such items as *touched*, *moved*, *pensive*, *contemplative*, and *emotional*. Further, these authors noted that positive and negative feelings often co-occurred as participants watched ads, and particularly for poignant or touching ads (see also Burke and Edell 1989; Escalas and Stern 2003).

Together, the research reviewed above related to the mixed-affective and cognitive responses to poignant and meaningful experiences suggests one potentially fruitful way to interpret the seemingly paradoxical question as to why sad films may be appealing, and particularly to people who are feeling sad or blue themselves. Existing research has tended to conceptualize and measure affective predictors of entertainment selection and affective reactions to entertainment in terms of positive–negative valence that is at opposite ends of a continuum. That is, high levels of positive affect have typically been assumed to represent low levels of negative affect and vice versa. However, by recognizing that feelings of poignancy or the search for meaningfulness can elicit the simultaneous experience of positive and negative affect, rather than assuming that ‘sadness increases the appeal of tragedy,’ perhaps a more apt descriptor is that people who are seeking or contemplating meaningfulness gravitate toward portrayals that grapple with questions of human poignancies. If this characterization holds some validity, then describing such an entertainment experience in terms of ‘enjoyment’ seems somewhat odd (in contrast to, for example, the enjoyment of a sitcom, a football game, or an action flick). Consequently, the final section of our chapter considers the utility of expanding the scope of entertainment gratifications to account for *appreciation* in addition to *enjoyment*.

Appreciation as audience response

As noted above, to say that one ‘enjoyed’ some tragic form of entertainment seems decidedly odd under some circumstances, and potentially offensive in others. One can imagine, for example, experiencing gratification from the viewing of films such as *Schindler’s List* or *Hotel Rwanda*, but to describe the experience as ‘enjoyable’ or ‘entertaining’ undermines the tragic seriousness of the portrayal. Although in practice, research participants may not make such fine distinctions between terms such as ‘enjoyment’ and ‘gratification,’ we run the risk of misrepresenting viewer gratification should our use of such terms in measuring viewer response prime thoughts of merriment or amusement.

What words, then, might better capture the experience of meaningful or eudaimonic viewing? Oliver and Bartsch’s (2010) recent research implies that ‘enjoyment’ may more closely approximate hedonic concerns, whereas ‘appreciation’ may more aptly describe entertainment that is more akin to eudaimonic considerations. In their research, enjoyment is composed of fun-related gratifications (e.g., ‘I had a good time watching this movie’) and, to a lesser extent, thrill-related gratifications (e.g., ‘This movie had lots of great twists and turns’), whereas appreciation is composed of gratifications related to meaningfulness (e.g., ‘The movie was thought provoking’, ‘I was moved by this movie’). Despite these differences, though, both dimensions are associated with favorable impressions of the entertainment product (i.e., the film) and the viewing experience, and both are related to perceptions that the film will result in more lasting impressions. Importantly (and predictably, too), appreciation scores are generally higher for more somber portrayals that have generally been characterized as representing the genre of sad films.

Oliver and Bartsch’s (2010) distinctions between enjoyment and appreciation are not meant to suggest that the two audience responses are at opposite ends of a continuum – that a viewer can only experience one response to any given entertainment experience. In contrast, these authors suggest that these are different dimensions of audience response, both of which are associated with different affective responses. Whereas enjoyment is most typically associated with positive affect (e.g., fun, amusement), appreciation is most typically associated with affective and cognitive blends described earlier in this chapter that we believe are most aptly described in terms of meaningfulness. By recognizing that appreciation is not the *opposite* of enjoyment, but is rather a dimension of audience response that has yet to receive adequate empirical attention, this distinction opens up new avenues to explore affective responses that should not be characterized as indicating the *absence* of positive affect, but as indicating an alternative *type* of affect that eludes description in terms of positive–negative valence only. Appreciation – an audience response associated with *meaningful* affect – is an experience that allows for strong emotions, but ones that likely involve *both* positive and negative affect (e.g., joy, tenderness, bittersweetness, inspiration) *and* cognitive components (e.g., introspection, contemplativeness).

Concluding thoughts

Entertainment psychology has understandably focused on the notion of audience enjoyment. Implied in this focus is an association of enjoyment with positive affect, and

a conceptualization of enjoyment (and its related affect) in unidimensional terms. Unfortunately, the use of a single dimension has led to considerable difficulty in understanding how viewers could derive gratification from entertainment that seemingly elicits sad or negative affect. In this chapter we have attempted to suggest the utility of adding an additional dimension to accompany hedonic considerations – that of meaningfulness or eudaimonic motivations. Further, we suggest that the addition of this gratification implies complex cognitive and affective elements that heretofore have been treated as opposing reactions (e.g., happiness, sadness). Ultimately, we hope that in considering this additional gratification, and the affect and cognitions that accompany it, we have added to the discussion of how media entertainment can do more than merely entertain, but can assist its viewers in grappling with questions of our human poignancies and fragile compassions.

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9 Fear reactions and the mass media¹

Joanne Cantor

This chapter summarizes what researchers have uncovered about viewers' fear reactions to the mass media. It first looks at how fear effects are studied and then at the frequency with which fright reactions to media are experienced and how intense and enduring these reactions sometimes become. Various speculations about the attractions of scary media are advanced in an attempt to explain the apparent paradox that viewers choose frightening, distressing content for entertainment. Developmental differences in what frightens children and in which coping strategies are most effective are detailed. Findings in neuroscience are then described to help explain some of the longer-term effects that appear on the surface to be irrational. Finally, the implications for physical and mental health are explored and suggestions for future research are discussed.

Although there are many effects of the mass media that are subtle or take years to develop, almost every adult seems to be able to remember at least one experience in which they were immediately and intensely frightened by something they saw on television or in a movie, with effects that endured well beyond the time of viewing (cf. Altheide, this volume). The following report by a college student is typical:

I loved every minute of *Poltergeist*. It was like nothing I had ever seen. It was gory and scary and so exciting. Well, in broad daylight at least. That night at home was a completely different story. I was terrified and I didn't know what to do ... I was in a state of emergency because the clown that was now under my bed was about to come out any minute if I didn't take immediate action ... I crawled in between my parents in bed, hoping they wouldn't notice me, but they did ... I slept with them in their bed for two whole weeks.

(Cantor 1998: 6)

How fear effects are studied

The study of individuals' fright reactions to media faces many methodological dilemmas. Not only is fear itself an aversive emotional state, but also there is general agreement that it is unethical to produce long-term effects such as sleep disturbances and lingering anxieties for research purposes. This moral quandary is especially keen when studying the responses of children. Because of these problems, a variety of approaches have been used to study fright reactions in viewers without producing long-lasting harm.

Experiments

The most direct means of studying fright reactions to media is to bring children or adults into the laboratory and to show them frightening scenes from television programs or movies. The responses of viewers are assessed through self-reports, sometimes with the addition of physiological responses, the recording and coding of facial expressions, or behavioral measures of approach or avoidance regarding something related to the content of the presentation. Of course, all research protocols involving human participants must be submitted to Institutional Review Boards. When children are involved, parental consent is required, and it is necessary to employ only mildly frightening fare – that is, programs or movies similar to those that most children in the age group studied would be likely to see anyway. In addition, parents are invited to pre-screen the presentation before deciding whether to give their consent. After the experiment, researchers talk to the children about what they have seen to minimize the likelihood that the child will leave with lingering anxieties. The goal of the experimental research is not to demonstrate harm. Rather, experimental research compares the emotional reactions produced by slightly different versions of the same program excerpt or by the same excerpt when viewed by different age groups or under different circumstances.

Surveys and retrospective reports

Evidence for intense and enduring emotional reactions, including sleep disturbances and lingering anxieties, comes from studies of people who have encountered frightening media on their own, outside of the research laboratory. Survey responses, including observations by parents of their children, self-reports by both children and adults, and more in-depth retrospective reports, provide evidence of longer-term, sometimes harmful effects. Although all self-reports and observations are potentially subject to a variety of biases, they are the only way to access the types of reactions that it is unethical to produce in the laboratory. What is encouraging about the research on media and fear is the fact that the findings observed by these various methods converge. For example, surveys, experiments, and retrospective reports agree on the observed developmental differences in what frightens children; and parents' reports of their children's reactions have identified many of the same patterns observed when children report about themselves.

Findings on the prevalence and intensity of fright reactions

Media researchers have been reporting on fright reactions since the 1930s, when Herbert Blumer (1933) noted that 93 percent of the children he questioned said they had been frightened or horrified by a motion picture. Although children's fears were studied sporadically in the succeeding decades, this area received increased public attention in the 1970s after intense emotional responses to such popular films as *Jaws* and *The Exorcist* appeared prominently in the press. By the mid-1980s, researchers were focusing sustained attention on the media and children's fears (see Cantor 2009).

Correlational studies show that a child's amount of television exposure is related to both anxieties (Singer et al. 1998) and sleep disturbances (Owens et al. 1999; Paavonen et al. 2006). A recent longitudinal study supports a contributory role for

TV in sleep problems: J.G. Johnson et al. (2004) reported that adolescents who watched more than three hours of television per day at age 14 were significantly more likely than lighter viewers to experience sleep problems at ages 16 and 22. This relationship remained even after controlling for previous sleep problems and other factors such as child psychiatric disorders and parental education, income, and neglect. Moreover, respondents who reduced their amount of television viewing between the ages of 14 and 16 were significantly less likely to experience sleep disturbances at ages 16 and 22. Another survey, involving a representative sample of students in Belgium, reported that approximately one-third of 13-year-old boys and girls said they experienced media-induced nightmares at least once a month (Van den Bulck 2004).

There is an increasing body of evidence that the fear induced by mass media exposure endures well beyond the time of viewing, with sometimes intense and debilitating effects. In a random survey by B.R. Johnson (1980), 40 percent of the adults interviewed said that they had seen a motion picture that had disturbed them 'a great deal,' and the median length of the reported disturbance was three days. Based on the intensity and duration of symptoms such as nervousness, depression, fear of specific things, and recurring thoughts and images, Johnson concluded that 48 percent of these respondents had experienced, for at least two days, a 'significant stress reaction' as the result of watching a movie.

Retrospective studies of adults' detailed memories of having been frightened by a television show or movie provide more evidence of the severity and duration of media-induced fear (Cantor 2004a; Harrison and Cantor 1999; Hoekstra et al. 1999). In these studies, involving samples of undergraduates from three universities, the presence of vivid memories of enduring media-induced fear (mostly from movies) was nearly universal. These studies revealed a variety of intense reactions, including generalized anxieties, specific fears, unwanted recurring thoughts, and disturbances in eating and sleeping. Moreover, Harrison and Cantor (1999) reported these fears to be long-lasting: more than one-fourth of the respondents said that the emotional impact of the program or movie (viewed an average of six years earlier) was still with them at the time of reporting. In the study by Cantor (2004a), 37 percent of the fifty-two college students who reported having been frightened by either *Jaws* or *Poltergeist* before the age of 12 reported that their reaction was still adversely affecting some aspect of their waking life.

A recent study involved interviewing elementary school children (age 5 to 12) to determine whether they would report similar enduring effects of scary television and films (Cantor et al. 2010). Of this sample, 76 percent said they had been frightened by something in the media, and 38 percent of these children reported being scared to do something afterward, such as being alone, being in their bedroom or bathroom, or going into the water. Almost one-fourth of those who reported experiencing fear from media said that the fear effects were still with them at the time of the interview.

Why we watch scary media

We were scared out of our minds but we couldn't take our eyes off the screen or turn off the VCR.

(Cantor 1998: 161)

For me, the resolution that gave me the most pleasure was when Dorothy finally killed the Wicked Witch of the West. I was far less concerned with how she got back to Kansas.
(Cantor 1998: 165)

Given the common adverse side-effects of viewing frightening media, it is interesting to speculate about why such fare is eternally popular. As Tamborini has argued with regard to horror films,

the hard part is finding a reasonable explanation for the great popularity of these films. How could any rational person enjoy watching the realistic portrayal of a young man's head exploding in a film like *Scanners*? Why would any sane person pay money to see a movie when they know it will scare them senseless?
(Tamborini 1991: 305)

Although research shows that many people who have been frightened by movies watched them by accident or because other people wanted to see them (Harrison and Cantor 1999; Cantor et al. 2010), there is no doubt that many people seek out frightening fare as a form of entertainment. Speculations on the appeal of frightening media abound (see Goldstein 1998; Tamborini 1991).

Mastery of fears

One reason often advanced for the attraction of scary media is that people expose themselves to frightening entertainment to help them cope with their apprehensions and fears about real threats in their own lives. Zillmann (1980) contended that apprehensive individuals selectively expose themselves to suspenseful television programming because they are aware that the typical plot involves the successful restoration of order and justice at the end of the program. He argued that anxious individuals may be trying a self-administered desensitization procedure when they expose themselves to dramatic depictions that portray the 'good guys' triumphing and the 'bad guys' being brought to justice. This rationale leads to the expectation that people who are more anxious should expose themselves to scary content as a means of coping with, or mastering their anxieties. There is some evidence, in fact, that anxious people expose themselves to horror films that present a satisfying resolution (Tamborini and Stiff 1987). Zillmann (1991) has also argued that via excitation transfer, the fear experienced in scary movies produces physiological arousal that carries over and can intensify the positive feelings associated with the satisfying resolution.

Although some fear-provoking programs do provide reassuring conclusions, many frightening movies do not provide satisfying resolutions at all. Often, many innocent victims are sacrificed before a threatening creature is subdued and, quite frequently, the villain shows a high likelihood of returning (at least in the sequel). So although individuals may be motivated to watch scary media to master their fears, it appears that increased fears are more likely to result than reassurance.

For thrills and physiological stimulation

Another prominent explanation, and one that seems more plausible, is that people watch frightening entertainment because it is stimulating, physiologically arousing,

and an easy antidote to boredom (Bryant and Miron 2002). Zillmann (2003) argues that we enjoy the 'emotional rollercoaster rides' that entertainment provides as it 'manipulate(s) and toys with our emotions.' There is a good deal of evidence that frightening programs and movies reliably increase peripheral indicators of arousal, such as heart rate, blood pressure, and skin temperature (Zillmann 1991). Zillmann and Bryant (1985) argue that television's capacity to increase arousal accounts for viewers' selective exposure to programs in some situations. They argue that people are motivated by a hedonically based drive toward excitatory homeostasis. Thus, for example, people who are bored or feel understimulated are most receptive to programming that produces excitement (Zillmann 1988).

Another reason to expect viewers to be drawn to scary media for their arousal-inducing capabilities can be derived from Zuckerman's (1979) 'sensation-seeking' motive. Zuckerman argues that individuals vary in their need for arousal and that one function of arousal-inducing activity choices is to provide stimulation for those who are high in sensation-seeking. Consistent with this notion, attraction to horror films is positively associated with sensation-seeking (Tamborini and Stiff 1987).

To engage in gender-appropriate behavior

Another popular explanation for the attractiveness of scary media relates to gender roles. Research shows that females are more likely than males to be scared by media presentations, although some of the difference may be attributable to males' lesser tendency to admit being frightened (Peck 1999). Males are also more attracted to frightening media than females are (Hoffner and Levine 2005). Moreover, some evidence has been presented that scary movies may play a role in gender-role socialization in opposite-sex viewing contexts. Zillmann and his colleagues reported that males enjoyed a scary movie more when viewed with a female companion who expressed fear, whereas females enjoyed it more when their male companion showed a stoic response to the movie (Zillmann et al. 1986). These researchers argued that scary movies may provide young people with the opportunity to display traditionally gender-appropriate behavior in each other's presence.

Age differences in attraction to fear-inducing content

Attraction to frightening media varies as a function of age. Twitchell (1989) argued that interest in vicarious participation in violence is at its height among adolescent males because adolescence is the time when boys must struggle to bring their aggressive urges under control and to ready themselves for the responsibilities of adulthood. Arnett (2004), in talking about 'emerging adulthood' (the age range of 18 to 25), spoke about young adults' newfound freedom and the opportunity to explore a variety of risky behaviors before having to settle down and adopt safer, responsible roles. Mares et al. (2008) argued that emerging adults may thus consider the exploration of intense emotions, both positive and negative, as valuable. Consistent with these speculations, there is a curvilinear relationship between age and attraction to scary media, with interest increasing in the teen years and early adulthood, and then declining strongly thereafter. Hoffner and Levine (2005) found that the correlation between age and enjoyment of frightening entertainment was positive in studies using child samples (preschool through grade six), approximately zero for an adolescent

sample (grades six to ten), and negative for a community sample of adults. Mares et al. (2008) found that interest in watching scary films declined sharply from young adults (18–25 years) to middle adults (26–49 years) and declined further from middle adults to older adults (50 years and over).

Developmental differences in what frightens children in the media

An example that I will never forget is when I watched the movie *Pinocchio*. I saw this movie with my mother when I was about four or five years old. I really thought that what was happening in the movie was real. In the movie, if a child misbehaved, he or she was turned into a donkey. Also, if a child lied, their nose would grow. I really believed that this would happen to me if I was bad. I remember being extremely scared even a few weeks after I had seen the movie because I thought that the same thing would happen to me if I misbehaved.

(Cantor 1998: 89)

In addition to age differences in attraction to frightening presentations, there are important differences in what is frightening at different ages. Experiments and surveys have been conducted to test expectations based on theories and findings in cognitive development. These studies divide viewers into three approximate age ranges: young children or preschoolers (up to 6 years), elementary school children (6–12 years), and teenagers and older (ages 13 and up). This last group tends to respond similarly to adults.

The importance of appearance

Research on cognitive development indicates that, in general, very young children react to stimuli predominantly in terms of their immediately perceptible characteristics and that with increasing maturity, they respond more and more to the conceptual aspects of stimuli (see Flavell 1963). Research findings support the generalization that the impact of appearance in frightening media decreases as the child's age increases. In other words, preschool children (up to the age of about 5 years) are more likely to be frightened by something that looks scary but is actually harmless than by something that looks attractive but is actually harmful; for older elementary school children (approximately 9–11 years), appearance carries much less weight, relative to the behavior or destructive potential of a character, animal, or object.

This generalization is supported by a survey conducted in 1981 (Cantor and Sparks 1984), in which parents were asked to name the programs and movies that had frightened their children the most. In this survey, parents of preschool children most often mentioned offerings with grotesque-looking characters, such as the television series *The Incredible Hulk* and the feature film *The Wizard of Oz*; parents of older elementary school children more often mentioned programs or movies (such as *The Amityville Horror*) that involved threats without a strong visual component, and that required imagination to comprehend. Sparks (1986) replicated this study, using children's self-reports rather than parents' observations, and obtained similar findings. Both surveys included controls for possible differences in exposure patterns in the different age groups.

Another study supporting a similar conclusion explored children's reactions to excerpts of the television program *The Incredible Hulk* (Sparks and Cantor 1986). Although this program, about a man who transforms into a grotesque super-hero to perform good deeds, was not intended to be scary, Cantor and Sparks' (1984) survey reported that it was named by 40 percent of the parents of preschoolers as a show that had scared their child. When children were shown a shortened episode of the Hulk program and were asked how they had felt during different scenes, preschool children reported the most fear after the attractive, mild-mannered hero had transformed into the monstrous-looking Hulk. Older elementary school children reported the least fear at this time, because they understood that the Hulk was really the benevolent hero in another physical form, and that he was using his superhuman powers to help a character who was in harm's way. Preschool children's unexpectedly intense reactions to this program seem to have been partially due to their over-response to the visual image of the Hulk character and their inability to look beyond his appearance and appreciate his benevolent behavior.

Another study (Hoffner and Cantor 1985) tested the effect of appearance more directly by creating a story in four versions, such that a major character was either attractive and grandmotherly looking or ugly and grotesque. The character's appearance was varied factorially with her behavior: She was depicted as acting either kindly or cruelly. In judging how nice or mean the character was and in predicting what she would do in the subsequent scene, preschool children were more influenced than older children (6–7 and 9–10 years) by the character's looks and less influenced by her kind or cruel behavior. As the age of the child increased, the character's looks became less important and her behavior became more influential. A follow-up experiment showed that in the absence of information about the character's behavior, children in all age groups engaged in physical appearance stereotyping – that is, they thought that the ugly woman would be mean and the attractive woman would be nice.

Responses to fantasy content

The development of more 'mature' fears seems to require the acquisition of knowledge regarding the objective dangers posed by different situations. One important component of this knowledge includes an understanding of the distinction between fantasy and reality, a competence that develops only gradually throughout childhood (see Flavell 1963; Morison and Gardner 1978).

Consistent with the gradual development of the fantasy-reality distinction, research shows that as children mature, they become less frightened by fantastic dangers and more responsive to realistic threats depicted in the media. In Cantor and Sparks' (1984) survey of what had frightened children, the parent's tendency to name fantasy offerings, depicting events that could not possibly occur in the real world, decreased as the child's age increased, and the tendency to mention fictional offerings, depicting events that could occur, increased. Only a small minority of parents responding to this survey mentioned real content, as in the news or documentaries (see also Sparks 1986).

Although the news comes up much less frequently than movies and television shows when respondents are asked to report on what has frightened them *the most* in the media (Cantor 2004a), television news does frighten children often (Cantor and

Nathanson 1996). Consistent with children's gradual acquisition of the fantasy–reality distinction, fright responses to news generally increase from preschool to elementary school. In addition, different types of news content frighten children of different ages. Young children are more likely to be frightened by news stories in which the threat is vividly depicted visually, such as, for example, those dealing with natural disasters, than by stories reporting less visible threats.

Responses to abstract threats

Theories and findings in cognitive development show that the ability to think abstractly emerges relatively late in adolescence (Flavell 1963). Consistent with this notion, as children mature, they become frightened by media depictions involving increasingly abstract concepts. Data supporting this generalization come from a survey of children's responses to the television movie *The Day After*, which depicted the devastation of a Kansas community by a nuclear attack (Cantor et al. 1986). Although many people were concerned about young children's reactions to this movie, the fact that the emotional impact of the film comes from the abstract notion of the potential annihilation of the earth led to the prediction that the youngest children would be the least affected by it. In a random telephone survey of parents conducted the night after the broadcast of this movie, children under 12 were reportedly much less disturbed by the film than were teenagers, and parents were the most disturbed. The very youngest children were the least frightened. The findings seem to be due to the fact that nuclear annihilation is a concept that is beyond the grasp of the young child. The visual depictions of injury in the movie were quite mild compared to the enormity of the consequences implied by the plot.

Increasing responsiveness to abstract threats as children mature is also seen in the types of news stories that children respond to with fear (Cantor and Nathanson 1996). For example, elementary school children are more likely than younger children to be frightened by stories of kidnapping or child molestation, in which the crime is usually described, but not shown visually; teenagers are more likely than younger children to respond fearfully to even more abstract news stories, such as those involving the potential for diseases such as AIDS and those involving international tensions.

Developmental differences in the effectiveness of coping strategies

Mother tells me that no matter how much she tried to explain to me that what was on TV was make-believe, I was still shaking. Her only option was to stay up with me all night, touching me and singing to me softly.

(Cantor 1998: 131)

Age differences are also prominent in the effectiveness of strategies to prevent or reduce media-induced fears (Cantor 1998; Cantor and Wilson 1988). Based on developmental differences in information-processing abilities, the findings of research on coping strategies can be summed up in the following generalization: in general, pre-school children benefit more from 'noncognitive' than from 'cognitive' strategies; both cognitive and noncognitive strategies can be effective for older elementary school

children, although this age group tends to prefer cognitive strategies (Cantor and Wilson 1988).

Noncognitive strategies

Noncognitive strategies have been defined as those that do not involve verbal information (words) and that appear to be relatively automatic (Cantor and Wilson 1988). The process of visual desensitization, or gradual exposure to threatening images in a nonthreatening context, is one such strategy, and it has been shown to be effective for both preschool and older elementary school children. In several experiments, prior exposure to live or filmed animals (Weiss et al. 1993; Wilson 1989a; Wilson and Cantor 1987) reduced children's fear in response to movie scenes featuring similar creatures. None of these experiments revealed developmental differences in the effectiveness of desensitization techniques.

Other noncognitive strategies involve physical activities, such as clinging to an attachment object or having something to eat or drink. Younger children consider these strategies to be more effective and report using them more often than older children do. In a study of children's perceptions of the effectiveness of strategies for coping with media-induced fright, preschool children's evaluations of 'holding onto a blanket or a toy' and 'getting something to eat or drink' were significantly more positive than those of older elementary school children (Wilson et al. 1987).

Another noncognitive strategy that has been shown to have more appeal and more effectiveness for younger than for older children is covering one's eyes during frightening portions of a presentation. In an experiment by Wilson (1989b), when covering the eyes was suggested as an option, younger children used this strategy more often than older children did. Moreover, the suggestion of this option reduced the fear of younger children, but actually increased the fear of older children. Wilson noted that the older children recognized the limited effectiveness of covering their eyes (while still being exposed to the audio) and may have reacted by feeling less in control, and therefore more vulnerable, when this strategy was offered to them.

Cognitive strategies

Cognitive strategies involve verbal information, such as an explanation that is used to cast the threat in a different light. These strategies involve relatively complex cognitive operations, and research consistently finds such strategies to be more effective for older than for younger children.

When dealing with fantasy depictions, the most typical cognitive strategy seems to be to provide an explanation that focuses on the unreality of the situation. This strategy should be especially difficult for preschool children, who do not have a full grasp of the fantasy-reality distinction. In an experiment by Cantor and Wilson (1984), older elementary school children who were told to remember that what they were seeing in *The Wizard of Oz* was not real showed less fear than their classmates who received no instructions. The same instructions did not reduce the fear of preschoolers, however (see also Wilson and Weiss 1991).

Children's beliefs about the effectiveness of focusing on the unreality of the stimulus have been shown to be consistent with these experimental findings. In Wilson

et al.'s (1987) study of perceptions of fear-reducing techniques, preschool children's ranking of the effectiveness of 'tell yourself it's not real' was significantly lower than that of older elementary school children.

For media depictions involving realistic threats, the most prevalent cognitive strategy seems to be to provide an explanation that minimizes the perceived seriousness of the depicted danger. This type of strategy is not only more effective with older children than with younger children, but it has also been shown to have a fear-increasing rather than anxiety-reducing effect with younger children in some situations. In an experiment involving the snake-pit scene from *Raiders of the Lost Ark* (Wilson and Cantor 1987), children were either exposed or not exposed to reassuring information about snakes (for example, the statement that most snakes are not poisonous) before watching the frightening scene. Although this information tended to reduce the fear of older elementary school children, kindergarten and first-grade children seem to have only partially understood the information, responding to the word 'poisonous' more intensely than to the word 'not.' For them, negative emotional reactions were more prevalent if they had heard the supposedly reassuring information than if they had not heard it. Data also indicate that older children use cognitive coping strategies more frequently than preschool children (Cantor et al. 1986; Harrison and Cantor 1999).

In seeming contrast to these observed developmental differences in the use of cognitive strategies, the recent interview study of elementary school children (Cantor et al. 2010), showed an unexpected decrease with age in children's reporting of 'talk with someone' as a strategy they had used when frightened by a television show or movie. In attempting to explain this anomalous finding, these researchers looked at children's open-ended answers that described their coping responses. They observed that younger children spoke about *telling* their parents how they felt (e.g., 'told mom about it'), rather than about *hearing* a parent's explanation of why they were safe. In retrospect, then, the categorization of cognitive vs. noncognitive strategies as generally verbal vs. nonverbal – that is, involving words or not (Cantor 1998) seems overly simplistic. Different types of verbal strategies are likely to be effective for younger vs. older children. The term 'cognitive strategy' should be reserved for explanations that cast the observed fear-evoking stimulus in a less threatening light. This is, in fact, the type of strategy that has been shown to increase in effectiveness and use with age.

Explaining immediate and lingering effects

To this day I'm afraid to go into the ocean, *sometimes even a lake* [emphasis added]. I'm afraid that there will be a shark even if I know deep down that's impossible.

(Cantor 1998: 10)

Although the developmental studies of media and fear help explain why young children are often frightened by content that teenagers and adults find innocuous, it is still necessary to explain the seemingly irrational, lingering effects of scary presentations on many adults. Why do scary movies and television shows have such powerful effects on the ongoing lives of people who see them for entertainment? Why, in fact, are they frightening at all, given that they are viewed on a screen, in a situation in which the viewer is in no objective danger? A number of factors seem to contribute to viewers' fears.

Young children's vulnerabilities

As indicated in an earlier section of this chapter, developmental considerations can explain some of these reactions, at least those that occur in young children. For example, because younger children are especially responsive to the physical appearance of characters and have not yet grasped the distinction between fantasy and reality, they might reasonably be expected to be frightened by the Wicked Witch of the West or the clown doll in *Polltergeist*. However, these developmental considerations do not help explain the reactions of children over the age of eight, nor do they have any bearing on the enduring reactions of adults.

Why fictitious events are scary while we watch them

Once viewers come to know that fictional movies are scripted by a screenwriter for the purpose of entertaining us, they still become scared while watching for a variety of reasons (see Cantor 2004a for a more extensive discussion of these arguments). Certain visual images, such as animals attacking and physical deformities, automatically arouse fear, in all likelihood because such images had evolutionary significance (Cantor 1998). In addition, humans are also naturally inclined to empathize with the emotions of protagonists, especially those that they like and admire (Zillmann and Cantor 1977). Therefore, if the protagonists in a movie are intensely afraid or are threatened with harm, viewers often feel fear, too. Viewers have also been said to adopt what has been called 'the willing suspension of disbelief' (Coleridge 1817) in order to enjoy a more intense experience of a scary movie. Moreover, accomplished filmmakers include such features as suspense, surprise, and scary music, which are designed to increase viewers' fear (e.g., Hoffner and Cantor 1990; Cantor et al. 1984).

These factors help explain why adults become frightened while watching fictional movies, but not necessarily why they continue to exhibit feelings of fear after the movie has ended. Even if viewers care about the killer's victims while watching *The Texas Chainsaw Massacre*, once the movie is over, they should be reminded that it was only a movie, and they should no longer be worrying about the killer. But viewers often do continue to feel anxious after such movies, and with good reason. Even though they know that that specific killer never lived and that those murders never took place, the story vividly reminds them of real threats that do exist (even though they are highly improbable). Realistic fiction, although the product of someone's imagination, leads people to believe that it is based on something that actually happened. The details have likely been changed, but because it is plausible, realistic fiction can have profound effects on the way in which individuals view their own world (see Cantor 2004a, 2006).

The fact that realistic fiction is based on real happenings does not explain the fact that the overwhelming majority of retrospective reports of intense fright to scary media are based on dramatic fiction (Cantor 2004a) rather than the news or documentaries, however. If a story's basis in reality were the determining factor, the news would hold a more prominent position in viewers' memories of scary media. However, whether or not something actually happened does not seem to be as important a determinant of the long-term fear response as the emotional character of the event. Research shows that the more sensational an event, the more likely viewers are to remember it, and the greater their tendency to overestimate its

probability of occurrence (Tversky and Kahneman 1973). Although viewers may not be worried about the specific masked killer in the movie *Scream* (who is only an actor playing a part), the vivid, sensational depictions of stalking, terror, and gore may remind them of their own vulnerability and may have a stronger effect than the more mundane stories of murder that they hear about daily in the news. And as for the vulnerability to shark attacks, although viewers know that *Jaws* was killed in the movie (and that, in fact, he was only a mechanical monster), witnessing his bloody attacks on helpless, screaming victims makes the viewers intensely and memorably aware that there is the possibility of a shark attack in the ocean. This seems to change viewers' perceptions of their own safety when at the beach much more profoundly than the brief, matter-of-fact reports of shark attacks that they typically hear about in the press.

The supernatural: a gray area between fantasy and fiction

In a recent study of students' accounts of their most frightening media encounters, eight out of the ten most frequently mentioned productions involved supernatural themes (Cantor 2004a). Why are supernatural events – events that have no objective reality – such prominent sources of media-induced fear? The supernatural is a difficult category to define. Children by the age of 8 seem to understand that the Wicked Witch of the West (an evil character with a green face and pointed black hat, who rides a broom) is just a make-believe movie character. However, young adults seem to be less certain about whether or not someone such as the Blair Witch (as in *The Blair Witch Project*) could exist. For many people, stories of witchcraft, demonic possession, and alien intruders are not easy to dismiss as impossible. Although fright reactions to overtly fantastic content decline with age, retrospective reports reveal that certain types of fantasy stories, those that involve the supernatural, retain their ability to frighten viewers through the teen years and beyond (see Cantor 1998, 2004a). Our culture and media seem to reinforce the ambiguity of supernatural events by continuing to report so-called 'real' stories of demonic possession, unidentified flying objects, alien abductions, and the like.

Why irrational effects last so long

The factors discussed above – young children's cognitive immaturity, the ability of dramatic fiction to sensitize viewers to real dangers, and the ambiguity of threats from supernatural forces – explain some of the long-lasting effects of scary movies. But they do not account for a good portion of the lingering effects. In the retrospective study by Cantor (2004a), almost all the respondents who continued to have difficulty swimming in the ocean after seeing *Jaws* also reported experiencing anxiety in lakes or pools, where they know sharks cannot be found. Why are these people's feelings inconsistent with their conscious thoughts of being objectively safe? Recent research in neuroscience, on the neurophysiology of fear, is relevant here.

In *The Emotional Brain*, Joseph LeDoux (1996) brings together current knowledge of the brain mechanisms involved in the emotion of fear. To simplify his analysis, there are two brain memory systems that work in parallel in the fear response. Explicit, conscious memories involving interpretations of a fear-inducing event are

mediated by the cerebral cortex, whereas implicit, not-necessarily-conscious fear memories are mediated by an area involving the *amygdala*. In a frightening situation, the amygdala responds more quickly, even before the cause of alarm has reached the individual's state of awareness, and orchestrates more automatic responses, such as tensed muscles, blood pressure and heart rate changes, and the release of adrenaline into the bloodstream. These reactions, which contribute to the way our bodies feel when we are afraid, are part of the 'fight or flight' response that prepares us to defend ourselves from harm.

LeDoux explains the process of fear conditioning: if a man has a serious, traumatic automobile accident during which the horn of his car gets stuck, he is likely to experience bodily reactions associated with fear in future situations when hearing the sound of a horn. Over time, he may forget about the association of the horn with the accident but may still have physiological responses associated with fear whenever he hears a horn. In these cases, the implicit (nonconscious) emotional memory system has been activated to create the bodily experience of emotion, even after the conscious memories have faded or have become altered.

According to LeDoux, evolution favors the survival of animals (including humans) that can quickly identify life-threatening stimuli and that immediately take defensive action. In addition, the emotional memory system ensures that memories of things that have endangered us in the past are extremely accurate, so that whenever we encounter similar things even years later, we will be prepared to act quickly again. Because of this, implicit fear memories are especially enduring. LeDoux's research shows that although conscious, explicit memories of fearful situations are not always correct and are quite malleable over time, implicit fear memories are highly resistant to change:

Unconscious fear memories established through the amygdala appear to be indelibly burned into the brain. They are probably with us for life. This is often very useful, especially in a stable, unchanging world, since we don't want to have to learn about the same kinds of dangers over and over again. But the downside is that sometimes the things that are imprinted in the amygdala's circuits are maladaptive. In these instances, we pay dearly for the incredible efficiencies of the fear system.

(LeDoux 1996: 252)

What may be happening with these lingering effects of frightening media is similar to LeDoux's descriptions of fear conditioning. If a person experienced intense fear while watching *Jaws*, the implicit fear reactions, for example, the heart-rate increases, blood pressure changes, and muscle tension, became conditioned to the image of a shark, to the notion of swimming, to the musical score – most likely to a combination of the stimuli in the movie. Later, any of these stimuli, or thoughts of these stimuli, trigger these unconscious reactions, even after the conscious mind knows that the person is safe. In spite of now knowing that harm from that threat is impossible, these people experience bodily reactions and anxious feelings in response to anything that is associated with their previous experience. LeDoux also argues that the amygdala has more influence on the cortex (conscious thoughts) than vice versa. He states: 'Although thoughts can easily trigger emotions (by activating the amygdala), we are not very effective at willfully turning off emotions (by

deactivating the amygdala). Telling yourself that you should not be anxious or depressed does not help much' (LeDoux 1996: 303).

It should be noted that LeDoux was not referring to viewers of frightening media in his analysis of the enduring effects of fear, but rather to people who suffer from phobias, panic attacks, and post-traumatic stress as the result of events they have experienced in their own lives. However, the similarity between the experience of these frightened movie viewers and people with phobic reactions is profound. Although most fear reactions to media do not rise to the level of clinical phobias and do not require medical attention, it is clear that fright reactions to media have influenced the lives of many people in strong and enduring ways, often with disruptive and unwanted effects on some aspects of their lives.

Conclusions and implications

This chapter has demonstrated that fright reactions to media are common and that intense reactions can be both intrusive and enduring, often involving sleep disturbances and lingering anxieties. Various speculations have been advanced to explain the apparent paradox that viewers choose frightening, distressing content for entertainment, and age and gender differences in the appeal of frightening media have been demonstrated. Research has also shown that there are important age differences in what frightens children and in which strategies are most effective in reducing fear effects. Theories of cognitive development are helpful in predicting these differences. A variety of explanations have been advanced for why even adults are frightened by fictional entertainment, and findings in the neurophysiology of fear have been especially helpful in explaining some long-term effects that appear on the surface to be irrational.

Why we should be concerned about media-induced fears

To many people, the fact that adults should be concerned about children's fright reactions is obvious from the prevalence of sleep disturbances and lingering anxieties as side-effects of media exposure. It has long been accepted that a good night's sleep is important for health and development and that lingering anxieties are psychologically harmful. But for the skeptics, those who think that these effects are not worrisome, there are increasing bodies of research on the negative impacts of both inadequate sleep and chronic anxiety.

Recent research suggests that the lack of adequate, restorative sleep produces profound negative consequences. For example, it has been found that sleep, especially REM (rapid eye movement) sleep, is necessary for the consolidation of certain types of memories involved in learning (Roth et al. 2001), and inadequate sleep has been shown to impair academic performance (Buboltz et al. 2006). In addition, insomnia has been associated with a variety of negative outcomes for young people, including interpersonal problems, problems at school, and physical and mental health issues (Roberts et al. 2008).

Anxiety has been related to high levels of both physical and psychological problems among children (Chavira et al. 2008). Moreover, the stress that anxiety produces has been associated with a variety of health problems including cardiovascular disease, depression, and cancer (Cohen et al. 2007). It is indeed interesting

that many medical studies use *gruesome scenes from films* to induce stress in participants and then measure the effects of stress on disease and immune function (e.g., Zakowski et al. 1992).

This chapter demonstrates that exposure to media poses risks that children will experience an enduring fright reaction that may have long-term negative consequences. Although it seems impractical and unwise for parents to attempt to shield children from all potentially scary media, the research does argue strongly for parental involvement to guide their children's exposure toward age-appropriate content and to be ready to provide effective coping strategies if and when their children become intensely frightened (see Cantor 1998).

Suggestions for future research

Although research has uncovered much about the impact of frightening media, there are many questions that remain to be answered. First, more needs to be known about viewers' attractions to frightening fare. Although the speculations about the appeal of frightening fare are intriguing, it still seems unclear why horror films are so eternally popular despite the side effects, given that there are many other ways that people can achieve an adrenaline rush or distraction from boredom. More research is especially needed on the relationship between characteristics of viewers that draw them to or cause them to avoid scary media and the impact that these presentations have on them.

Another major gap in the research is the lack of studies using large-scale national samples that could follow the responses of both children and adults to particularly frightening movies or programs prospectively, rather than relying solely on retrospective reports. Such studies exist regarding major news events such as the September 11, 2001, terrorist attacks on the United States (e.g., Burnham 2007; cf. Altheide, this volume), but studies involving popular frightening movies or television shows would certainly add to our understanding of intense fright reactions to fiction.

Another area that calls out for research is the exploration of both the medical and the psychological consequences of media diets that are weighted heavily toward frightening contents. The fact that medical researchers use disturbing films to study the short-term effects of stress suggests that studying the relationship between an individual's media diet and measures of physical health, such as immune function, base-line blood pressure, and general wellness, are certainly in order. Experimental manipulations of media exposure over time, for example, asking heavy horror viewers to cut back to observe the results on health and sleep quality, would also be of interest.

The value of interdisciplinary approaches

The research reported in this chapter and the proposals for future study demonstrate the value of involving theories and methodologies from other fields, such as developmental psychology, neuroscience, and medicine in media research. The study of emotions is interdisciplinary by nature, and much is to be gained by incorporating the knowledge and ideas gleaned in a variety of fields.

Note

- 1 Much of the research reported in this chapter was supported by Grant RO1 MH 35320 from the (U.S.) National Institute of Mental Health and by grants from the Graduate School of the University of Wisconsin.

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10 Media enjoyment as a function of affective dispositions toward and moral judgment of characters

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Our love of media entertainment has never been greater. From boy wizards saving the world from evil to aging gangsters desperately trying to keep their families together, our appetite for written, televised, filmed, and interactive narratives is seemingly endless. A primary motivation to seek out these stories is the boundless joy that they offer to readers, viewers, and players. On its face, enjoyment appears to be the outcome of a rather straightforward process: we seek, we view (or play), and we enjoy. However, entertainment theorists have for decades been unraveling a complex set of factors that lead to the experience of media enjoyment. The purpose of this chapter is to provide an overview of some of these efforts.

More specifically, herein I will examine the role that emotions play in the formation of dispositions toward media characters. Simply stated, we form and maintain affect-driven affiliations with media characters, which greatly influence the way that we enjoy the narratives containing those characters. An important cognitive mechanism¹ through which these affiliations are formed is moral judgment. Therefore, the ultimate goal of the chapter will be to examine and perhaps reconsider the ways that subjectively held systems of moral judgment influence the formation and maintenance of emotional affiliations with media characters and how those affiliations influence the media enjoyment equation.

Several entertainment theories and perspectives address the connection formed between viewer and media characters, including perceiving and experiencing fictional characters (e.g., Konijn and Hoorn 2005), parasocial interaction and relationships (e.g., Horton and Wohl 1956), identification (e.g., Cohen 2001), and wishful identification (e.g., Hoffner 1996). However, the most germane to the current discussion is the affective disposition theory (ADT; Raney 2006; Zillmann and Cantor 1976). The theory conceptualizes enjoyment of media content as a product of a viewer's emotional affiliations with characters and the outcomes associated with those characters as presented in the narrative. The ADT does not seek to predict whether an individual viewer will like or dislike a specific character or story, but rather it explains the process through which people enjoy such experiences.

As viewers (and scholars) we can describe the experience of enjoyment in a variety of ways, but in general we do so using affective terms associated with pleasure. That is, we experience and describe the experience of enjoyment primarily as a pleasurable, emotional reaction to media content. Of course, enjoyment is not a dichotomous variable: our experience of pleasure when viewing a TV program or reading a mystery novel varies in intensity from text to text, and from day to day. Furthermore, the unfolding nature of narratives leads us through a variety of

emotional states, many of which (such as suspense, fear, anticipation, and sadness) are not typically thought of as pleasurable. Nonetheless, we generally think of enjoyment as a pleasurable experience. And it is probably not surprising to read that the source of enjoyment – according to ADT – is our emotional reactions to characters and to the outcomes involving those characters as presented in the content. In the next two sections of the chapter, I will discuss how we come to emotionally react to characters and to the outcomes they experience, with special attention given to the role of moral judgment in the process.

Moral judgment and character liking

As noted above, enjoyment of media entertainment is highly dependent upon the emotional reactions that readers and viewers experience in relation to characters. For the sake of simplicity, I will focus this part of the discussion on characters in fictional drama, but the same principles are generally applicable to all narrative forms. At the center of dramatic narratives is conflict between opposing forces: warring armies, divorcing spouses, superheroes and supervillains, lawyers and plaintiffs, cops and robbers, patients and disease, the living and death (or the dead). But why should we invest emotional currency in these media characters and their struggles? And who among them is worthy of such an investment? Such questions likely seem ridiculous to the casual media consumer: Liking and siding with the protagonist, while detesting and rooting against the antagonist, just seems like the natural thing to do. But why?

Clearly, we are not just as likely to root for the supervillain as the superhero. Our human (or at least our socialized) nature requires that our partiality not be capricious. In the same way that we are drawn to support the people and causes that we think are right and righteous in reality – that is, those reflecting and sharing our values, beliefs, and morals – our emotional side-taking with dramatic characters must also square with our notions of right and wrong. They must be morally justifiable. With moral justification, partiality can be granted, and with justified partiality comes the moral amnesty to wish for the triumph of one over another. Without such justification, granting favor to one character over another would lead to cognitive dissonance and distress (cf. Festinger 1957) and to little enjoyment.

Therefore, viewers of drama must monitor the behaviors and evaluate the motivations of characters in order to render verdicts about their moral propriety (Zillmann 2000). Moral considerations – on some level of consciousness, though likely nearly automatic initially (i.e., moral intuition; cf. Haidt 2001) – govern the emotional bonds that we form toward dramatic characters: morally superior characters receive our favor, while morally inferior characters receive our disdain.

But favor and disdain are not experienced as simple dichotomies. According to ADT, drama viewers come to like – that is, they form dispositions toward – characters along a continuum from extreme positive affect, through indifference, to extreme negative affect. Thus, we form *more positive* dispositions toward characters the more we judge their actions and motivations to be proper or morally correct. In contrast, we form *more negative* dispositions toward characters the more we judge their actions and motivations to be improper or morally incorrect. Given the unfolding nature of narratives and a viewer's constant monitoring of characters and their behaviors, these dispositions can be dynamic over the course of a narrative,

with shifts in character liking increasing or diminishing enjoyment (as will be discussed in more detail below). Undoubtedly, many additional factors (e.g., character gender and attractiveness, plot, dialogue, genre, viewer mood) also influence the affiliations we have with characters and ultimately the enjoyment of a particular narrative, but ADT studies have consistently demonstrated that moral considerations are central to the process of character liking (Zillmann and Bryant 1975; Raney 2002, 2005). Also, given the great variability in values, beliefs, and notions of morality across the population, it should be apparent why we differ on the characters we love the most and on what we consider a good film or TV series.

Moral judgment leading to affective dispositions permits and governs our emotional involvement with fictional drama. This is so because partiality activates empathy. Once we like characters, we can identify with their struggles, empathize with their pain, and hope for their ultimate success. On the other hand, once we dislike characters, we cannot identify or empathize with them; in fact, because disliked characters stand in the way of our favored character's success, we are free to wish for the downfall and demise of antagonists.

To further understand this process, we can examine a specific form of emotional reaction to narrative: suspense. Carroll (1990) described suspense in fictional drama as the emotional apprehension and anticipation experienced during a narrative-answering scene or event that offers the conflict between two potential outcomes: one morally superior but in doubt, the other evil and likely. Zillmann (1994) argued that dispositional affiliations toward characters are required for viewers to experience those emotional apprehensions and anticipations. That is, to experience suspense viewers must emotionally root for characters who deserve positive feelings and in turn the morally superior outcome, and must emotionally root against characters who morally deserve Carroll's evil outcome. Indifference toward the characters leads to indifference about the outcomes. With nothing emotionally at stake, the viewer does not experience suspense. But when a beloved character is facing certain suffering and defeat, viewers feel apprehension and fear because of their empathic concern for the character. In such a situation, suspense is experienced. Zillmann (1994) and Carroll (1990) both argue that suspense will be greater when the feared evil outcome seems more likely to occur than not. At any rate, the more that dangers and near-misses are integrated throughout the course of a narrative, the more suspenseful the story.

For our purposes, though, it is important to note that the experience of apprehension and anticipation for the characters is only possible if the viewer has granted partiality (based on moral considerations) to the characters. As noted above, if viewers are indifferent toward characters, then they experience no apprehension and minimal levels of suspense. The anticipatory emotions felt on the character's behalf are central to the experience of suspense within and ultimately to the overall enjoyment of a dramatic narrative.

Further, our emotional reactions to narratives are bound to the *intensity* of our dispositions toward characters: the stronger the positive or negative feelings, the stronger our empathic or counterempathic reaction. Ultimately, as will be further discussed below, enjoyment increases in proportion to our dispositions as the outcomes we wish for are portrayed and suffers as the outcomes we fear come to pass. But the key in all of this is the disposition, borne out of moral judgment. Indifference toward characters does not trigger an emotional response. No emotion, no enjoyment.

Moral judgment and narrative enjoyment

As noted above, the primary function of ADT is to explain the process of enjoying mediated narratives. The valence and intensity of the emotional affiliations formed toward characters play a large role in this process. But those dispositions alone cannot elicit enjoyment – merely liking or disliking characters is not enough. Enjoyment is bound to what those characters actually do within the narratives: they encounter success and struggles, happiness and hardship, victory and defeat. Accordingly, ADT explains that enjoyment is a function of both the affective dispositions held toward characters and the outcomes associated with those characters in the unfolding narrative. I mentioned those outcomes above, in particular the way that emotions are experienced *in anticipation of the outcomes* relative to the dispositions held toward characters. But more germane to the current discussion, ADT contends that enjoyment will increase when liked characters experience positive outcomes and/or when disliked characters experience negative ones. Conversely, enjoyment will suffer when liked characters experience negative outcomes and/or disliked characters experience positive ones. And again, enjoyment is experienced as an emotional – that is, relatively pleasurable – reaction to these outcomes.

On the surface, this formula seems quite straightforward: when those we love succeed, it brings us joy; when those we despise win out, we hate it. However, at the heart of this simple recipe is a complex set of moral-judgment ingredients. An allusion to this complexity was made earlier in reference to Carroll's (1990) notion of a 'morally superior' versus a 'morally inferior or evil' potential outcome. It would seem reasonable to describe any potential outcome that disadvantages a beloved character – however insignificant or severe – as *bad*, or to describe any outcome that privileges the same character as *good*. But Carroll's descriptors point beyond such a simple dichotomous evaluation, pointing back to the moral considerations upon which the character liking was initially based.

Carroll (1990) implies that outcomes experienced by characters in drama constitute and are evaluated by viewers as statements about justice and moral propriety; others have made similar claims (e.g., Lachlan and Tamborini 2008; Raney and Bryant 2002). The so-called justice sequence – initially discussed in relation to crime-based dramas, but obviously applicable to all drama – is composed of one or more scenes in which an instigational and retributational action (i.e., conflict and resolution) are presented. With the presentation of both actions, the justice sequence is completed and a statement concerning justice has been made. For instance, when Michael Corleone orchestrates the murder of the leaders of the five rival mob families in the dénouement of *The Godfather*, a statement about justice has been made. When Andy Dufresne escapes from prison in *The Shawshank Redemption*, a statement about justice has been made. When Hannibal Lecter makes the call to Agent Clarice Starling from the airport in Bimini in *The Silence of the Lambs*, a statement about justice has been made. When Andrew Beckett loses his battle with AIDS at the end of *Philadelphia*, a statement about justice has been made. For every conflict there exists at least one, but possibly more than one, resolution. Even in cases where no resolution is obvious or even presented, this too can be interpreted as a statement about justice.

With the outcome portrayed and accompanying justice statement made, viewers must render an evaluation: to what extent does the statement of resolution meet

with my expectations for justice restoration and fair treatment of liked characters? What ultimately hangs in the balance is enjoyment. Nonetheless, the answer to this question is a function of both what is presented and what the viewer expects will be presented. The determination of what is fair, right, just, equitable, excessive, insufficient is made by viewers, based upon expected outcomes and anticipatory emotions relative to the intensity of their affective dispositions toward characters and to their individually held notions of justice. That is, outcomes that advantage liked characters and punish hated ones are anticipated, hoped for, or feared because we as viewers think that such outcomes are morally justified and proper. Viewers expect that liked characters – who are favored because of their moral uprightness in the first place – will continue to be motivated by goodness and justice and will therefore act in a morally upright and justifiable manner, while hated characters will be otherwise motivated and will accordingly continue to act in a morally unjustifiable manner. Because of this, it is morally proper for the protagonist to succeed and the antagonist to fail. Those outcomes are not simply what we *want* to happen given our dispositions toward characters, but moreover what we think *should* happen. Thus, the anticipatory emotions that we experience relative to the characters during a dramatic narrative are facilitated by a metaphysical hope for justice to reign, for good to overcome evil, for right to win out in the end (cf. Goldstein 1998; Rubin and Peplau 1975). When met, those anticipations lead to increased enjoyment.

With this stated, though, viewers certainly differ with regard to the attitudes and beliefs associated with this metaphysical hope. That is, attitudes about the value and importance of justice, as well as what means are morally appropriate in its defense and under what conditions those means should be used, are subjectively held. As a result, viewer evaluations of narrative outcomes – in terms of both specific narrative-answering scenes and the ultimate narrative resolution – vary from narrative to narrative (and likely also differ across time as moral systems are somewhat dynamic or at least situationally applied). Again, this helps explain why we differ greatly on what movies and television series we find enjoyable. For instance, Raney (2002) reported that film viewers who reported attitudes in support of vigilante responses to real-world crime sympathized more with a victimized protagonist who personally avenges the crimes against him, and, as a result, enjoyed the film more than others.

The primary point here is this: we experience emotional reactions to dramatic characters (liking), to their plights (anticipatory hopes and fears), and to their ultimate outcomes (enjoyment). However, each of these emotional reactions are regulated by moral judgment: character liking by moral judgments about the behaviors and motivations of characters, anticipatory emotions by a sense of expected justice restoration, and enjoyment by the moral evaluation of the actual outcome portrayed in relation to the expected outcome. Though these judgments may be instantaneous and guided by biology (cf. Hauser 2006; cf. Schwab and Schwender, this volume), social intuition (cf. Haidt 2001), or knowledge of narrative formulas and existing cognitive schema (cf. Raney 2004), it is difficult to deny the important role of moral considerations in the reception of media entertainment.

Moral judgment of fiction versus reality

In light of these claims, though, one primary question has yet to be addressed: upon what basis are these moral judgments made? More specifically, how does a viewer's

moral lens, which presumably has been fashioned through and for the application to real-world scenarios, operate within the hyperreality of mediated fiction? Personal experience and scientific studies both suggest that we morally scrutinize reality and hyperreality differently. True, the media equation (e.g., Reeves and Nass 1996), parasocial interaction (e.g., Giles 2002), perceived reality and narrative engagement (e.g., Busselle and Bilandzic 2008), presence (e.g., Lombard and Ditton 1997), flow (e.g., Sherry 2004), and transportation (e.g., Green et al. 2004) research literatures all convincingly demonstrate that some aspects of media consumption are similar to (if not the same as) real-life interactions and phenomena. Unquestionably, as noted above, subjectively held senses of morality impact enjoyment in predictable patterns. In fact, some media consumers likely find no enjoyment in films or programs depicting protagonists whose actions violate their own real-world moral sensibilities. But these are surely the rare cases. For the vast majority of us, viewing fictional entertainment through the strict moral lens that we apply to our daily lives seems foreign. How can we detest killing and organized crime but love *The Godfather* (and *The Godfather Part 2*)? How can we be sickened by senseless and random acts of crime but cheer for the lead characters in *Bonnie and Clyde*? How can we abhor theft but applaud the exploits of Danny Ocean and his gang in *Ocean's 11* and its sequels?

In addressing how real-world moral lenses are applied to fictional fare, most in this area rely upon 'latitude' language similar to that used by social judgment theorists (cf. Sherif and Hovland 1961). For instance, Raney and Bryant (2002) stated: 'It is reasonable to suggest that each individual maintains a latitude of acceptance in relation to the justice sequence, which encompasses his/her ideal but that also circumscribes other (either more or less severe) acceptable outcomes' (p. 411). Zillmann (2000) refers to the same possibility as the 'latitude of moral sanction' (p. 59). That is, we extend the boundaries of what we find morally acceptable when consuming entertainment. In general, it is assumed that viewers will allow for some distance between the moral propriety of fictional outcomes they expect (if the situation were to occur in reality) and the one actually portrayed. Just how closely the initial expectations are to one's hypothetical prescription for the same action in the real world is unknown. But long-time media consumers will have highly developed story schema that dictate expectations beyond what would be likely in the real world simply because such expectations are consistently violated on screen (cf. the body of cultivation research; Gerbner 1969; Gerbner et al. 2002). Regardless, individuals are more willing to expect, allow for, and be prepared to enjoy fictional justice outcomes than they are willing to prescribe the same in reality (Raney 2002, 2005; Zillmann 2000). As a result, even though a protagonist wins out in the end by using means that viewers would otherwise decry in reality, enjoyment can still be high if the outcome is within the boundaries of what the viewer will allow (based again on affective dispositions and moral judgment factors).

Overriding moral judgment for the sake of enjoyment

Now that I have identified the important role of moral judgment in the process of media enjoyment, I would like to argue against its importance. Not completely against it, but to reassert the primacy of emotion in entertainment reception. More specifically, I would like to argue that at times (perhaps the majority of time for

some) the hedonic pull, the desire for pleasure and enjoyment wins out over the natural inclination to morally contemplate, that at times the *want to feel* eclipses the need to think. In these situations, we as media viewers greatly extend our latitudes of moral sanction – in fact, to use Bandura’s term, we *morally disengage* (Bandura 1986, 1991, 2002) – for the sake of enjoyment.

As noted above, ADT contends that the basis for character evaluation and, as a result, for disposition, formation is the moral propriety of their actions and motivations. However, this process is undoubtedly less cognitively burdensome for some narratives (such as formulaic superhero or cops-and-robbers stories). That is, one would expect that viewers develop story schemas about various types of narratives that assist them in forming expectations about and interpreting subsequent instances of those narratives (cf. Mandler 1984). Or, it seems reasonable that we depend upon the same automatic moral intuitions we exhibit in real-life social encounters when consuming media (cf. Haidt 2001). Regardless, it follows that a key element of those schema is information about judging characters, such as identifying certain cues (perhaps in promotional materials, but certainly during the opening sequences of the narrative). Thus, story schema activation should allow viewers to identify the protagonist and the antagonist, even before relevant behavioral or motivation information about those characters has been depicted. In turn, moral judgment is rendered initially irrelevant or unnecessary. Personal experience certainly supports this claim: we can start watching a movie in the middle of the action and immediately determine which characters are the ‘good guy’ and the ‘bad guy’ and can begin enjoying the action. In such a case, our initial disposition formation – at least in terms of valence – actually precedes specific moral evaluations of the character. These initial valences then govern our expectations about the characters: the protagonists will act in a virtuous manner, while the villain will act reprehensibly. Scrutiny of subsequent character behaviors and motivations should influence the intensity of the dispositions held toward characters. Nonetheless, in some situations, dispositions may precede moral judgment and justice considerations.

Moreover, as I have argued elsewhere (Raney 2004, 2006), we as viewers extend moral propriety to dramatic characters – that is, we stretch our sense of what is morally acceptable to cover the immoral-but-well-intended actions of a beloved hero – *because we like them a great deal, and we desperately want to see them succeed*. In other words, because we like characters and we know from past media experiences that enjoyment comes from seeing them prosper, we tend to interpret their actions – even some that may be morally questionable, as in the case of so-called antiheroes – in a way that helps us view them as virtuous. We do not judge their actions as morally appropriate or not on their own merits, but rather we *interpret* their actions as morally appropriate and motivated because of the partiality that we have extended to the protagonist or the enmity we have formed toward the antagonist.

As mentioned above, this process by which otherwise unacceptable behaviors (whether mediated or real) are permitted, accepted, and defended in certain circumstances has been identified by Bandura as moral disengagement. As moral agents we control the strenuous or lenient application of our moral codes. By selectively activating and disengaging the sanctions that typically regulate and evaluate conduct, individuals can permit and accept behaviors that would otherwise be judged as inappropriate. Of course, permitting or justifying the violation of norms that we generally uphold should bring cognitive distress. To avoid this problem, we

rely on a variety of cognitive strategies such as redefining wrong actions as honorable through moral justification, favorable comparison with other behaviors, and euphemistic language. Or by attributing the cause of the action to forces beyond the actor's control. Or by reconsidering and minimizing the potential effect of the actions. In fact, Bandura has identified eight moral disengagement strategies that are used during self-regulation (Bandura 2002).² And most importantly for this discussion, not only can reprehensible acts be carried out because the individual performing them has morally disengaged from the situations, but third-party observers (read: media viewers) who give moral assent to those actions can also be said to have morally disengaged.

Moral disengagement plays a role in all of our lives; few (if any) actually practice Kant's principle of the categorical imperative 100 percent of the time. Further, it stands to reason that we bend our moral rules out of a sense loyalty toward those whom we love. We reinterpret otherwise questionable actions and motivations as reasonable and justified. By definition, we show favoritism to those whom we favor. Therefore, when it comes to our real-life friends and family members we all morally disengage from time to time. And, as noted above, to not do so would lead to cognitive distress; our perspective on the relationship would be out of balance (cf. Heider 1958).

It stands to reason that similar cognitive strategies may be activated to avoid distress with regard to our media friends. We seek to maintain positive dispositions toward those characters once formed, and so we justify any action or motivation on their part which violates our moral code. We extend the boundaries of what is *moral* because we like certain characters so much, and we want to continue liking them. And moreover, we go through this process of moral disengagement because we want to enjoy media. Enjoyment suffers when we do not like the characters. We want enjoyment. So, we find ways to continue liking characters.

It would seemingly follow that the stronger our affective dispositions toward a character, the more likely and willing we would be to utilize the attitude-maintenance strategies noted above for the sake of enjoyment. In fact, studies suggest that viewers consistently offer great (though surely not unlimited) moral latitude and license to highly favored characters (Raney 2002, 2005). Perhaps, through previous experiences with media fare, consumers develop story schemas with moral disengagement built in – that is, a part of schema formation with some forms of narrative may be the process of moral disengagement. Viewers know that the application of the traditional moral lens to some narratives will only result in frustration and low enjoyment. Therefore, a different lens is applied to some narratives for the sake of enjoyment, a lens greatly shaped by the process of moral disengagement.

Ultimately, then, it appears that the emotional aspects of entertainment reception – character liking, anticipatory feelings, enjoyment reactions – may precede and actually govern moral contemplation of some narratives. This observation is similar to Haidt's (2001, 2003) discussion of moral emotions – including those germane to this discussion, such as compassion, disgust, contempt, elevation, awe – as functions of moral intuition followed by moral reasoning. Although this idea is a fairly recent addition to the scholarship in this area, a few recent studies have lent it support.

Klimmt and colleagues (2006) conducted interviews with players of video games who reported (in so many words) that they employed moral disengagement strategies in order to derive enjoyment from performing violent acts in the game world.

This process, which the researchers termed *moral management*, appears to be an a priori posture than an individual chooses to take in order to facilitate enjoyment of the gaming experience: 'We argue that consumers of violent media entertainment apply these strategies to cope with moral concerns that could reduce their enjoyment' (Klimmt et al. 2006: 312). Further, Shafer and Raney (2009) showed that viewers of a violent video game play could enjoy a narrative with a protagonist conducting otherwise reprehensible acts such as a violent carjacking, assault, and murder, as long as cues were present that offered justification for those acts. Similarly, Hartmann and Vorderer (2010) found that the presence of cues justifying violent acts in a video game can diminish a player's feelings of guilt and negative affect after performing the acts. In fact, the researchers propose that enjoyment of virtual violence may be greatest when the acts performed are deviant enough to induce excitement but defensible enough (presumably thanks to imbedded moral disengagement cues) to be considered just.

In sum, although the long-standing research tradition of ADT points to moral judgment serving as the foundation of media enjoyment, recent proposals and studies have argued to the contrary: emotional concerns and desires at times seem to precede, guide, and possibly override moral contemplation associated with a narrative. The purpose of this chapter, though, is not to argue for the validity of one perspective over another. Both perspectives have merit and surely represent entertainment reception experiences across the media spectrum. The paths to what we experience as *enjoyment* are numerous. Our task now is to better understand those paths.

Escaping moral concerns

The discussion above brings one question to mind: under what conditions might the traditional ADT formula for enjoyment – moral considerations leading to emotional responses – not be observed? That is, under what conditions might we expect emotional considerations to precede moral ones? This question will be fodder for investigations for years to come, but it stands to reason that motivation for viewing plays a key role. Escape or diversion is a primary motivation for all sorts of media consumption (cf. uses and gratifications research; e.g., Blumler and Katz 1974). Viewers enjoy narratives that allow escape from the pressures and demands of their hectic lives and that offer passage into lives filled with the success, exhilaration, love, and excitement missing in their own. Or another way to describe this experience might be to escape the cognitive burdens of reality to experience the emotional pleasures of fantasy, where the thinking has been left to others so that the viewer can simply feel. It seems reasonable to expect that viewers seeking out entertainment primarily for escape or diversion would be most likely to lead with emotion rather moral concerns.

Some evidence for this claim has recently emerged. In the study of Klimmt and his colleagues (2006), the video game players who were interviewed consistently reported that committing reprehensible acts in the game was morally acceptable because 'it's just a game.' The implication is that because the action occurs in hyperreality, no moral concerns arise with such an action. Such a perspective seems quite similar to the oft-cited 'It's just entertainment' argument used to defend some televisual and filmic content.

Such claims in effect serve as acknowledgment (and justification) of the moral hand-washing that accompanies these experiences. Note: the reader should not necessarily interpret this statement as a condemnation of such behavior and motivation, but as an affirmation of the power and function of narrative. Mediated stories and other forms of play (cf. Vorderer 2001) offer us great opportunity to confront horrifying potentialities in a nonthreatening environment, to rehearse life skills through vicarious experiences, to battle our own demons through watching others slay their own. To utilize narratives for such therapeutic and practical means, we are at times required to put off or to disengage our rigid moral systems.

Similar to sports team fandom, viewers may also enjoy the opportunity to escape to a world where they can offer unbridled support to and justification for a favored party. We might just find it pleasurable to throw our emotional energy (cf. Collins 1990) into urging someone on to victory. To do so may require us to give virtual limitless moral sanction to someone we like, but so be it. We may simply enjoy the feeling we get from cheering for a friend to win and an enemy to lose, no matter the cost.

In sum, narratives offer viewers the chance to escape from this world of constant moral monitoring to another where good triumphs over evil and everyone lives happily ever after. And we as viewers at times take that offer. Embracing the urge to be cognitive misers, we trade moral scrutiny for partiality and favoritism. Rather than 'think first, feel second,' we let our feelings do our thinking for us. Our desire to enjoy a program or film is so important that we give protagonists great moral license to ensure that we experience it.

So, do dangers lurk for those who would use entertainment content for escape? If we as viewers morally disengage for the sake of media enjoyment, does that enable or encourage us to do the same more often in reality? Does the practice of moral disengagement with media train us to do so in the real world? As with all such questions, the answers are quite complex and highly dependent on a host of factors. But one could argue that media literacy efforts to educate children about the potentially negative effects of consuming certain media messages assume that the answer to these questions is 'yes' (cf. Cantor, this volume). That is, if we think that teaching children to recognize racial mischaracterizations, gender-role stereotypes, and largely unattainable body forms can help them avoid negative effects of viewing those depictions, then it seems that we are advocating more cognitive engagement – which involves moral contemplation – with or reflection upon media. I am not arguing that these potential effects are all due to moral disengagement, but rather that efforts to curb such impacts encourage more effortful processing of the messages (or avoiding them all together). Media consumption for escapism in general may then have certain implications. It would follow that effects on real-world moral disengagement might be one of those implications. If we can and are willing to quickly stretch our real-world moral code for the sake of enjoyment, then it seems reasonable to think that we can become conditioned to do so in real-world situations too. Investigations into what are possibly long-term effects of this process are warranted.

Concluding thoughts

When it comes to enjoyment, which comes first: emotion or moral judgment? In reality, the point of this chapter was not to probe this chicken-and-egg dilemma, but

rather to illuminate the complex factors involved in the seemingly simple task of enjoying a narrative. In sum, it seems that our typical inclination is to morally engage in narratives in order to investigate how they might help us to then live. Most of us were undoubtedly reared on such a model: listen to the story, learn the moral it has to tell, and try to live out those lessons. From campfires to cathedrals, this has been the dominant approach to storytelling across all cultures for centuries. But today with narratives at every turn, and with every aspect of life lived out as a narrative (from reality TV to YouTube to Twitter.com) – not to mention longer working weeks, economic downturns, and stress, stress, stress – perhaps the model has changed. Perhaps we can no longer process all the stories we encounter. With their ubiquity, stories have become disposable. As a result, our relationships with them have had to evolve. In turn, our emotional involvement with them likewise evolves. Moral judgment has played a large role in shaping that emotional involvement for centuries. I for one am curious to see how that role changes in the years to come.

Notes

- 1 Throughout this chapter I will set moral judgment and emotions in opposition to one another, as if these processes are experienced in mutual exclusion to one another. Of course, this is not the case. But I hope that by doing so, it makes the discussion flow more naturally and clearly.
- 2 Bandura notes that moral disengagement practices or strategies involve selective activation or disengagement of internal controls at various points in the self-regulatory process. Those strategies may be directed at the reprehensible act itself (i.e., moral justification, advantageous comparison, euphemistic labeling), the effects of the act (i.e., disregard or distortion of the consequences of action), some combination of the two (i.e., displacement of responsibility, diffusion of responsibility), or the victim (i.e., attribution of blame, dehumanization).

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Part III

Mass media, politics, persuasion, and public emotions

11 Emotion, media, and the global village

Ross Buck and Stacie Renfro Powers

We begin again to structure the primordial feelings and emotions from which 3000 years of literacy have divorced us.

(McLuhan 1969: 17)

In *Understanding Media: The Extensions of Man* (1964) and other works, Marshall McLuhan (1911–80) introduced controversial concepts that revolutionized popular discourse concerning the place of media in culture. He proposed that effects of the information content of media messages (e.g., violent content) are irrelevant in comparison to the effects of *how* the medium conveys information: ‘the medium is the message.’ His approach was influenced by ideas from his Cambridge professors including I.A. Richards, a psychologist turned literary critic who emphasized the training of perception, and F.R. Leavis, who applied techniques of literary criticism to the analysis of culture including advertisements (Gordon 2003; Marchand 1989). McLuhan suggested that media are technological extensions of the body that, by altering ratios among the senses, train perceptual habits and alter patterns of thought and feeling in fundamental ways. In particular, he suggested that the changes in sense ratios encouraged by highly involving, ‘hot’ print media to those afforded by low involvement, ‘cool’ electronic media have encouraged patterns of holistic perceptual/cognitive processing as opposed to linear sequential processing. Together with the instantaneous worldwide pooling of information, this change in perception has created a new collective identity: what McLuhan termed a ‘global village.’ To many, McLuhan’s concepts appear prophetic, particularly as the World Wide Web has seemed to make the notion of a global village a reality. However, others and particularly many academics have tended to regard his ideas with skepticism: involving pithy but ultimately empty aphorisms that lack scientific research support.

This chapter aims to relate research in emotion communication to McLuhan’s analysis of media. Our central thesis is that the kinds of holistic perceptual/cognitive processing that McLuhan identified with electronic media stem, not from vague changes in sense ratios, but rather from a lessened relative role of symbolic communication and expanded role of spontaneous emotional communication that electronic media afford. This offers an alternative mechanism by which to understand the phenomenon of the global village which is more amenable to empirical test than the hypothetical notion of changes in sense ratios. With spontaneous communication, mass media afford the possibility for immediate, direct emotional communication on a global scale. From a dual-cognition theory viewpoint, this has encouraged greater reliance upon syncretic, holistic, heuristic, and affective cognitive processing

compared to analytic, linear, sequential, systematic, rational cognitive processing. Moreover, recent work in mirror neuron research demonstrates the possibility of an ‘unmediated empathy’ via media, which holds relevance for media studies and is consistent with McLuhan’s ideas. The mirror neuron evidence suggests the potential for a direct apprehension by the audience of the feelings and desires of the sender via video and audio representations of the sender’s emotional displays. We consider specific implications involving presence, charisma, and the potential of electronic media to foster *both* prosocial, altruistic, compassionate responses *and* hateful, vengeful, remorseless responses – even genocide.

Emotion, communication, and McLuhan’s theory

Reason and emotion in communication

In *Understanding Media* (1964) and other works, McLuhan argued that social change begins with technological change, particularly with change in communication technology (McLuhan 1962, 1964; McLuhan and Fiore 1968). He suggested that the change from the reliance on print media to electronic media altered the form of information available in the environment, and thereby altered the balance of the human senses, or perceptual ‘sense ratios.’ Pre-literate tribal cultures are aural: all senses are involved in communication. With the spread of writing and particularly the invention of movable type – the ‘Gutenberg Galaxy’ – people began to extract information visually, shifting the balance of sensory usage and concentrating on vision and a ‘hot,’ linear, serial mode of processing that analyzes and fragments information into connected and sequential units. He suggested that electronic media have altered this visual orientation because it is too slow for the high speeds of electronic communication. Many pieces of information pour in continuously, constantly coexisting and being replaced by new information in what McLuhan termed a ‘worldpool’ that cannot be handled by the visual habit of serial data classification. In effect, electronic media foster holistic and synthetic cognitive processing that has reintroduced the ‘cool’ aural tribal communication system involving all senses, resulting in the ‘global village.’

Central to McLuhan’s view is that the medium of transmission, not the information per se, is critical in the cultural impact of communication technology: the ‘medium is the message’ in McLuhan’s dictum. Indeed, McLuhan was fond of slogans that were meant to provoke rather than persuade – for example, the ‘medium is the message,’ and the ‘medium is the message.’ He explicitly rejected linear reasoning and systematic analysis in favor of assembling a mosaic of evidence, using terms loosely with tenuous logical connections. By pointing to the electronic media-based phenomenon of the ‘global village,’ McLuhan challenged the conventional wisdom, and he was a pioneer in directing popular attention to the immense power of media in shaping culture (Buck 1988).

However, there remains much skepticism about McLuhan’s ideas among academic scholars. The mechanisms he proposed that involve changes in perceptual sense-ratios have not been satisfactorily defined and are of questionable validity, and the theory has not received convincing empirical support. Indeed, as Meyrowitz noted, McLuhan’s propositions are not easily integrated into hypotheses testable in empirical research: they ‘have a direct, declaratory, and conclusive tone that makes

them easy to accept or reject fully, but difficult to apply or explore' (Meyrowitz 1985: 21). Some have criticized his ideas severely – for example, Debord (1983) reproached McLuhan as an apologist for spectacle and 'the most convinced imbecile of the century' (quoted by MacDonald 2006: 57). Yet his ideas remain influential. In a recent review, Mullen suggested: 'We are living in the future that [*Understanding Media*] foretold. We cannot but acknowledge the truth in many of its pithy aphorisms. In fact they seem self-evident' (Mullen 2006: 380).

Involvement

One of the most contentious of McLuhan's concepts is that of involvement, which he defined as 'a commitment and participation in a situation that involves all the senses' (McLuhan 1964: ii). McLuhan argued that television is highly 'involving' compared to print media due to its barrage of visual and auditory images. In contrast, Krugman (1965) suggested that television is a 'low involvement' medium producing effects by repetition, while print is a 'high involvement' medium producing relatively enduring changes in beliefs. Chaudhuri and Buck (1995) studied media differences in rational and emotional responses to advertising, with one aim being to reconcile these diametrically opposed views of 'involvement' in television versus print media. Chaudhuri and Buck defined involvement following Batra and Ray (1983) as the depth and quality of cognitive response, and followed Tucker's (1981) distinction between two sorts of cognition: *syncretic cognition* is 'hot,' direct, holistic, immediate, and associated with right-hemisphere brain responding; while *analytic cognition* involves 'cold,' sequential, linear information processing, and left-hemisphere responding. Based upon this, Chaudhuri and Buck proposed that the tendency of a medium to encourage deep and high-quality analytic cognitive processing defines its *rational involvement*, while its tendency to encourage deep and high-quality syncretic cognitive processing defines its *affective involvement*.

Chaudhuri and Buck (1995) suggested four reasons why electronic media produce a greater level of syncretic cognitive involvement relative to print media. First, electronic media encourage heuristic learning processes and may actually discourage analytic cognition. The vivid but fleeting images presented by electronic media can be powerful even when the viewer is not motivated to 'mindfully' consider the merits of an argument. They exert effects through repetition; association with an attractive, trustworthy, or expert spokesperson; or through loyalty or perceived popularity of a brand. Second and related to this, electronic media allow the use of spontaneous emotional cues such as music, sound effects, and dynamic visual cues that can produce syncretic associations that may actually distract from analytic cognition. Third, the vivid, lifelike, and dynamic representation of human action possible via electronic media can lead to vicarious observational learning, relating rewards, punishments, and other emotional consequences to an argument or course of action. Fourth, electronic media encourage direct emotional responses, synthesizing and integrating sensory information in a holistic response characteristic of right-hemisphere cognitive processing. In contrast, print media excel at systematic learning and the analytic central route to influence: an active processing of information and thoughtful, 'mindful' analysis.

Based upon this analysis, Chaudhuri and Buck assessed analytic and syncretic-cognitive responses to 240 advertisements – one half from television and one half

print ads from magazines. Twenty-nine product categories were included, and the advertisements were controlled for product category, advertising strategy, familiarity, product and brand use, and number of words. Analytic responses (did the ad make you think of facts, arguments, differences, etc.) versus syncretic responses (did the ad make you happy, feel good, excited, etc.) emerged clearly in factor analysis. Results confirmed that, as expected, the analytic cognitive response was higher for advertisements in print media and syncretic cognitive responses were higher for advertisements in electronic media.

Given the Batra and Ray (1983) definition of 'involvement' as the depth and quality of cognitive response, these results are consistent with the distinction between two sorts of involvement: affective syncretic cognitive involvement and rational analytic cognitive involvement. The mix of affective and rational processing is illustrated in Figure 11.1. The continuum at the base of the figure is the affect/reason continuum (A/R continuum). At the far left the influence of affect is total: reason has no influence. This is the case of pure spontaneous communication: pure passion without reason. As one goes to the right, reason exerts an increasing influence relative to affect, but affective influence never falls to zero. A variety of events, facts, and objects can be placed on the A/R continuum, reflecting the ratio of affect to reason in the possession and use of an object, in the message advocating such possession and use, or in the media carrying such a message. On Figure 11.1, the positions of electronic and print media are indicated, based upon the Chaudhuri and Buck (1995) data.

Implications: rational and emotional cognitive processing

These results imply that there are in effect two simultaneous and interactive cognitive processes: a rational influence process involving analytic, rational cognition and an emotional process involving qualitatively different syncretic cognition. The differentiation of analytic and syncretic cognition blurs the usual distinction between emotion and cognition: the subjective experience of emotion, or 'affect,' becomes a *type of cognition* – a type of knowledge. In the present view, *affect* is

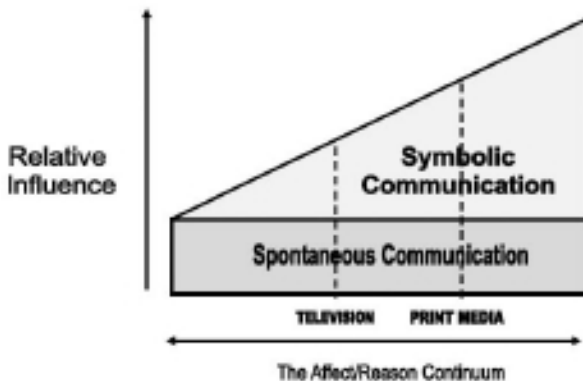


Figure 11.1 The relationship between spontaneous and symbolic communication, with the positions of television and print media indicated.

defined as ‘the direct knowledge of feelings and desires, based upon readouts of specifiable neurochemical systems evolved by natural selection as phylogenetic adaptations functioning to inform the organism of bodily events important in self-regulation’ (Buck 1999: 306). Human beings experience affects immediately and directly; the phenomenological subjective reality of affect is self-evident.

Emotional or affective cognition involves memory and processing systems that are dissociable from those of analytic cognitive processing, are organized differently, and obey different rules. For example, LeDoux (1994) and Panksepp (1993) distinguished between cortico-cognitive processes based on the hippocampus and neocortex, versus emotional processing involving the amygdala. LeDoux (1996) distinguished a ‘high road’ and ‘low road’ to cognition, showing that emotion-related structures associated with the amygdala receive input about events that are earlier than and potentially independent of input to relevant neocortical sensory systems. Furthermore, LeDoux outlined two ‘central memory networks’ that operate simultaneously and in parallel: explicit or declarative memory which involves the hippocampus, and implicit or emotional memory which involves the amygdala (LeDoux 1994: 312). The cognitive appraisal theorist R.S. Lazarus acknowledged that LeDoux’s findings and the distinction between analytic and syncretic knowledge effectively demonstrate that ‘raw’ affect indeed constitutes a kind of knowledge that can precede, and indeed contribute to, analytic knowledge: an ‘automatic mode of meaning generation’ (Lazarus 1994: 215).

‘Two factor’ models of influence have recognized that emotion plays a role in persuasion and attitude change and have posited two types of cognitive processes that are comparable to the analytic-syncretic distinction. Petty and Cacioppo’s (1986) Elaboration Likelihood Model (ELM) explicitly considered the emotional processing of attitude objects. In contrast to the rational ‘central route,’ emotion was seen to be important in the ‘peripheral route’ to persuasion where the issue at hand has relatively low involvement or personal relevance to the individual, and there is therefore little incentive to devote scarce cognitive resources to evaluating the arguments (cf. Turner, this volume). Chaiken’s (1980, 1987; Chaiken and Eagley 1983) distinction between systematic and heuristic processing parallels in some respects the central-peripheral distinction, in that central route and systematic processing demands and consumes effortful and ‘mindful’ analytic cognitive capacities. The theories differ in their conceptualizations of peripheral route versus heuristic processing, but in both cases such processing is regarded as less ‘mindful’ and rational.

Spontaneous and symbolic communication

The Chaudhuri and Buck (1995) data suggest that print media tend to communicate via the rational process, while electronic media communicate via the emotional process. Affective and rational cognition are seen to be associated with two qualitatively different but simultaneous and interacting ‘streams’ of communication – spontaneous and symbolic communication – based respectively in the right and the left hemispheres of the brain (Buck 1984, 1999; Buck and Van Lear 2002). *Symbolic communication* involves rational cognition: it is learned and culturally shared, is composed of symbols, is voluntary at some level, and its content consists of propositions (falsifiable statements). *Spontaneous communication*, in contrast, involves affective

cognition: it is based upon innate displays in the sender and preattunements to those displays in the receiver, is composed of signs (as in smoke is a sign of fire), is nonvoluntary, and its content is nonpropositional, consisting of motivational–emotional states. Also, in *pseudospontaneous communication* the sender fakes the display, but follows *display rules* to express emotion strategically: if effective, the receiver responds as if the display were veridical (see Figure 11.2).

Mirror neurons and the problem of other minds

A potentially controversial aspect of Figure 11.2 is the question of the nature of preattunements: how the receiver can *know* the inner states displayed by the sender. This raises the fundamental question of how we can have knowledge of others: the ‘problem of other minds.’ Ludwig Wittgenstein wrote in *The Brown Book*, ‘When we communicate a feeling to someone, something which we can never know happens at the other end. All that we can receive from him is an expression’ (Wittgenstein 1965: 185). Also, William James wrote, ‘our senses only give us acquaintance with facts of the body, and ... of the mental states of other persons we have only conceptual knowledge’ (James 1890: 222–3). From this point of view, knowledge of inner states of the other – including emotional states – must be analytic ‘high road’ knowledge. An answer to this is that *displays function as social affordances* in the sense used by James J. Gibson (1966, 1979): the receiver directly ‘picks up’ the display of the sender and knows directly and automatically the emotional meaning of the display (Buck 1984; McArthur and Baron 1983).

Properties of mirror neurons

This notion of a direct pickup by a receiver of the inner states of a sender has been supported by the phenomenon of mirror neurons, which were discovered in the early 1990s (Nakahara and Miyashita 2005). It was observed that a class of neurons

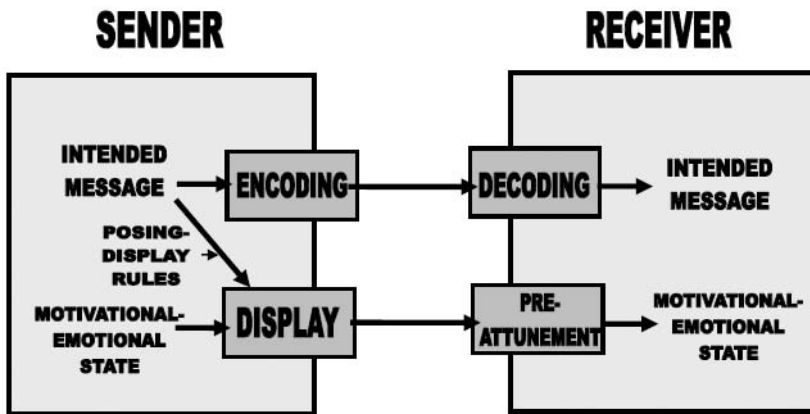


Figure 11.2 Simplified view of symbolic communication, spontaneous communication and posing (pseudospontaneous communication). Adapted from Figure 1 in Buck and Van Lear (2002).

was activated both when a monkey performed an action (grasping an object) and when the monkey observed the experimenter grasping the object (de Pelligrino et al. 1992). Gallese et al. (2004) stated, 'Although we do not overtly reproduce the observed action, part of our motor system becomes active "as if" we were executing that very same action that we are observing' (Gallese et al. 2004: 397). Gallese et al. suggested that mirror neuron systems are the basis of the understating of others' actions, and furthermore that similar mechanisms underlie the understanding of others' emotions. For example, Wicker et al. (2003) found overlapping brain mechanisms involved in experiencing a disgusting odor and watching films of persons experiencing and expressing disgust from the odor. Smelling disgusting odors was associated with selective activation in the anterior insula, and viewing filmed facial expressions of disgust activated the same region. Gallese et al. concluded that the insula 'contains neural populations active both when the participants directly experienced disgust and when they understood it through the facial expressions of others' (Gallese et al. 2004: 400). More recent evidence suggests that there is a common anterior insula representation of the observation, experience, and imagination of disgust, and that these are associated with different functional circuits, suggesting why these aspects of emotion feel so different (Jabbi et al. 2008).

Similarly, comparable neural responses have been found when participants experienced a painful stimulus personally, versus when they observed a loved one present in the same room experience the painful stimulus (Singer et al. 2004); and there is evidence of empathy for expressions of positive gustatory expressions as well as disgust (Jabbi et al. 2007). Also, deficits in the mirror neuron system have been implicated in some aspects of autism, involving persons who although cognitively able to understand the intentions of others, cannot understand others experientially (Cattaneo et al. 2007; Rizzolatti and Fabbri-Destro 2008).

The mirror neuron evidence can be seen as reflecting the functioning of perceptual preattunements, with events in the brain of the receiver literally mirroring specific sorts of events in the brain of the sender, mediated by the sender's display of those events. Gallese et al. explicitly suggested that mirror neurons involve a kind of knowledge of other that is distinct from conceptual knowledge: 'the fundamental mechanism that allows us a direct experiential grasp of the mind of others is not conceptual reasoning but direct simulation of the observed events through the mirror mechanism' (Gallese et al. 2004: 396). They concluded, 'social cognition is not only thinking about the contents of someone else's mind ... Our brains, and those of other primates, appear to have developed a basic functional mechanism, a mirror mechanism, which gives us an *experiential insight* into other minds' (Gallese et al. 2004: 401, emphasis added).

The mirror neuron evidence suggests that the emotion display has previously unappreciated epistemological potency: mirror neurons constitute an evolved mechanism to 'know' experientially and directly internal meanings displayed by others. Regarding Wittgenstein's (1965) quote given previously, an expression is *all we need* in order to know what has happened at 'the other end.' In answer to James' (1890) quote, the mirror neuron evidence suggests that such experiential insight is not conceptual, but is direct, immediate, automatic, and effortless (Buck 1990). The resulting communication via the direct and unmediated awareness of the display results in spontaneous communication, which as noted is emotional, nonpropositional, and largely non-conscious (Buck 1984; Buck and Van Lear 2002).

Mediated empathy

The mirror neuron evidence is of particular importance for media studies because it is clear from the evidence that mirror neurons function in mediated as well as face-to-face contexts. For example, the participants in the Wicker et al. (2003) and Jabbi et al. (2007, 2008) studies viewed films of disgusted or positive gustatory reactions. This implies that mirror neurons can underlie an intuitive knowledge of other minds via media that paradoxically is direct and ‘unmediated’ – that is, literally, ‘mediated empathy.’ The phenomenon of mirror neurons is consistent with a ‘simulation theory’ school of thought that holds that internal simulation of another person’s state is the basis of shared emotion, and therefore empathy (Gallese et al. 2004). In this view, feeling the emotion displayed by another person involves first simulating a similar state in the observer, sensing these activations by brain networks that represent body states, and interpreting and attributing the sensed starts to the other individual rather than oneself (Jabbi et al. 2007). A competing school of thought is sometimes called the ‘theory-theory’ school: this perspective holds that people make inferences about the mental states of others through a set of appraisals and attributions about the environment, which leads to perspective taking, which leads to empathy. Both may be correct. In his ‘Russian doll’ model of empathy, de Waal (2007) suggested that advanced forms of empathy grow out of more elementary forms, both evolutionarily and developmentally. Like a Russian doll, advanced forms of empathy involving attribution and perspective-taking constitute observable outer layers which however are elaborations of, and remain dependent upon, a hidden inner core. This inner core involves ‘early emotional connections and non-verbal “protoconversations” ... between mother and child,’ which constitute the ‘original, pre-linguistic forms of inter-individual linkage’ (de Waal 2007: 50). This ‘bottom up’ account of the origin of empathy leaves room, however, for top-down accounts emphasizing the role of higher-order processes involving language and culture.

Thus, convergent evidence describes a multi-level view of empathy, beginning with nonverbal and affective protoconversations involving syncretic cognition, and ending with attribution and perspective taking involving analytic cognition. Mirror neurons are key to this process because they appear to project a sender’s observed emotional display to limbic areas that produce a contextually compatible response in the receiver. Thus, via mirror neurons we can have an intuitive direct and immediate ‘raw’ awareness of the emotional state of another person based on their display – which might be termed emotional empathy, intuition, or ‘vibes’ – and we can construct a cognitive model or schemata *about* the person’s emotional state. Strong and important emotions become etched in memory, and are easily recalled when a similar situation arises. This system is flexible and powerful so that we can experience emotions that we may rarely if ever experience in everyday life (Zillmann 1991), and can form strong parasocial attachments to people we will never meet (Schiappa et al. 2007).

Presence

The mirror neuron phenomenon is relevant to another concept involving syncretic and intuitive awareness that recalls McLuhan’s view of involvement. Experiences of

artificial realities have been described in terms of a subjective sense of *presence* (Riva et al. 2007). Presence is defined in terms of a feeling of engagement and involvement with communication media: an illusion of 'being there' (Nowak et al. 2008; Lombard and Ditton 1997). Presence is typically measured by self-reports, but it seems possible that presence may be related to mirror neuron activity: the ability of media representations to elicit mirror neuron activity might constitute an alternative and objective measure of presence. In fact, empathy based on mirror neurons may actually be enhanced by media presentation compared to real life, eliciting *hyperaffective* responses in the viewer. Walther (1996, 2007) discussed how computer-mediated communication (CMC) can foster 'hyperpersonal' interaction: CMC users can manage their messages in terms of composition, editing, timing, language, and relational tone such that the resulting communication has significant advantages over face-to-face interaction (cf. Gratch, this volume).

Analogously, media may exert hyperaffective influences by amplifying and magnifying displays that normally activate mirror neurons, creating *super-displays* (Eibl-Eibesfeldt 1975). For example, masculinized and feminized faces have been created by exaggerating differences in averaged facial photographs of males and females. The differences in shape between the averaged male and female faces are described mathematically and new, masculinized or feminized albeit impossibly unnatural faces are produced by manipulating the differences. Viewers tend to rate feminized faces, both male and female, as more attractive, and masculinized faces as more dominant (Perrett et al. 1998; Rhodes et al. 2000). Similarly, body shapes can be masculinized or feminized (exaggerated large shoulder-to-hip ratios for masculine figures; small waist-to-hip ratios for feminine figures). Cartoon characters often manifest super-displays involving cuteness that elicit nurturing responses (large head, large forehead, large eyes, small chin for innocent Tweety Bird), and opposite features that elicit anxiety and fear (beady little eyes, small forehead, large chin for the evil Big Bad Wolf). Films such as Jim Carrey's *The Mask* are replete with super-displays that may elicit hyperaffective responses.

Similarly, in the realm of computer-mediated communication, effects of avatars on viewers have been related to display characteristics other than the realism or anthropomorphism of the avatar; indeed, viewers have reported a greater sense of presence with *less* anthropomorphic avatars (Nowak and Biocca 2003). Manipulations of avatars creating super-displays may well enhance their effectiveness in communicating hyperaffective emotional messages via mirror neurons. Thus, mirror neuron response may provide a relatively direct measure of presence, independent of self-reports.

The analysis of presence relates to the question of whether real events are necessarily more compelling than fictional events. In cases where super-displays can be employed using manipulations of reality, there is reason to speculate that the response to fictional events may be as strong or stronger compared to that of real events. One may hypothesize that this might be reflected in a greater mirror neuron response to the former.

Charisma

Strong affective responses may also occur when a skilled and charismatic politician or actor 'pushes the emotional buttons' of the audience. A critical aspect of

charisma involves an emotional bond between the charismatic person and others (Triantis 2007; Weber 1968). How emotion is communicated by a given medium may be central in determining the nature of charismatic influence. Political leaders of the 1930s – Roosevelt, Churchill, Hitler, Mussolini – had powerful voices that effectively conveyed emotion to the audience over radio. There are suggestions that different personal qualities became important with the growth of television (e.g., Hellweg et al. 1992). Many regard the change in the dominant medium from radio to television for communicating charismatic emotion to have occurred in the first 1960 election campaign debate between John F. Kennedy and Richard M. Nixon. A market research firm reported that self-identified radio viewers thought Nixon won while self-identified television viewers favored Kennedy (Debate Score 1960). While some have questioned the validity of this effect (e.g., Vancil and Pendell 1987), an experimental study using original debate material found that the medium did in fact alter debate evaluations and ‘may indeed have played an important role in the first Kennedy-Nixon debate’ (Druckman 2003: 559).

Another study suggesting the power of television in communicating charismatic emotion involved President Ronald Reagan, widely regarded as having been a highly charismatic ‘great communicator.’ Displays of happiness, anger, and fear on the part of Reagan were shown to viewers who held positive or negative views of the president, and facial electromyograph (EMG) responses from the brow and cheek regions were measured to assess tendencies of the viewer to frown or smile, respectively. Self-reports of emotion were affected by the positive or negative attitudes toward Reagan, but his happiness displays elicited EMG tendencies to smile and anger/fear displays tendencies to frown regardless of prior attitudes. The authors suggested that the expressive displays had a ‘direct emotional impact’ on viewers regardless of prior attitude (McHugo et al. 1985: 1513). One might speculate that mirror neuron responses might well accompany these EMG responses, reflecting the direct emotional impact of televised expressive displays.

McLuhan, mirror neurons, and the global village

The phenomenon of mirror neurons as a basis for spontaneous emotional communication via media offers an alternative mechanism to approach the phenomenon of the global village. With the functioning of mirror neurons, mass electronic media afford the possibility for immediate, direct emotion communication on a global scale, and, as a result, mediated empathy and a sense of presence and charisma. The viewer can become involved directly, intuitively, and affectively with anyone and everyone on the planet, with the result being much like the global village imagined by McLuhan. Such affective involvement may increase compassionate and altruistic feelings, but it can also contribute to the opposite: indignation, resentment, humiliation, hatred, and a will to dehumanize and destroy.

Media in altruism and compassion

Chaudhuri and Buck (1995) noted that altruistic behavior may be caused by such empathic emotions as sympathy and compassion triggered directly by emotion displays (Batson and Oleson 1991), and that there are compelling examples of strong altruistic responses triggered from images of famines in Ethiopia and Somalia, and

wars in Vietnam and Iraq. Spontaneous emotional communication via electronic media, together with altruism mediated by emotional communication, can underlie a system of global emotional communication via electronic media, which is the affective foundation of the global village.

Today we have in place a system of electronic emotional communication that is capable of sharing feelings and thus influencing the emotional education of vast numbers of people. Whether the news is from Somalia or Bosnia, it is the transmission of emotion that makes us feel like members of a single community. It is through the realm of feelings, empathy and altruism, and not only in the realm of ideas, that we are beginning to come together as one world.

(Chaudhuri and Buck 1995: 122)

Media in schadenfreude and pseudospeciation

Unfortunately, it is all too apparent that emotional qualities of electronic media can also be exploited to support *pseudospeciation*, dehumanizing members of other groups and reducing normal inhibitions against attacking them. This is regarded as a prime factor underlying warfare (Eibl-Eibesfeldt 1979; Goodall 1986). Dehumanizing propaganda can target members of out-groups as undeserving of empathy and altruism, and justify their pitiless annihilation. Dehumanization and lowered inhibitions set the stage for *schadenfreude* – the enjoyment of the suffering of others.

The role of media in this process was apparent in the former Yugoslavia as formerly peaceful communities were ripped apart by vicious propaganda from nationalists on all sides. Warren Zimmermann, the last American ambassador to Yugoslavia, wrote that the multiethnic state was destroyed, but not by ancient Balkan hostilities, but rather by

the power of television in the service of officially provoked racism ... What we witnessed was violence-provoking nationalism from the top – down, inculcated primarily through the medium of television ... The virus of television spread ethnic hatred like an epidemic throughout Yugoslavia.

(Zimmermann 1999: 120 f.)

Conclusions

Converging evidence from communication research, persuasion research, cognitive theory, neuroscience, ethology, and developmental psychology offers an alternative mechanism by which to understand the phenomenon of the global village. We suggest that the genesis of McLuhan's global village is based upon the ability of electronic media to foster via the mirror neuron system spontaneous emotional communication on a global scale. From this point of view, the emotional power of electronic media stems from their capacity to afford spontaneous communication to link human beings emotionally with one another, for good or ill. This confers upon the media the genuine power thereby to accomplish great good or great evil.

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12 Nonverbal communication, emotion, and political evaluation

Erik P. Bucy

For both sophisticated and unsophisticated citizens alike, the feelings and cognitions that political figures elicit can affect how favorably they are evaluated and add significant explanatory power over and above that due to such traditional predictors of political preference as party identification, ideology, or issue position (Abelson et al. 1982; Marcus 1988, 1991). Through televised broadcasts, which provide frequent close-up images of known and powerful leaders, viewers may experience a range of short-lived episodic emotions, cognitive responses, and subjective evaluations that influence long-term attitudes and preferences (Masters and Sullivan 1993). Kinder (1986) hypothesizes that trait attributions of such perceived qualities as competence, integrity, leadership, and empathy are important to political evaluations because they may predict future performance. Yet, although affective reactions and trait attributions have been shown to be important determinants of political support, little is known about how a political leader's verbal and nonverbal behavior evoke them (Bucy 2000; Masters and Sullivan 1993). The emotional appropriateness of presidential communication offers one possible explanation. The extent to which televised nonverbal behaviors, especially, are perceived as appropriate is an important factor in the political communication process that may affect subsequent feelings, judgments, and evaluations in the viewer.

This chapter makes the general argument that visual depictions of political leaders, omnipresent in broadcast news, offer a reliable basis on which to evaluate candidates and office holders beyond the substance of their policies, pronouncements, or issue positions. Televised nonverbal displays are potent criteria of political evaluation because they offer widely accessible evidence of a politician's ability to competently lead. More broadly, news visuals are distinguished by their capacity to convey important social information that is not dependent on literacy requirements. They are rapidly processed and readily retrieved. Given specialized centers in the brain that are dedicated to visual processing, nonverbal displays function as efficient carriers of emotional states and communicative traits that require little deliberative effort and prior expertise to effectively integrate into global assessments and long-term memory.

Beginning with a review of the literature on appropriateness as a communicative trait, this chapter explains how citizen evaluations of televised leader appearances depend on the news context in which the leader is shown. Judgments about leaders are not made in a news vacuum, yet this important fact is largely ignored in research. The analysis then distinguishes between the kind of factual information

evident in verbally based messages and the social information conveyed by visual depictions. News visuals are further divided into event-based imagery and televised leader-displays – distinct categories of visual information that elicit different emotional responses in viewers. News visuals are valuable for communicating the urgency and magnitude of threats in the environment while leader displays are distinguished by their capacity to motivate observers. Central to understanding motivation is the way affective experience colors and inspires action. Different views of emotion are therefore described and the application of emotion theory to political evaluation summarized. Expressive display types are next reviewed and the results of a longitudinal content analysis of U.S. presidential election news presented. Outside of the campaign context, the role of nonverbal leader communication during times of crisis or heightened threat is highlighted as an important interpretive setting. The chapter concludes with a renewed call for the study of political visuals, along with suggestions for future research.

Evaluating the president

Citizen evaluations of the president's televised appearances depend on two widely assumed but under-examined factors (Bucy and Newhagen 1999). First, as the media priming literature suggests, political evaluations are greatly affected by the news context in which the chief executive is shown (Iyengar and Kinder 1987; Krosnick and Kinder 1990; Krosnick and Brannon 1993). Media priming research holds that news coverage exerts subtle but powerful influence over the standards of evaluation audiences use to formulate opinions and make judgments. Iyengar and Kinder's (1987) classic definition of media priming opens the concept to a broad range of political institutions and actors: 'By calling attention to some matters while ignoring others, television news influences the standards by which governments, presidents, policies, and candidates for public office are judged' (p. 63). Priming operates through the mechanisms of message salience, message recency, and concept accessibility (Iyengar and Kinder 1987). Intensive coverage of a topic or event (salience), particularly when there is a shift in coverage from one topic or event to another (recency), activates information related to what audience members already know about the topic (accessibility) so that revised judgments can be made about attitude objects that are contained in the coverage.¹

Second, assessments of the president can depend as much on his nonverbal behavior as his verbal message (Lanzetta et al. 1985). Given a political environment under constant media surveillance, where viewers see close-ups of heads of state and political rivals on a nightly basis (Masters 1996), a leader's affective communication 'including such apparently irrelevant features as the way he smiles, can unexpectedly be more important than the substance of his actions or policies' (p. 145). The effects of nonverbal behavior derive in part from the universal accessibility of certain basic emotional displays (Ekman 1989) and from the heuristic utility of source cues in the evaluation process (Stewart 1997). Heuristics, or judgmental shortcuts, serve as efficient mechanisms for organizing and simplifying political choices for both sophisticated and unsophisticated voters alike (Lau and Redlawsk, 2001; Sniderman et al. 1991). While much early work on heuristics focused on the cognitive aspects of forming judgments under conditions of low information or uncertainty (e.g., Tversky and Kahneman 1974), research has increasingly pointed to the importance of emo-

tional cues and affective assessments in making sense of the political ecology (Stewart 1997). Such heuristic processing, Mondak (1993) has noted, 'may provide a critical mechanism by which the citizen can form reliable judgments while simultaneously conserving valuable cognitive resources' (p. 169).

Until recently, studies of voter knowledge and learning have been hampered by the way in which information has been conceptualized and measured. Traditionally, information has been equated with factual knowledge present in verbal communication – the story narrative or audio track in the case of television. Until recently, much research involving television news focused on propositional memory or comprehension of the verbal stream, and all but ignored the effects of the visual stream (see Newhagen, 2002; Newhagen and Reeves 1992). An emphasis on verbal information, which treats the accompanying visual as a necessary but distracting element of televised political speech, not only overlooks television's single most distinguishing feature – its ability to generate a real-time stream of images – but also fails to consider the persuasive effects that images have on viewers (Newhagen 2002; cf. Müller and Kappas this volume). As the information-processing literature has shown, these effects are considerable when compared to the verbal component of the news (Grimes 1991; Lang 1995). Over the last two decades, a growing number of studies have shown that viewers process television using a combination of verbal content and nonverbal cues to make sense of messages that appear on the nightly news, as well as other program genres (Bucy and Bradley 2004; Lanzetta et al. 1985; Reeves and Nass 1996).

As suggested, particularly evocative candidate displays may act as heuristic cues that are regarded by observers as predictive of future behavior. In *Image Bite Politics* (Grabe and Bucy 2009), we make a reasoned case for considering news visuals as a vital source of political information. When considering visuals as information, a distinction needs to be made between factual knowledge and social information of the kind that news images provide. Table 12.1 compares factual and social information types in relation to four key contextual dimensions: the media that are associated with them, biological predispositions to attend to them, cognitive competence to process them, and social constructions of their informational status in society (for a full elaboration, see Grabe and Bucy 2009). Clearly, these information types are not as cleanly separated as they appear here for comparative purposes. Yet, the comparison illustrates how factual information is constructed as the acme of civic knowledge – despite the biological and cognitive predisposition of humans to absorb social information from visual-based media as well as daily life.

Viewing politics as primarily geared toward verbal articulation of issues places knowledge and expertise on a path toward verbal indicators of competence: being politically sophisticated means having the motivation and capacity to debate issues as framed in the print press or as represented on discussion programs – to take part in the political conversation as traditionally defined. From a psychological perspective, however, inferences made from visual depictions of candidates occur rapidly, if not automatically, influencing subsequent information processing about candidates even if not consciously contemplated (Todorov et al. 2005: 1623). Visual portrayals, in this sense, may prime later judgments about political viability and shape the criteria by which candidates are evaluated, including their policy positions. Hence, visual information complements verbal knowledge – and vice versa.

Table 12.1 Comparison of factual and social information types

<i>Processing Context</i>	<i>Information Types</i>	
	<i>Factual</i>	<i>Social</i>
Media	Word-based Dependent on literacy Biased toward print media Present in audio track of television news	Visually based Independent of literacy requirements Biased toward television, visual media Present in video track of television news
Biology	Developed late in hominoid evolution No specialized brain centers for reading Emerges within cognitive band of processing (500 msec and above)	Developed early in hominoid evolution Specialized brain centers for visual processing Emerges within biological band of processing (50 msec and above)
Cognition	Difficult to recall Requires extensive rehearsal for memory Most useful with a political schema Permits slow inferences of politically relevant traits Overridden by compelling visuals	Easy to recall Requires minimal rehearsal for memory Not dependent on a political schema Enables quick inferences of politically relevant traits Assigned priority over spoken words
Culture	Viewed as a marker of intellect Culturally constructed as rational Associated with elites, sophistication Socially stratifying, exclusionary	Viewed as a marker of ‘idiocy’ Culturally constructed as emotional Associated with nonelites, lack of sophistication Socially equalizing, inclusionary

From Grabe and Bucy (2009: 275)

Appropriateness as a communicative trait

An important but overlooked aspect of political behavior, appropriateness can be regarded as a situational communicative trait manifested in the verbal and nonverbal communication of political leaders.² Unlike personality traits, which are tendency focused and viewed as lasting psychological dispositions that motivate a person to behave in a certain way, situational traits such as appropriateness are event focused and surface in specific contexts such as conversations or, in the case of politics, debates, speeches, or press conferences (see Cupach and Spitzberg 1983). Situational trait attributions differ from emotional reports, which reflect the internal state of the responder, in that they are directed toward an external stimulus. Emotional responses tend to be more direct, ‘naïve’ reflections of psychological experience than trait inferences, as the attribution of trait-like qualities entails some degree of deliberation in relation to an object of interest (Abelson et al. 1982; see also Jones and Nisbett 1971).

Appropriate behavior depends on conformity to both social and cultural norms (Goffman 1959) and adherence to normative rules judged relevant to the episode (Cupach and Spitzberg 1983; Larson et al. 1978). Display rules may be situationally or culturally determined (cf. Müller and Kappas this volume). In the United States, negative and arousing (anger/threat) displays have been shown to be effective in bonding supporters to leaders in speeches and other public appearances, while more positive (happy/reassurance) expressive behaviors are better received in interview situations (Lanzetta et al. 1985; Masters et al. 1987). In a comparison of American and French reactions to televised political displays, Masters and Sullivan (1989) found that French viewers were more likely to respond positively to anger/threat displays and more negatively to fear/evasion displays than American viewers. Yet overall, display effects were weaker among French viewers. American culture, they concluded, seems to have ritualized political expressions differently from French culture (Masters and Sullivan, 1993; see also Sullivan 1996).

Emotion-laden images of the president that violate normative expectations judged relevant to the unfolding political action can trigger a cognitive evaluation in the viewer (Bucy and Newhagen 1999) and provoke widespread speculation among journalists. During the 1988 presidential campaign, for instance, Democratic candidate Michael Dukakis gave what many observers believed was an unimpassioned, emotionally flat response to a question during a nationally televised debate about the hypothetical rape and murder of his wife, leaving the impression that he lacked compassion and the ability to express outrage. Both in substance and in delivery, Dukakis seemed cool and technocratic. 'His calm [demeanor] was deemed inappropriate by many watching the debate,' Smith and Hyde (1991) noted, 'and reinforced Bush's charge that Dukakis was "the iceman"' (p. 462).

For leader reactions to be evaluated as appropriate, they must be meaningfully related to the message that preceded them and emotionally compatible with the tone of the setting in which they occur. President Clinton's tepid response to initial queries about an alleged affair with White House intern Monica Lewinsky a decade later provides an apt illustration. Clinton at first attempted to deny the high-charged allegations by saying he did not have an 'improper' relationship with Lewinsky. The evasiveness of his answer and equivocal nature of his delivery raised more questions than it answered, however; an unconvincing denial in the face of intense public interest only provoked suspicions of culpability (Berke 1998). Recognizing his mistake, Clinton six days after the sex scandal broke tried a different approach, angrily denying that he had had sexual relations with Lewinsky or that he had told her to lie under oath about their relationship (Bennet 1998); the emphatic tone and forceful gestures of his second denial were noted in front page headlines and were arguably viewed as the more appropriate response.³

News visuals and leader displays

When researching televised coverage of leading political figures and newsworthy events, it is important to distinguish between the effects of news images and leader displays. News images of dramatic events and catastrophes – the stuff of political response – seem to have different cognitive and motivational consequences from close-up images of political leaders. Negative compelling images of death, destruction, and civil mayhem, for example, have been shown to inhibit memory for

information that precedes them while enhancing memory for what follows (Newhagen and Reeves 1992). Some of the variance for why people have difficulty remembering the specific items of a newscast they have just seen may be accounted for by this mis-sequencing of images and information. Leader displays, on the other hand, hold motivational priority for viewers, influence global affective assessments of political figures, invite evaluations of their emotional appropriateness, and, if they constitute a violation of nonverbal expectations, influence subsequent information processing (Bucy and Newhagen 1999; Masters and Sullivan 1993; see also Burgoon and LePoire 1993).

In political communication, the televised emotional displays of leaders thus serve as a potent vehicle for expression: viewers readily distinguish between different types of televised displays and the ensuing affective reactions can translate into lasting feelings and attitudes about politics (Bucy 2003; Lanzetta et al. 1985). Negative compelling events in the environment – the substance of crisis news coverage – may represent threats and elicit primary emotional responses (Newhagen 1998) but they are not as emotionally nuanced or evocative as human facial expressions. A single expression, Ekman (1982) points out, is capable of revealing multiple emotions felt (or feigned) by the communicator. In the course of watching political news, citizens thus pay attention to developments in the environment but look to leaders for motivational cues (Masters 1989; Way and Masters 1996).

An effective strategy for addressing the unique effects of news visuals and leader displays is to identify the component elements of a standard news package and investigate how these elements interact to affect viewer processing. Narrative and editing transitions effectively delineate television news stories into recognizable sub-units, notably the anchor lead-in, news visuals with natural sound and reporter voiceovers (the action shots), and newsmaker soundbites (the reaction shots). Production handbooks (e.g. Compesi 2007; Shook 2000) note that both action and reaction shots are critical components of the visual storytelling process; the reaction shot often adds important nonverbal emotional cues to the action, as when the president expresses hardened resolve at the news of an economic downturn or grim determination upon hearing of a North Korean missile test. By virtue of its political significance, the news context both evokes a presidential reaction and primes the viewing audience to expect leader communication that matches, in content, delivery, and tone, the gravity of the situation. Within this framework it is possible to investigate unique reactions to the news beyond basic responses to undifferentiated story units and examine the interactive effects of news story-presidential reaction sequences.

Indeed, several experimental studies have found that viewers assess presidential reactions to compelling news events in terms of their emotional appropriateness (Bucy 2000, 2003; Bucy and Bradley 2004; Bucy and Newhagen 1999). Participants in these studies each viewed several televised message sequences consisting of a 30-second news story followed by a 30-second presidential reaction in which the president was seen displaying varying levels of nonverbal emotion but not heard. When the news images were negative, nonverbal displays that were negative and not intense – that is, calm but stern – were evaluated as appropriate. When the news images were positive, displays that were positive and intense were seen as inappropriate. News story-presidential reaction sequences regarded as appropriate resulted in faster visual recognition times, more favorable thought listing comments, and

prompted fewer thoughts than message sequences seen as inappropriate. Another study using psychophysiological and emotional self-report measures indicated that evaluations of display appropriateness moderated how much attention was given to the display, the affective direction of viewers' facial muscle activation and the level of autonomic activation, or arousal (Bucy and Bradley 2004; see also Ahn et al. this volume).

Message sequences regarded as inappropriate, on the other hand, activated normative interpretations and focused attention more directly on the source of the expectancies violation (see Burgoon and LePoire 1993), producing critical assessments of the president's nonverbal behavior. Inappropriate message sequences (positive and intense reactions to positive news) elicited negative emotions more intensely than positive emotions and produced uniformly lower trait evaluations. Facial muscle activation (electromyography, or EMG) data showed that viewers frowned in response to positive expressive displays that followed positive news. Smiling activation also decreased for high-intensity, positive displays. Appropriate sequences (negative and calm reactions to negative news) elicited positive emotions more intensely than inappropriate sequences. Moreover, negative displays were evaluated as significantly more honest, credible, trustworthy, and appropriate than positive displays. Together, these findings point to the importance of the news context in viewer evaluations of leader expressive displays and suggest that viewers employed an emotional appropriateness heuristic to process the president's nonverbal behavior.

Views of emotion

Despite gains made in research involving political affect, particularly as it relates to cognition, emotion remains an inconsistently conceptualized variable in studies of political information processing. Indeed, in a recent collection of essays and studies on the affective intelligence model, the editors (Neuman et al. 2007) document no less than 23 different theories, models, or central concepts used to explicate the interaction of affect and cognition – in a single volume! To understand the emotional and evaluative consequences of leader displays, the work cited here draws on both dimensional and categorical theories of emotion. The former view conceptualizes emotion as a multidimensional construct, while the latter defines affective experience in terms of discrete categories or feeling states, such as anger, disgust, fear, surprise, happiness, and sadness (Ortony et al. 1988). Together, these approaches facilitate categorization of viewer responses to televised portrayals and help organize a range of affective expressions that may be shown on the evening news.

Emotions may be manifested in a variety of ways: verbally, as descriptive reports of subjective experience; physiologically, as corresponding heart rate, skin conductance responses, and facial muscle activation; and behaviorally, as facial expressions and other visible displays (Lang 1988; cf. Lang and Ewoldson this volume). The dimensional view of emotion suggests that affective experience can be characterized by three primary dimensions: valence, or positive and negative affect; arousal, or behavioral intensity; and potency, also referred to as dominance, which is often defined as control (Lang, 1988; Mehrabian and Russell 1974; Russell and Mehrabian 1977). Of these three dimensions, potency is the least researched, largely because it has accounted for the least amount of variance in studies of emotional

response. Nevertheless, potency persists as a content feature of emotional stimuli (Bradley and Lang 1994; Bucy 2003) and plays a useful role in discriminating between such negatively valenced, high-intensity emotions as anger and fear (Mehrabian and Russell 1974).⁴

From an evolutionary perspective, emotion may be defined as an action state produced by a mismatch between an organism's goals and some internal or environmental stimulus (Frijda 1988; Plutchik 1980; cf. Schwab and Schwender this volume). Mismatches between expectations and environmental events, especially those perceived as threatening, elicit anxiety and feelings of uneasiness, engaging what Marcus et al. (2000) identify as the emotional surveillance system. These authors argue that anxiety is associated with a special class of emotions that signal the need for 'greater attentiveness, greater thoughtfulness, and increased motivation for learning' when facing unexpected circumstances (Marcus et al. 2000: 57). Such motivational activation to novel circumstances spurs more thorough information seeking and cognitive processing in the search for solutions. Emotion thus complements and enhances political cognition.

Expressive display types

Unlike attractiveness and other more or less stable aspects of appearance, facial displays are highly variable and reveal important moment-to-moment information about the emitter's internal state. Given their capacity to influence emotional, cognitive, and evaluative responses in observers (Bucy 2000; Bucy and Bradley 2004; Masters 2001), candidate expressions are an important component of political influence that merit closer scrutiny. Indeed, Masters (1991) has characterized televised leader displays as 'microlevel phenomena that form the elements underlying more diversified and elaborate political processes' (p. 234).

A longitudinal study examining visual aspects of broadcast network (ABC, CBS, and NBC) news coverage of the U.S. presidential elections from 1992 to 2004 found that image bites, audiovisual segments where candidates are shown but not necessarily heard, constitute a greater percentage of total campaign coverage than sound bites, where candidates are shown and heard (Bucy and Grabe 2007). Given the tendency of candidates to appear in image bites more than sound bites, the nonverbal behavior of presidential nominees takes on added significance. Facial expressions of candidates are influential elements within image bites that are now omnipresent in news stories on the evening news (Grabe and Bucy 2009).

Research on the televised nonverbal behavior of political leaders has identified three general categories of expressive displays recognized for their significance in influencing political rivals and followers: anger/threat, fear/evasion, and happiness/reassurance (Lanzetta et al. 1985).⁵ These categories draw on research from primate and human ethology, which has found that different patterns of display behavior are associated with distinct roles in rivalry for dominance (see Masters et al. 1987). As composite terms, anger/threat, fear/evasion, and happiness/reassurance reflect the duality of the emotion being expressed and correspond to the behavioral intentions of attack, flight (or submission), and bonding. Far from having trivial impacts, leader displays hold evolutionary significance for social organization and, by conveying emotion and transmitting important nonverbal cues, are instrumental in regulating status and power relationships (Masters and Sullivan 1993).

Although the three display types are categorically distinct, they can be grouped according to two broader styles of interaction important to social organization and attention structure – the agonistic and hedonic behavioral styles (see Chance 1976; Kortmulder and Robbers 2005). Whereas agonistic interactions are characterized by competitive behaviors, namely, displays of threat and submission (or appeasement), hedonic interactions feature conciliatory gestures and reassuring expressions. Agonistic encounters function largely to establish and regulate power relations; hedonic encounters, which are more relaxed and playful, tend to reinforce social status. Such expressive patterns apply to interactions of both adults and children, in which ‘the leader is more likely to exhibit reassuring displays, whereas second-ranking individuals – and, particularly in groups of children, those marginal to the group – more frequently engage in aggressive behavior’ (Masters et al. 1987: 122). Thus, facial displays and other nonverbal behaviors index what ethologists refer to as dominance hierarchies, with anger/threat and fear/evasion representing an agonistic style of interaction and happiness/reassurance a hedonic style.

The human repertoire of expressive displays is much more variable and nuanced than other primates, owing in large part to the interactions in *Homo sapiens* between gestures, language, and culture. ‘Human communication is extraordinarily complex because spoken messages are accompanied by nonverbal cues, not only of the face and body, but also of the voice’ (Masters 1989: 99). Ekman (1989) has proposed that distinct facial displays corresponding to the primary emotions anger, fear, disgust, enjoyment, and sadness form a universal nonverbal language recognizable across different cultures. He suggests that other, more nuanced, facial displays are blends of these basic expressions.

Despite similarities in the identification of basic emotions, research in nonverbal communication has documented considerable variation between individuals in the performance of similar gestures (Rozelle et al. 1986). Take the case of a false or masking smile, where a deliberate attempt is made to convince an observer that positive emotion is felt when it is not. Ekman and Friesen (1982) distinguish between felt (genuine), false (phony), and miserable (unhappy, appeasement-type) smiles, noting that smiles can function as ‘concealment masks’ (p. 240), conveying deceptive information. On the political stage, candidates can also widely differ in the effectiveness of their nonverbal behavior, an observation borne out by experimental tests of Reagan and Mondale’s happiness/reassurance displays on viewers (Sullivan and Masters 1988). Variations in display intensity and in the ability to communicate positive emotion central to reassuring others and bonding citizens to leaders seem to be particularly important (Sullivan and Masters 1988). More than a leader’s ability to emote effectively in the abstract, it is the observation of competitive contests by third parties and the *observer’s response* to nonverbal behavior that determines social status (Masters 1989; see also Gratch this volume).

Earlier analyses of network news broadcasts documented how each of the three major display types, as widely visible instances of nonverbal leader behavior, occurs in presidential election coverage (Masters et al. 1991; Sullivan and Masters 1994). Our more recent analysis found that happiness/reassurance displays were shown the most frequently in election coverage, followed by anger/threat. Fear/evasion expressions were relatively rare and short lived when they did appear (Grabe and Bucy 2009). Each display type can be reliably classified and documented using distinct coding criteria developed by nonverbal communication and biopolitical research (see Ekman 1982;

Sullivan et al. 1991). By facilitating systematic measurement of candidate portrayals in election news, visual content analysis techniques can be applied to a single election contest or multiple election cycles to examine the relationship between a candidate’s nonverbal display repertoire, the news context in which the displays are shown, and candidate standings in the polls (see Bucy and Grabe 2008). The defining characteristics of each facial display are summarized in Table 12.2 and described below.

Happiness/reassurance. Characterized by a smile or relaxed mouth position, happiness/reassurance displays are relatively fluid, smooth, and flexible. In these expressions, the eyes may be wide open, normal, or just slightly closed. Also evident are raised eyebrows and visible upper, or upper and lower, teeth (Masters et al. 1986). Eye contact may be brief, followed by a cutoff or change of gaze to avoid staring. In addition, ‘crow’s feet’ wrinkles may appear around the eyes and the candidate’s head might be tilted to the side, back, or in a nodding position. Functionally, happiness/reassurance displays facilitate a hedonic or friendly mode of social interaction and in most situations lower the probability of an aggressive or agonic encounter (Sullivan et al. 1991).⁶

Anger/threat. A more rigid pattern of facial tendencies characterizes anger/threat displays, which may include a fixed stare; vertical head orientation; raised upper, and tightened lower, eyelids; brows that are pulled down and drawn together; lower or no teeth showing; and, lowered mouth corners (Masters et al. 1986). In such displays the lips may be pressed firmly together or squared and tightened. The expression overall has a negative or tense quality about it and is coupled with a hostile communicative intent. Functionally, anger/threat displays are associated with agonic encounters, aggressive behavior, social rivalry, and challenges to dominance hierarchies. Whereas challengers and rivals are frequently aggressive, ‘the leader is usually the focus of attention, often engaging in hedonic or reassuring behavior’ (Masters 1981: 64). As Howard Dean learned in 2004, leading candidates

Table 12.2 Criteria for classifying facial displays

	<i>Nonverbal Display</i>		
	<i>Anger/Threat</i>	<i>Fear/Evasion</i>	<i>Happiness/Reassurance</i>
<i>Eyelids</i>	Opened wide	Upper raised/ lower tightened	Wide, normal, or slightly closed
<i>Eyebrows</i>	Lowered	Lowered and furrowed	Raised
<i>Eye orientation</i>	Staring	Averted	Focused then cut off
<i>Mouth corners</i>	Forward or lowered	Retracted, normal	Retracted and/or raised
<i>Teeth showing</i>	Lower or none	Variable	Upper or both
<i>Head motion</i>			
Lateral	None	Side-to-side	Side-to-side
Vertical	Upward	Up-down	Up-down
<i>Head orientation</i>			
To body	Forward from trunk	Turned from vertical	Tilted from vertical
Angle to vertical	Down	Down	Up

From Masters et al. (1986: 330). © 1986. Reprinted with permission from Elsevier. As modified by Masters (1996: 141).

who exhibit too much anger/threat may, as the focus of media attention, quickly find their behavior characterized as ‘non-presidential’ – or worse (Kurtz 2004).

Fear/evasion. Expressions that feature furrowed brows and gaze aversion, a lowered head position, abrupt movement, and, at times, side-to-side head turning are indicative of fear/evasion displays (Sullivan et al. 1991). In some cases, the emitter’s eyelids will be raised, as with the ‘deer caught in the headlights’ look. Other times, the brows might be slightly furrowed and wrinkles may form in the middle of the forehead, suggesting worry; the lips may also stretch horizontally and the chin may be lowered (Masters et al. 1986). An evasive expression communicates an intention to avoid confrontation. Functionally, fear/evasion displays are also associated with agonic encounters, but instead of indicating aggression they signal subordination, avoidance, and inferior status. Candidates who are forced to respond to allegations or difficult questions, who are reported to be trailing badly in the polls, or who are asked to justify contradictory statements might exhibit fear/evasion. Representative examples of hedonic and agonic candidate displays, captured from news coverage analyzed in a four-year election study (see Bucy and Grabe 2008; Grabe and Bucy 2009), appear in Figures 12.1a and 12.1b.

Hedonic displays (Happiness/Reassurance)



George H.W. Bush
1992



Bill Clinton
1992



Bob Dole
1996



Al Gore
2000

Figure 12.1a Screen captures from presidential campaign coverage showing hedonic displays.

**Agonic displays
(Anger/Threat and Fear/Evasion)**



George H.W. Bush
1992



George W. Bush
2000



Al Gore
2000



George W. Bush
2004

Figure 12.1b Screen captures from presidential campaign coverage showing agonic displays.

Presidential candidates elicit feelings from potential voters in different ways – by distinctive rhetorical styles, through citizen responses to positive or negative policy outcomes, and by hedonic and agonic display repertoires communicated over television (Roseman et al. 1986; Sullivan et al. 1991). In our longitudinal study of candidate displays, which analyzed network coverage of general elections from 1992 to 2004, we found a noticeable over-time trend in the display behavior of the major party nominees. First, by dividing the general election campaign into three stages (early, debate period, and final stretch), it became evident that agonic displays, more prominent in the early campaign period from Labor Day to the debates, decreased as Election Day approached; hedonic displays, on the other hand, increased. More specifically, there was an increase in news portrayals of hedonic behaviors and an initial increase followed by a subtle decrease in agonic depictions over the course of the election. The drop off in agonic depictions during the last stage of the campaign supports the prediction, consistent with the candidates’ need to appeal to the broadcast possible audience, that expressive behavior would be more positive and less varied over time (see Figure 12.2).

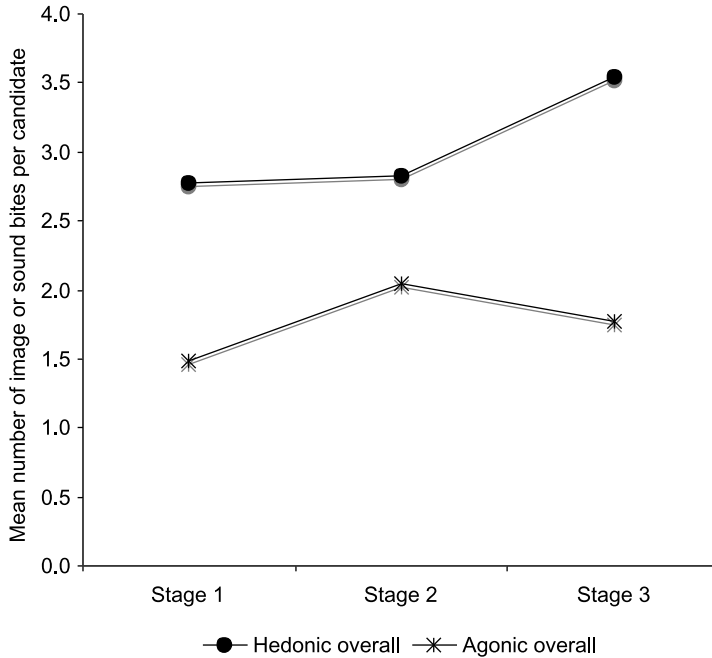


Figure 12.2 Hedonic and agonic candidate behavior displayed over time, 1992–2004.

Agonic displays were less prominent in news coverage overall but were associated with trailing candidates and debate losers significantly more than frontrunners and debate winners.⁷ Candidates, in other words, who were behind in the polls were more often shown exhibiting anger/threat (or fear/evasion), making defiant gestures, and delivering statements that were negative in tone or hostile in intent than candidates who were ahead. This behavioral pattern is consistent with ethological observations that have documented aggression in second-ranking individuals or challengers to power (see Sullivan and Masters 1988). Being combative is a hallmark of those with lower ranking or secondary status. In our study of election news (Grabe and Bucy 2009), agonic displays increased during the debate period, due to increased competitive behaviors and attacks by trailing candidates, but then decreased in the final stretch of the campaign when the campaign's strategic goal is to maximize the candidate's popular appeal.

The decrease in aggression and embracing of a more positive, hedonic style of campaigning in the last few weeks of the election suggests candidates become much more focused on building their prestige with the electorate than dominating the opponent after the debate period. In the final stretch of a campaign, both nominees would rather be seen primarily as the presumptive winner, or confident 'happy warrior' (Bucy and Grabe 2008), than a combative also-ran. A certain amount of competitive (agonic) behavior persists to Election Day, but the competition becomes more focused on building public support and less on direct political rivalry. And for good reason, too – aggression in the final stage of the campaign can move public opinion in an *unfavorable* direction. Our analysis of visual depictions and tracking poll data (Grabe and

Bucy 2009) found that agonistic displays undermined support for Democrats Bill Clinton in 1992 and Al Gore in 2000. Yet for Republican George W. Bush, visual displays of anger/threat positively influenced support in 2004. Interestingly, Clinton in 1992 was more effective at connecting with voters in the general election through verbal attacks, whereas Bush's verbal attacks negatively impacted his polling numbers in 2004.

Inferences drawn from televised leader displays are particularly informative and affect both partisans and undecided voters. Happiness/reassurance and anger/threat displays have larger effects on supporters than critics (Sullivan et al. 1991), indicating the close scrutiny that candidate behavior receives. Supporters tend to respond positively to hedonic displays of an admired leader and, in some cases, instances of aggression (Grabe and Bucy 2009). Agonistic behavior can be effective in bonding followers to leaders but is not reassuring to critics (Sullivan 1996). Instead, critics tend to respond negatively to anger/threat displays and are likely to report neutral or no emotional responses after viewing the smiling face of an unliked leader. Happiness/reassurance displays are thus capable of neutralizing the negative feelings of critics, a quality that agonistic expressions lack. Fear/evasion displays, by contrast, elicit negative feelings from supporters and critics alike (Lanzetta et al., 1985; Sullivan and Masters 1994). Not surprisingly, the largest lasting effects of nonverbal leader displays have been found for undecided viewers (Sullivan and Masters 1994) – a finding that merits further investigation given the closeness of some recent elections.

Besides influencing viewers on a micro level, nonverbal displays may also have social level effects. Sullivan and Masters (1988) have argued that emotional reactions to facial displays and other nonverbal behaviors play an important role in producing the 'momentum' that candidates develop over the course of an election. Although a candidate's status derives from numerous factors, such as political reputation, fundraising ability, popularity, and elite opinion, televised portrayals play an influential role in regulating the esteem with which a candidate or office holder is held. Al Gore's 2000 presidential candidacy offers a case in point.

Throughout the general election, Gore seemed to invite uncertainty by violating accepted display norms. He did this perhaps most famously by aggressively entering the personal space of George W. Bush during the third presidential debate, which Bush nonchalantly shrugged off. 'Three different Gores showed up' during the debates that year, according to veteran political observer Joe Klein (2006), 'the lion, the lamb, and the stalker' (p. 156). Gore also upended the campaign's unspoken rules of conduct by violating expectations for appropriate political behavior in speeches and interview settings. Whereas most candidates exhibit significantly more agonistic behavior in speeches than in interviews, Gore evidenced more agonistic behavior in interviews than in speeches (Bucy and Grabe 2008). Considering the tone of his sound bites, Gore was also heard significantly more often with an agonistic verbal tone during his personal interviews than during his speeches, losing the opportunity to connect with voters on a personal level in the more relaxed interview setting (Grabe and Bucy 2009).

Gore's public persona was marked by inexplicable moments of awkwardness, followed by panicked after-the-fact reactions. Klein (2006: 139) described Gore's peculiar behavior in 2000 as an odd oxymoron – a 'panicky robot' mode of campaigning. Gore was variably on the attack and then on the defensive. In an awkward live exchange with Tom Brokaw on November 3, a few days before the 2000 election,

Gore was asked about Bush's DUI conviction decades earlier: 'Do you think than an arrest 24 years ago will have any impact on the governor's ability to lead the country if, in fact, he's elected president?' Gore initially said he did not have a comment on this piece of breaking news then offered a hesitant reply, distancing himself from the issue. During his reply, however, Gore appeared visibly uncomfortable, gazing downward, shrugging his shoulders, moving his head from side to side, and avoiding direct eye contact with the camera – classic signs of fear/evasion (see Figure 12.1b). In answering the question, Gore acted as if *his* behavior was in question and seemed to commit a nonverbal expectancies violation inviting closer scrutiny of his response. 'All I know is this,' Gore offered, 'our campaign had absolutely nothing to do with it.' A less defensive and more confident, reassuring reply would have left a more favorable impression.

In analyzing nonverbal displays and political leadership, it is important to distinguish between the stimulus characteristics or objective features of the displays themselves and their impressive significance as elicitors of emotional responses in others (Sullivan et al. 1991). A given display does not have the same effects in all viewers but rather interacts with prior attitudes, the viewing context, and short-term perceptions to influence emotional, evaluative, and attitudinal outcomes (Masters 2001; Masters and Sullivan 1993). Candidate nonverbal behavior may also influence voting intention; indeed, as a forecasting tool, reviewer ratings of short video clips from gubernatorial debates (shown in 10-second slices, with the sound off) outperform a range of more conventional predictors of election outcomes (Benjamin and Shapiro 2009).⁸ In this way, facial displays convey considerable social meaning and significance, depending on the context in which they are seen (Bucy and Newhagen 1999; Sullivan et al. 1991).

Given the image-oriented, multi-platform news era we are now in, the effects of expressive leader displays have become increasingly influential due to the widespread use of close-up camera technology, the ease with which posted footage can be accessed and viewed, the aggregate size of the viewing audience, and the tendency of news coverage to focus on dramatic situations that invite close viewer scrutiny (Grabe and Bucy 2009; Masters et al. 1991; Meyrowitz 1985). The close-up nature of much televised political coverage especially concentrates attention on the facial displays of leaders (Masters 1996). In addition to close-ups, the diffusion of high definition broadcasts and wide screen television sets is bringing viewers closer to the news than ever before with enhanced visual resolution and, through the use of home theater systems, audio fidelity. Never before have leaders been in such frequent, widespread, and close-up visual (and aural) contact with followers.

These developments are important because individuals tend to rely heavily on information gathered through the visual channel when forming impressions of others (Ekman et al. 1980). Indeed, if there is a mismatch between verbal and nonverbal channels (e.g., a resolute message delivered in a halting, unsure manner, or a somber message delivered in a lighthearted way), viewers are more likely to remember the visuals shown than the communicator's spoken words (Grimes 1991; Lang 1995). A similar phenomenon has been demonstrated in studies investigating visual primacy or dominance – the tendency for visuals to dominate awareness of stimuli of similar or greater intensity presented simultaneously in other modalities (see Noller 1985; Posner et al. 1976). Thus, observers may react in an incongruent fashion – that is, with an emotional response that runs counter to the presentation – when viewing

a televised report with a mixed verbal and nonverbal message (see also Bucy and Bradley 2004).

Processing traumatic news

Televised leader displays are not broadcast in a news vacuum, but are shown in relation to specific, breaking developments. Emotion-laden images of the president that violate normative expectations judged relevant to the unfolding political action can trigger a cognitive evaluation in the viewer and provoke widespread speculation among journalists. This is especially true during traumatic news events (see Bucy 2003). Given the intensifying news coverage surrounding public health threats, natural disasters, terrorist actions, or economic shocks that may occur during a presidency (or presidential campaign), responding to catastrophe is becoming an increasingly important aspect of the presidency and has been implicated in the 1996 and 2004 re-election victories of Bill Clinton and George W. Bush (Thomas et al. 1997; Thomas and Clift 2005). The growing magnitude of domestic and international threats is thus redefining expectations about the role of the president in times of crisis – and, arguably, how citizens evaluate candidates for high office.

Recurring threats and the intense media coverage attended upon them have placed demands on the president to appear as soon as possible on the front lines of disaster recovery efforts – as a symbolic ‘first responder’ – to show federal resolve and allay public anxiety. But disaster scenarios are fraught with political risks. Terrorist strikes, natural disasters, and other ‘focusing events’ (Birkland 1996, 1997) spur public demands for the government to provide accurate information and restore order amid chaotic and unforeseen circumstances – solutions often beyond the president’s immediate capacity to deliver. For presidents, crises that threaten public health and national security place urgent demands to appear in control, reduce uncertainty, and find effective solutions to sudden and enormous challenges.

Bucy (2003) identified a potency dimension to presidential crisis communication. In a test of President Bush’s public communication style following the September 11 terrorist attacks, televised appearances categorized as more potent (e.g., excerpts of Bush’s address to Congress, remarks the president made with a megaphone to rescue workers at ground zero, forceful comments at a press availability on the White House lawn) were rated significantly more activated, intense, arousing, in control, and self-assured than reactions identified as low in potency (e.g., the president’s initial appearances ‘on the run’ in Florida and Louisiana, a misdelivered line during his address to the nation the evening of the attacks, a weepy-eyed Oval Office press availability). In low potency reaction segments, Bush was also rated more subdued and fearful than in segments categorized as high in potency (see Bucy 2003: 86–7). Thus, contrasted with his less than reassuring performances on the day of the attacks, the commanding quality of the president’s subsequent televised appearances suggests that a potent communication style may help to mitigate feelings of anxiety during times of widespread uncertainty and generalized fear.

For citizens, it is precisely during emotionally evocative events that leader communication counts the most (see Sears 2002). President Bush’s widely criticized handling of relief efforts following hurricane Katrina offer an illustration. Following the problematic evacuation of New Orleans, criticism of the administration mounted and Bush’s approval ratings plummeted to 39 percent, a downward trend in public

opinion from which he never recovered. Katrina thus produced an inverse rally effect typical of other domestic crises (Mueller 1973),⁹ opening the president to criticism and weakening his ability to pursue a policy agenda (Babington 2005).

Given the national crisis character of catastrophic events, the effects of varying levels of communicative potency on viewers of traumatic news should be explained in relation to the capacity of threatening occurrences to reduce reliance on predispositions in favor of moment-to-moment decision-making. Gray's (1987) theory of anxiety, extended by Marcus et al. (2000) into political information processing with their concept of affective intelligence, postulates that when a perceived threat elicits fear, normal behavior patterns are suspended and attention is focused on the surrounding environment so that learning can occur. In such situations, reliance on habitual routines, including judgments colored by ideology or partisan identification, is interrupted and resources devoted to the intrusive stimuli. The accompanying increase in anxiety initiates a process of heightened surveillance that intensifies scrutiny of political leaders whose role it is to provide corrective action in the face of disaster. Consequently, presidential communication during times of national crisis is likely to have a stronger impact on the public than under more normal circumstances.

Anxious citizens, because they are generally more attentive to unfolding events and less reliant on prior dispositions (Marcus et al. 2000), are also more keenly attuned to leader communication. As in bands of nonhuman primates, external threat and diffuse anxiety focus attention on the most powerful or dominant individual for leadership (Chance, 1976; Way and Masters 1996). The press' and pundits' calls for a more visible president on September 11 were thus consistent with evolutionary impulses. On the day of the attacks, substantial journalistic concern focused on the whereabouts and initial responses of President Bush, whose unavailability stood in stark contrast to the seeming on-the-ground ubiquity of New York Mayor Rudolph Giuliani. As Stephen Hess, a former aide to presidents Eisenhower and Nixon, asserted on the day of the attacks, 'the crisis absolutely demands that we see and hear from our president' (quoted in Condon 2001).

In the midst of crisis, with an eager press corps and anxious citizenry awaiting an appropriate and reassuring response, the performance pressures on the president are considerable. There are at least two reasons for this. First, news of national crises is fear-invoking on a broad social level, with heightened anxiety and fight or flight preparedness persisting for days, weeks, and even months after exposure to coverage of traumatic events (Snyder and Park 2002). Second, generalized anxiety in the populace during times of threat results in heightened sensitivity to, and reactivity toward, presidential communication (Bucy 2003; Sigelman and Conover 1981; Way and Masters 1996) – including its absence. With both the September 11 and Katrina catastrophes, commentators suggested that Bush's low visibility during the early stages of the crisis undermined public confidence (Babington 2005; Condon 2001). For Bush, who was not known for his communication ability coming into office (Sella 2000), this presented a significant challenge, for he was tasked with managing the public trauma through television in real time, without the benefit of advanced preparation. In particular, Sabato noted, the situation required that the president 'show a combination of compassion, stability, and vengeance [and for Bush] to do two things he doesn't like to do: come out and emote, and come out and inform people what is going on' (quoted in Condon 2001).

Meeting expectations, on the other hand, can have salutary – and calming – effects. In the aftermath of the September 11 attacks, President Bush's later communication style was evaluated by commentators and rated by experimental subjects as significantly more commanding and in control than his initial reactions on the day of the terrorist strikes (Bucy 2003; Shales 2001). When considering the intensity of news images of the World Trade Center attacks as an explicit factor in an investigation of Bush's communication style, high-potency presidential reactions that followed high-intensity news evoked the most uneasiness, anger, sadness, and feelings of being overwhelmed, whereas high-potency reactions to low-intensity news evoked the least. These findings suggest that emotional responses to Bush were evoked not by the president's appearances alone, devoid of context, but in light of the news action (Bucy 2003). Televised news coverage seems to play an important role in mediating the level of viewer emotion felt in response to an unfolding national crisis, highlighting the power of images to influence viewer impressions and lasting evaluations of presidential performance.

Discussion

Since the rise of electronic media, the communicative behavior of public figures has grown to occupy a central place in evaluations of political effectiveness. During political campaigns and other widely publicized developments, leader communication is scrutinized both for its verbal content and nonverbal significance. In the midst of a catastrophic event that receives intense media coverage, leader communication is perhaps the single most important political variable in play and can have lasting influence (Bucy 2003; Sears 2002). Information disclosure and executive certainty tends to promote understanding and alleviate anxiety while indecisiveness and information withholding provokes widespread concern and outrage, enhancing perceived risk and increasing the likelihood of volatile public behaviors, which multiplies the relative danger from panic reactions and other misguided activities (see Reynolds and Seeger 2005; Sandman 1993). This is an important consideration since leader communication and other observable actions serve as important motivational cues for how citizens should act in times of crisis, communicating to citizens how they should interpret unfolding events and what steps, if any, they should take (Bucy 2000; Bucy and Newhagen 1999).

Because of the visual proximity that the camera lens affords, electronic media demand that politicians remain extraordinarily mindful of their nonverbal communication (Meyrowitz 1985; cf. Gratch this volume). 'The lens magnifies everything,' playwright Arthur Miller (2001: 37) once commented, 'one slight lift of an eyelid and you look like you're glaring.' During a political debate, major speech, or other high-profile televised event, a few seconds of the wrong nonverbal cues could lead to a fall in the polls, accompanied by eroded faith in leadership ability (Gross 1999; Meyrowitz 1985). As a consequence, the communicative behavior of public figures has become increasingly central to evaluations of political effectiveness. In response to anxiety provoking news events, viewers are reassured by a leader who appears serious and in control (Bucy and Newhagen 1999). At such critical moments, inappropriate displays convey the wrong emotional tone and, instead of promoting curiosity or other harmless cognitions, invite uncertainty and negative evaluations (Bucy 2000). Political leaders who deviate from what observers consider acceptable, in

both the intensity and the valence of their reactions, tend to pay a heavy evaluative price – as the Howard Dean ‘scream’ episode demonstrated during the 2004 Democratic primaries.

As experimental research has found, the emotional appropriateness of leader displays serves as an evaluative heuristic at times of uncertainty and decisional pressure. Compared to reassuring communication, inappropriate displays activate normative interpretations of political behavior and focus attention more sharply on the source of the violation, producing critical assessments. Inappropriate displays thus convey the wrong emotional tone and, instead of promoting curiosity or other harmless cognitions, evoke doubt, anxiety, and other aversive responses. Expressive displays are politically significant because they signal important information about the performance and emotional state of leading political actors, developing expectations in viewers about future behavior and likely outcomes. Hence, inappropriate displays constitute a type of nonverbal expectancies violation that can trigger negative viewer reactions. To the degree that inappropriate leader displays signal insensitivity or a misreading of the political environment, viewers are likely to react negatively toward the source of the communication as they attempt to make sense of such unexpected display behavior.

And with just cause. Evolutionary analysis highlights the importance of competent leadership in maintaining social cohesion and group stability. For all its sophistication and technological panache, contemporary politics operates under Stone Age considerations. Chief among these is that visual stimuli serve an informational purpose and mediated depictions of political leaders offer a reliable basis for voter decision-making. Though discounted by elites because they are not dependent on verbal argumentation to have impact, news visuals should be understood, and treated in political communication research, as remarkably effective carriers of social information. Indeed, studies of visual knowledge have demonstrated the democratizing effect of visual cues on disparities in political knowledge based on gender, education, and race (Prior 2004, 2008). When visuals are entered into the mix, information differences between groups – women and men, degree and non-degree holders, blacks and whites – virtually disappear. But because visual measures are not routinely included in most research, citizens appear to be less knowledgeable and politically informed than they actually are. As Graber (1996, 2001) rightly notes, ignoring visual information biases our estimates of political knowledge in the electorate.

This state of affairs suggests that the renewed study of political visuals is rather urgent. The neglect of visual variables in news analysis, public opinion research, and election studies suggests that we have, at present, a somewhat distorted empirical understanding of democratic processes – one excessively based on verbal or text-based measures of political information and competence. Earlier research noted the difficulty of reliably operationalizing visual phenomena. Now, with the application of categories borrowed from ethological analysis (see Bucy and Grabe 2008), experimental research demonstrating the effects of nonverbal leader displays (see Stewart et al. 2009), and elaboration of the ‘image bites’ approach to news research (see Grabe and Bucy 2009), that problem appears to be fixable. Directions that future research should take include regional and cross-national studies of visual political depictions, looking for differences and consistencies between U.S. presidential election coverage and international political campaigns as evidence of

specialized news cultures (see, for example, Esser 2008). Studies should also be undertaken to determine depictions of lesser candidates, at the regional and statewide level, to more fully assess the quality and quantity of political information available to voters locally.

In terms of the impact of political news visuals on viewers, an under-researched question concerns the relationship between short-term emotional states evoked by leader displays and more enduring attitudes and dispositions. The long-term effects of stimulus-driven states is a classic question in experimental research about which there is not nearly enough evidence. Is a single exposure to an inappropriate leader display sufficient to turn an undecided voter or weak partisan against the offending candidate, or does it take repeated exposures to the display over a period of time for long-term effects to take hold? The latter assumption is implicit in much campaign advertising strategy, where attack ads excerpt awkward or revealing moments and air them with ominous or ridiculing narration over a period of weeks in an attempt to drive up the opponent's 'negatives.' At a more sophisticated level methodologically, future research should also investigate the role of statistical mediators (perceptions evoked during viewing) and moderators (individual difference variables, including political, demographic, and personality characteristics) in determining global assessments of candidates and office holders. At least four classes of variables impinge on leader evaluations: the quality of the display or communication, viewer characteristics (including political predispositions), short-term perceptions or episodic emotions evoked by the presentation, and the associated news context (see Grabe and Bucy 2009; Masters 2001).

Qualitatively, nonverbal leader displays lend themselves to focus group discussion and analysis because they are generally short and compelling to watch. Opinions about memorable moments in televised politics are generally not in short supply. A central question here is whether everyday voters notice and feel critically toward candidates who commit nonverbal blunders to the same degree that journalists and pundits do, or whether they are willing to grant the candidate some form of performance leniency. The relative impact of spoken misstatements compared to inappropriate nonverbal displays could also be explored in an effort to determine what causes the most perceptual damage or least evaluative harm. Are voters more tolerant of a candidate who commits an occasional verbal gaffe than they are of one who missteps nonverbally? In the ratio of speaking ability to presentation style, important ingredients of candidate competence, is it more desirable for a politician to have a better verbal delivery or visual presentation? For instance, is it possible to have a strong verbal delivery but weak visual presentation and still be elected? And vice versa. The accumulated evidence would seem to suggest that voters are emotionally and judgmentally unforgiving when it comes to nonverbal lapses.

On the positive side of the perceptual ledger, researchers should interrogate what accounts for an iconic or highly effective communication style, as the presidential campaign of Barack Obama exemplified, rather than take for granted that some candidates are just 'great communicators.' Empirically, do voters reward effective political communicators, through approval ratings, feelings expressed, and votes cast, more than they punish ineffective communicators? Interestingly, it was the communicative efficacy of presidents such as John F. Kennedy and Ronald Reagan, who seemed to have an aura of greatness in front of the camera, that inspired this area of inquiry. Finally, in the YouTube era, it would be worth knowing what kinds

of televised visual displays get downloaded, forwarded, or played the most, since this represents an audience decision to seek out particular candidate portrayals rather than a news judgment to broadcast them or campaign decision to exploit them. What do voters think is worth paying attention to, and what news events or campaign-related developments trigger this kind of political information seeking? Since digital files still qualify as political video, these patterns could be examined from any of the existing perspectives outlined in this chapter. Overall, the study of nonverbal communication, emotion, and political evaluation is rich with social significance and electoral consequence and remains wide open to further investigation.

Notes

- 1 Accessible concepts are those that have 'retained residual activation potential' from previous encounters with media coverage of similar topics or events (Price et al. 1997). These concepts are not given much thought until brought into conscious awareness through relevant cues in news stories. 'Whereas persuasion is thought to result from effortful decision-making about a message's likely veracity, priming presumably occurs as the result of automatic and effortless processes of spreading activation in people's minds' (Miller and Krosnick 1996: 81).
- 2 Appropriateness has been studied in the interpersonal literature as a feature of communication competence. Appropriate communication, according to this conceptualization, avoids violating interpersonal rules of conduct and 'abides by the contextually generated normative expectations of the conversants' (Cupach and Spitzberg 1983: 365).
- 3 The *New York Times* printed an above-the-fold (two-column), page 1 photograph of the president under the headline 'Clinton Emphatically Denies an Affair with Ex-Intern.' In the photo, Clinton appears stern and is shown baring his teeth and pointing his finger at reporters. The lead article begins by describing the response: 'With eyes narrowed and one index finger stabbing the air, President Clinton angrily denied today that he had had sexual relations with Monica S. Lewinsky, the former White House intern whose tape-recorded accounts of an affair with him now threaten his Presidency' (Bennet 1998: A1). In his widely broadcast second denial, Clinton left little room for interpretation: 'I did not have sexual relations with that woman, Ms. Lewinsky. I never told anybody to lie, not a single time – never. These allegations are false.'
- 4 Bucy (2003) suggested reserving the term *potency* to describe perceptions of the president's communicative efficacy while recommending dominance to describe the viewer's feeling of self-control. In addition to control, the semantic differential scales underlying the potency dimension includes such terms as *influential*, *important*, *autonomous*, and *dominant* (Lang 1988; Mehrabian 1972). *Webster's* college dictionary further defines potency as having authority, power, or strength.
- 5 Salter (2007) has proposed that sadness/appeasement gestures constitute a fourth major category of facial display behavior and that their function is more affiliative than competitive (see also Stewart et al. 2009). Since such displays are unlikely to be prevalent in televised politics (although they may be present during times of national mourning), our analyses focus on the three primary display types.
- 6 The exception is counterempathy, in which case a smile or other hedonic signal conveyed by a disliked other, e.g., a reviled politician or tormenting superior, may evoke a negative response in the observer (see Bucy and Bradley 2004).
- 7 Of the total documented instances of agonic behavior ($n = 882$) recorded in our sample, including facial displays, sound-bite tone, and candidate gestures, 85.4 percent ($n = 753$) consisted of anger/threat expressions and just 14.6 percent ($n = 129$) fear/evasion. For all election years combined, trailing candidates ($n = 551$, 62.5 percent) were shown in far more instances of agonic behavior than frontrunners ($n = 331$, 37.5 percent).
- 8 The persuasive influence of televised leader displays depends, of course, on a host of contextual, attitudinal, dispositional, and perceptual factors (Sullivan and Masters 1994), including 'the nature of the display, the relationship between the viewer and the leader,

and characteristics of the viewer' (Sullivan and Masters 1988: 355). Masters (2001) has proposed a neuroscientific model of viewer responses to leaders that includes four classes of variables impinging on leader evaluations: the quality of the display or communication (stimulus features), viewer characteristics, political predispositions, and short-term perceptions or episodic emotions evoked by the presentation. The associated news context also influences audience responses to leader displays (Bucy 2000, 2003; Bucy and Bradley 2004).

- 9 The 'rally-round-the-flag' effect is a well-documented public and elite response to support the president and withhold criticism in times of international crisis (Brody 1991; Keene 1980; Sigelman and Conover 1981). Domestic crises, on the other hand, are assumed to be more political divisive and thus 'likely to exacerbate internal divisions' (Mueller 1973: 209), producing public conflict and fissures in elite opinion.

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13 Disaster news and public emotions

Mervi Pantti

Except for the wail of the pipes and the solemn tone of the bells and drums, the town was hushed. A multitude mourned as one great family. Parents held their children tightly by the hand as in silent sympathy they looked upon the processions wending their way of sorrow.

(*The Times*, 'Town of tears,' January 4, 1930)

Recent historical accounts propose that emotional expression has acquired more significance in the public sphere (Furedi 2004; Nicholson 1999; Scherer 2001; Wouters 1986). In the last decades we have witnessed the emergence of the so-called 'therapy culture' and, accordingly, the creation of new forms of public spaces that are devoted to disclosing and scrutinizing emotions (Lupton 1998; Nicholson 1999: 152). In contemporary mediated culture, the fascination with emotions is most evident in different forms of infotainment, such as reality television and tabloid magazines, in which emotional expression figures prominently (e.g., Aslama and Pantti 2006). 'Serious' journalism, although it has never been devoid of emotion, has not been immune to the emotionalizing of public life. It is generally assumed that sometime during the 1990s emotional expression became more prominent in Western news media – for instance, the role of the news media frantically reporting and forming public emotions following the death of Princess Diana in 1997 is well documented (e.g., Thomas 2002; Walter 1999).

Journalism, however, has a complex relationship with emotional expression because of the challenge it poses to objectivity, a key professional value (Tuchman 1972) that implies the need for a passionless approach to reporting. Moreover, the association of emotion with entertainment or 'sensationalism' (i.e., consciously using emotion to attract audiences), linked to the commercialization of journalism, typically results in the view that more emotion means less journalistic quality in terms of factuality and rational discussion. The message has been that the media are offering emotional accounts of concerned individuals instead of critical analyses of events. As one commentator notes, 'Rather than analyzing the structural sources of discontent that have led to a strike, news shows will often interview an angry worker who speaks his emotion' (Scherer 2001: 137). However, as Jean Seaton (2005: 233) has rightly argued, distinguishing 'good' journalism from 'bad' journalism on the grounds that the latter is concerned with depicting or raising emotions is a simplistic proposition. Instead, we should focus on the different purposes and political consequences of engaging and generating emotions.

In this chapter, I will examine emotional expression in disaster news; specifically, I will analyze the reporting of ‘man-made’ national disasters in British newspapers. What sets disaster reporting apart from normal day-to-day coverage is that disaster news does not simply transmit information in a ‘cool’ tone (Schudson 2001: 150) but rather, conveys it in forms deeply embedded in emotions. At the same time, disaster news is subject to ritualized forms of reporting, which articulate common values and make integrative appeals to the moral community (Cottle 2006; Pantti and Wahl-Jorgensen 2007; Pantti and Sumiala-Seppänen 2009; Kitch and Hume 2008). Similar to global disasters, such as massive earthquakes and tsunamis, national disasters are major news events that are intrinsically disruptive and can have a strong emotional effect on a wide population. As Klaus Scherer (2001: 136) writes, ‘the experience of the media exposure and the resulting emotional state is shared with many other people, potentially producing social comparison, amplification, or contagion.’

Whilst there is an extensive canon of psychological studies on the emotional effects of the media, the social and cultural study of emotion in news discourse has only recently begun. In a cultural analysis approach, newspapers and journalists working for them are perceived as ‘producers of culture, who impart preference statements about what is good and bad, moral and amoral, and appropriate and inappropriate in the world’ (Zelizer 2004: 177). I will employ here a cultural approach to mediated emotions, particularly those of *compassion* and *anger*, examining how these particular emotions have been mobilized in British disaster coverage over a period of seventy years. I will look at the coverage of *Daily Mail* and *The Times* to study emotional storytelling in disaster news. What are the changes and continuities of emotion discourses in the disaster coverage between 1930 and 1999? What are the potential political consequences of representing emotions? Particularly, I will examine how expressions of compassion and anger in British disaster news are used as a means to establish social solidarity as well as express criticism toward the political authorities. Accordingly, emotional expressions articulated in newspapers are seen here as more than just descriptions of emotions: they communicate ethical and political arguments and play a role in shaping public emotions.

News as emotional public sphere

In contemporary mediated societies, media work as an intersection of personal and collective public emotions: personal emotions become public and public emotions shape personal emotions. The news media, primarily studied as a discursive public sphere in which ‘the exchange of information and views on questions of common concern can take place so that public opinion can be formed’ (Dahlgren 1995: 8), also contributes to the ‘emotional public sphere’ in which emotions are expressed, shared and managed (Gamson 1999; Lunt and Pantti 2007; Richards 2007). This emotional public sphere is not separate from the traditional, rational public sphere of political processes (Richards 2007: 57). Rather, emotional engagement, which news media can encourage or discourage, provides an essential basis for entering into public discussion and taking political or moral action (Barbalet 1998; Goodwin et al. 2001).

Moreover, emotions are crucial for the public sphere because of their role in the forming and breaking of social solidarities: collective identities that make communities and nations possible are built on shared emotions toward fellow insiders and

perceived outsiders (Ahmed 2004; Anderson 1991; Berezin 2002; Jasper 1998; Perri 6 et al. 2007). In Sara Ahmed's (2004) model of the 'sociality' of emotions which moves beyond individualistic level of analysis, emotions are constitutive of subjectivity and of boundaries between 'we' and 'them' and function to both 'move' us and hold us in place (p. 11). Therefore, the key question should be what do emotions 'do' for the world (Reddy 2001; Ahmed 2004). Accordingly, scholars from different disciplinary fields have been seeking to make a link between a particular emotion and a particular aspect of political life to understand the distinct consequences of the former for the latter.

The fact that emotions are attached to historically and culturally variable values and moral norms means that some emotions and ways of expressing them publicly are socially approved while others are not (Craib 1995: 154; Hochschild 1983; Stearns and Stearns 1986). Thus, different eras and societies are characterized by different styles of 'emotion management' (Reddy 2001). Cultures and societies do not have emotions like individuals, but they can become characterized by a particular emotional orientation and shape how particular emotions are experienced and assessed (Radstone 2007: 190). According to Frank Furedi, the 'therapeutic cultures' of advanced Western societies are inclined to domesticate and de-politicize 'political' emotions such as anger and to promote emotional expression that signals our vulnerability, such as crying in public or being obsessed with the 'trauma' of a bad experience (Furedi 2004: 7).

Emotional management, intentionally or unintentionally, also takes place in the news media insofar as they are a central producer of the culture on which they report. News representations participate in socializing the public to the proper expression of emotion, in particular by means of ritual performances. For example, according to Tony Walter (1991: 607), the spontaneous mourning that followed the Hillsborough football stadium disaster in the UK in 1989 might have played an important role in propagating a more expressive mode of grief to a wider audience. Besides offering a model of proper emotional expression, news can also suggest with which emotions we should react to events (for instance, feeling compassion for distant sufferers) and, furthermore, based on this 'right' emotion, what kind of moral action we should take (e.g., donate money). Thus, the news media provide an interpretive framework that allows subjective emotions to become public aspirations and to lead to collective moral or political action.

A number of scholars have noted that national crises are typically represented in news as integrative events, moments of national consensus and unity born out of mourning together (e.g., Kitch 2003; Kitch and Hume 2008; Linenthal 2001; Pantti 2005; Pantti and Wieten 2005; Turnock 2000; Thomas 2002). For example, a study of the television news coverage of the murder of populist politician Pim Fortuyn in the Netherlands shows that news was implicated in the construction of a national, multi-cultural consensus through the discourse of shared grief (Pantti and Wieten 2005). In an attempt to restore the shaken social order, Dutch news focused on the collective grief and suppressed anger by interpreting the public expression of anger – such as chanting against the political establishment – as belonging to new expressive mourning practices. In this case, the desire to manage the public mood and to prevent outbursts of 'negative' emotions came from a government worrying that the murder might create undesirable emotional responses, turning emotional crowds into mobs. What this study clearly illustrates is that different emotions are managed

and appropriated in different ways in the public sphere, and that emotional management should be seen in relation to social power. As Peter Lyman (2004: 133) argues, anger, and particularly anger of subordinated groups, has been traditionally seen as a threat to social and political life. It has therefore typically been 'domesticated by the dominant' to serve order and to re-establish political power.

While natural or 'man-made' disasters are not 'political' in the same sense as, for instance, terrorist attacks or assassinations of political leaders, they also create an emotional situation that may be of political significance. They may, for instance, provide opportunities for politically disadvantaged groups to be heard in public and upset the political status by attracting greater negative attention to current policy (Birkland 1997). Certainly, disasters work to enhance the importance of the media. At the moment of social crisis, the news media typically takes a 'ritual mastery' (Bell 1992: 116) over the event and, consequently, gains control over the 'emotional production' (Collins 1988: 117). Through ritual performances that include dramatic symbolism and tense emotions, the news media typically dramatizes the event as something that speaks about core moral and social values of the society. At the same time, such dramatization presents the media as the leading actor of the events themselves (Coman 2005: 50; Couldry 2003: 45).

In the following sections, I will look at the changes and continuities of emotion discourses in the disaster coverage and how expressions of compassion and anger in disaster news are intertwined with the political opportunities for social solidarity and political criticism.

Methods and data

The disaster coverage of six high-profile British disasters has been examined in two national newspapers: the quality newspaper *The Times*, and the mid-market newspaper the *Daily Mail*. These papers were selected because they have published continually throughout the entire time period under study and covered all the disasters discussed here. The analysis includes 583 articles in total, representing all coverage in two papers for a period of two weeks following each of the disasters. A content analysis was conducted in order to identify all articles which included expressions of compassion and anger. This was followed by a more detailed analysis of this smaller sample, focusing on how compassion and anger are articulated in the news stories. The underlying set of questions guiding the analysis were: (1) who is expressing compassion and anger – and toward whom?; (2) how are emotional expressions used as a means to establish solidarity or provide criticism of politics or society?; and (3) what is the role of the journalists in constructing and managing emotions? In order to look at the changes in the role of journalists and in emotional storytelling, three ways of reporting emotions were identified. First, journalists may report on emotions in a direct way through quotes, allowing the news subjects to describe their emotional states and, thus, retaining their 'objectivity.' Second, journalists may report on emotions in an indirect way by interpreting individual and collective emotions (e.g., references to the public mood). Third, news stories may also include 'authorial emotions,' such as when the journalists express their own emotions.

The disasters that have been selected for this study are 'man-made' disasters, as opposed to natural disasters, but not those that are a result of deliberate criminal actions. These are:

- 1 Glen Cinema fire (December 31, 1929). Seventy-one of 900 children attending a special matinee in Paisley, Scotland, were killed due to the panic caused by smoke from a burning film reel. Children aged between 18 months and 12 years fought to leave the theatre through exit doors that would not open and became victims of a massive crush.
- 2 Harrow and Wealdstone rail crash (October 8, 1952). The worst peace-time rail disaster in Britain, in which 112 people died and 340 were injured.
- 3 The Aberfan landslide disaster (October 21, 1966). A colliery waste tip collapsed into the mining village of Aberfan killing in total 144 people – 116 children, most aged between 7 and 10 years, and twenty-eight adults.
- 4 Moorgate tube crash (February 28, 1975). The worst London underground accident in peace-time killed forty-three people at the scene, including the driver. Several more subsequently died from injuries.
- 5 Bradford City football stadium fire (May 11, 1985). Fans were celebrating winning the Football League Third Division when a fire started in the main stand of Bradford stadium. Escaping people found the exit doors locked. Fifty-six people died and over 200 were injured.
- 6 Ladbroke Grove rail crash, also known as the Paddington crash (October 5, 1999). Thirty-one people were killed, and 400 were injured.

Disaster coverage: changes and consistencies

The volume of reporting has steadily grown over the seventy years spanned by the study, but only the coverage of the 1990s is significantly different in terms of the number of stories (the coverage increased from the total of thirty-one articles in 1930 to the total of 292 articles in 1999). There have also been significant changes in how the stories are organized in the newspaper. Whereas early disaster reports were scattered through the paper, disasters have become increasingly branded. In the Aberfan disaster coverage, for example, a story of a prayer service for the victims was placed next to a story about the start of Christmas turkey shopping. Since the Bradford stadium fire in 1985, disaster stories have been ‘packaged together’ apart from other coverage to signal the gravity of news. In the reporting of the Bradford disaster, there was also for the first time distinctive visual design choices for disaster stories in order to set a distinctive emotional tone. For example, the *Daily Mail* marked all news stories about the disaster with a logo ‘Disaster at the match,’ including a picture of a burning stand.

While the content and style of reporting have remained astonishingly uniform, there are also notable changes concerning the representation of emotion and the narrative techniques aiming to arouse readers’ emotions. In all cases, the coverage of disaster opens with a narrative of horror depicting the dreadful consequences of the tragedy. During the first days of reporting, invocations of emotions frequently rely on the rhetoric of contrasts between ‘before’ and ‘after,’ which is used to illustrate the magnitude and unexpectedness of disaster. In the example of Harrow and Wealdstone train crash in 1952, it draws its force from displaced and damaged everyday objects:

The station clock had stopped at 8.20. Clouds of escaping steam clothed the scene in an air of unreality. Its nightmare quality was heightened by the shrieks

from trapped passengers and the heart-rending groans of the injured. Scattered everywhere were belongings which a minute before had rested on the knees of happy travellers; a child's shoes, caught by its laces, dangled from a razor-edged piece of metal; a brown high-heeled shoe; a diary; a torn jacket; a battered trilby hat.

(*Daily Mail*, 'Coaches plunged into shopping centre,' October 9, 1952)

News stories about the first responses of the elite to the disaster, such as 'The Queen shocked,' similarly contribute to constructing the general mood of shock and disbelief. Another constant factor has been the use of witnessing by ordinary people, victims, bystanders, and rescue personnel at the disaster scene in order to load the event with an exceptional emotional charge. John Langer (1998: 87) has argued that the ordinary witnesses' point of view provides a position for emotional engagement:

A teacher, Mr Alan Hargrave, aged 28, said: 'I saw at least two bodies still in their seats covered with a tarpaulin. I saw bodies by the turnstiles.' Mr Ronald Woodcock, aged 72, said it was 'an absolute holocaust.'

(*The Times*, 'Survivors describe horror and bravery,' May 13, 1985)

Interestingly, there seems to be a change toward a more restricted depiction of horror and anguish in disaster news. The ethical standards for gathering and presenting information were different in earlier coverage. For instance, in both the Paisley cinema disaster coverage in 1930 and in the Aberfan disaster in 1966, journalists interviewed small children that had just escaped death or lost family members. Also, the earlier descriptions of bodies and scenes of disaster would probably cross the line of ethics and good taste today:

Living and dead were laying breast high near the exits. Some of the children were blue in the face and very still; others could still scream. I saw what seemed to be a baby of about 18 months lying in the pile. Some of the youngsters who were still alive seemed to have gone mad with terror.

(*The Times*, January 1, 1930)

They kept spraying disinfectant and then deodorant but the piped air from the pavement kept turning things around and rotting flesh was the smell that made the workers retch.

(*Daily Mail*, 'Inside the Tunnel of Death,' March 3, 1975)

The coverage of the Paddington train crash in 1999 was less focused on bodies and horrific details than earlier reports. Instead, journalists referred to the dead through symbolic representations, such as cars with frozen windows left in the railway station's car park and cell phones ringing unanswered in the train wreck. Furthermore, while in earlier coverage, the psychological effects of the disaster were not explicitly discussed, awareness of the effects of the traumatic incident was evident in the reporting of the Paddington rail crash. The coverage included, for the first time, comments from trauma experts and stories about the trauma the accident had caused. Here is a typical example:

Janice Willis, 33, has made her first trip back to Reading Station, where she boarded the Great Western train. For the human resources manager, the symbolic journey was the first step in coming terms with her experience. Although she suffered only minor physical injuries, the emotional scars will prove harder to heal.

(*The Times*, 'We are just left hoping against hope,' October 11, 1999)

It should be also noted that the circle of 'victims' in disaster coverage has extended. While in earlier coverage the focus was on the victims, their families and communities, it has shifted to how the rest of the nation reacts to the event; it has become less about 'them,' and more about 'us.' Accordingly, there are notable changes in the ways in which grief and mourning are represented. While in all cases direct quotes from victims and other members of the public were used in order to represent the horror caused by the disaster, feelings of grief before the Paddington disaster were mostly articulated by journalists, instead of people expressing their grief in their own words (cf. Pantti 2005). This relates to a wider trend in which news coverage of disasters has increasingly focused on the feelings of the public. The following example of this trend also illustrates the growing number of people who are entitled to express their feelings:

The punk with green hair, the senior police officer and the elderly fan with his scarf knotted proudly at his throat ... they came united in grief. Survivors, fans, civic dignitaries, club officials, police officers and ambulance crews were among the 1.000 – many in tears – who crowded the cathedral for the special service.

(*Daily Mail*, 'The grief and the courage,' May 13, 1985)

The representation of grief is in turn informed by (and has an impact on) a wider growth in public mourning in response to disasters. There has been a change from covering grief merely in the context of formal religious rituals toward representing mourning within a variety of religious and civic rituals. Creating shrines – a cultural practice that is so central to today's reporting – was first reported in the Bradford disaster coverage. A *Daily Mail* story described a simple shrine, a glass vase with some flowers, with a message on a card: 'Richard and Robert (twins) and their father, at rest' (*Daily Mail*, 'Turnstile shrine in the memory of a father and his twin sons,' May 15, 1985). In the Paddington case, it is obvious that the journalists were fascinated by a range of civic and religious rituals: stories described extensively the building of shrines, messages left at the railway station, candles lit in church and informal religious services such as one led by the Bishop of Kensington in a petrol station.

It has been suggested that the inclusion of the reporter's own emotional reactions to events are a new phenomenon, a part of the contemporary 'emotion malaise' (e.g., Mayes 2000). However, this particular disaster coverage gives no support for the claim that journalists used to hold back their own emotions when confronted with terror and suffering. On the contrary, journalists' descriptions sound the same note of shock and disbelief as do the quotes from witnesses (although it should be noted that coverage in the *Daily Mail* in general employed a more emotive approach than *The Times*). For instance, the *Daily Mail* journalist was present at the match in Bradford in 1985 and based his story on his own

experiences and feelings about that day: 'I was there on Saturday and I wish to God I hadn't been. The sights, the screams and the stench of burning will stay with me all my life.' A journalist writing in 1930 used the same kind of intimate confessional style: 'Early this morning I joined the relatives in their sad visit to the chamber of the dead. May I be spared from another such ordeal' (*Daily Mail*, 'A silent town,' January 2, 1930).

Compassion: finding good in bad

Public compassion is usually discussed in the context of distant suffering, understood as a moral demand to address the pain of distant others (Sznaider 1998: 117). Today, the news media play an important role in the mobilization of compassion: first, by making the suffering known and, second, by reconstructing the conditions of the suffering of others in such a way that it holds the public's attention and generates compassion. Certainly, there are fundamental differences between national disasters in Western countries and disasters in the underdeveloped world, several of them unfolding at the same time with unthinkable numbers of victims. National disasters are not subject to a similar 'politics of pity,' which defines which disaster and whose suffering is worthy of our response, in the realm of both political action and media representation (Boltanski 1999). While many distant emergencies receive little (if any) media attention, national disasters are intensively and thoroughly covered today – although how they are covered is similarly a constant target of criticism. However, despite these differences, there are similarities in the narrative conventions that articulate and aim to generate compassion and, from an historical point of view, in the social functions of mediated compassion.

In disaster coverage, we can differentiate between, on the one hand, informal civic compassion expressed by ordinary citizens, rescue workers and, increasingly, celebrities; and, on the other hand, official compassion expressed by the political and religious elites. The latter, taking historically unchanged ritual forms, included stories of how national and foreign leaders responded to the disaster by sending their 'messages of sympathy' and visiting the disaster scene. The condolences of the prime minister in 1930 are typical in depicting the whole nation of citizens caring for the people of Paisley: 'The feelings of the country are harrowed this morning and its heart is full of tender sympathy because of the terrible thing which happened in Paisley yesterday' (*The Times*, January 2, 1930).

The representations of informal civic compassion are focused on people who feel for the victims and their families and attempt to help the suffering. These stories of ordinary people clearly illustrate how disaster stories are engaged with constructing and discussing social values (cf. Kitch and Hume 2008: xviii). Their meaning lies in creating something positive from the horrific situation, shifting the focus from despair to hope and pride. The main themes of news stories on civic compassion were bravery and generosity: typical examples emphasized that the feeling of compassion breaks down boundaries of class, gender or age:

Senior railway officials and gangers, directors and clerks, shed their coats to work side by side. So it was with the injured. Their thoughts did not centre on their own pain, but were, without exception, for others similarly affected.

(*Daily Mail*, October 9, 1952)

Profiling individual heroes and heroines among the victims and rescue-workers is a routine part of bringing a positive message. One of the heroes pictured is a 10-year-old boy in the Aberfan disaster who freed himself from the pile of debris and risked his own life to haul out his injured friend: 'If medals are awarded for bravery at Aberfan this weekend, young Ashley deserves the first' (*Daily Mail*, October 24, 1966). The need to celebrate heroes, particularly rescue-workers, was also the main theme in many readers' letters to the editor.

By reporting about feelings and acts of compassion, newspapers called on readers to share that empathy for the victims and their families. This also has another function, however: the discourse of compassion worked to strengthen the emotional bond to the nation, to make sense of the violent and untimely deaths and to manage the anxiety caused by them by highlighting common values (cf. Kitch and Hume 2008). While public compassion for distant suffering works to align or separate individuals and communities, 'us' and 'others' (e.g., Chouliaraki 2006), in the context of national disaster compassion is an inclusive and integrative discourse communicating a sense of equality and working to form a unified national community. For example, stories of team-spirit and heroes reassured readers that the most cherished British values such as courage and endurance were intact. This dimension can be clearly observed in the following account of a 'celebrity survivor': 'It was almost like being in the Blitz, that terribly British spirit after such an appalling tragedy' (*Daily Mail*, 'The moment I thought I was going to die,' October 9, 1999).

Disaster news is a source of anxiety but it is also a site for the management of anxiety and the creation of a renewed sense of meaning and direction. We can say that expressions of compassion are integrative in a double sense; they not only constructed an 'us,' the whole nation, as agents of generosity but also as an object for compassion, in need of comfort and consoling. Thus, representations of compassion serve as a counterforce to death and horror in the sense that they are engaged in finding some meaning in violent events. Reporting showed that compassion can translate into moral action, which in turn translates into new positive feelings. The following examples highlight the comforting rhetoric about how worst circumstances can bring out the best in people:

Mr George Clarke walked into the police station at Wealdstone last night. – He came to the police with an offer of hospitality on behalf of all the residents in his road, Harrowview. – Mr Clarke said that everyone in his road wanted to offer temporary homes to relatives coming to Harrow and Wealdstone from all parts of the country. The police gladly accepted. Mr Clarke said: 'We want anyone who is in trouble to think of our road as "Hospitality Street".'

(*Daily Mail*, 'Hospitality Street is Thrown Open,' October 10, 1952)

Despite the tragic circumstances, it has restored my faith in the human being. We have had a tremendous amount of calls from people who wanted to offer help, from nursing to mechanical work, and simply making cups of tea.

(*The Times*, 'Relatives of missing ring up in forlorn hope that Tube crash victims may still be alive,' March 3, 1975)

So far, I have discussed expressions of compassion in disaster coverage as a collective working through of the disaster. However, besides this integrative, affirmative

function the representations of compassion also have a concrete function in contributing to the relief efforts. In the reporting on distant disasters, the narratives of suffering and similarly highly formulaic stories of rescue and relief operations aim to incite compassion, prompting the public to participate in aid collections. In the context of national disasters, this motivation for inciting public compassion has lost its relevance due to the increased wealth and developed compensation policies. In the past, however, public compassion was crucial for the poor working-class communities such as Aberfan and consequently the reporting was very much focused on the disaster funds.

In the earliest cases (Paisley, Wealdstone, and Harrow), acts of compassion were covered by offering daily updated lists of individuals and institutions that had donated money to disaster funds, including the amount no matter how small it was. It was in the Aberfan case that the coverage of funds and collections started to resemble today's coverage. The newspapers reported extensively on quickly raising aid funds, and special attention was given to the 'toy appeal' organized by Princess Margaret. The toy appeal became a serial narrative, and another means for nation-building, reporting on massive quantities of toys arriving to the devastated mining town from all over the country. Papers also reported on a 'special two-hour television spectacular in aid of the Aberfan Disaster Fund' (*Daily Mail*, 'Beatles miss Aberfan show,' November 5, 1966). These examples show how the news media have had a continuous role in the attempt to alleviate suffering through fund-raising, which can be seen as adding to the symbolic power of the media (see Tester 2001: 104–30).

Anger: fighting for justice

While feelings of horror, grief, and compassion are emphasized in the disaster coverage, there is occasionally also room for anger. Questions of fault and responsibility are an intrinsic part of disaster news but these do not necessarily involve expressions of anger. Anger needs an object, someone who can be held responsible; it therefore makes an important difference, on the one hand, whether the culpability is clear, and, on the other hand, whether those responsible for the disaster are individuals or impersonal social systems, such as a private business or a national industry (and, by implication, the government). It seems that anger targeted at a particular individual was acceptable only if the person was a member of an elite; anger directed at train drivers whose negligence or mistake caused the rail disasters, on the other hand, was not acceptable.

The immediate cause of all three train accidents was an error of the train driver. However, anger had a prominent role only in the Ladbroke Grove coverage. This emphasis on anger as the prevailing public emotion set the Ladbroke Grove crash apart from other disasters. Both the Harrow and Wealdstone crash and the Moorgate tube crash were framed in terms of individual fault. The coverage focused on public inquiry, but anger did not play a role in this discussion. By contrast, the Paddington disaster was framed in terms of political and fundamental structural problems around rail safety, and was discussed in relation to previous train disasters, in particular the Southall disaster two years earlier. Anger became a justified and prominent response, since the disaster was seen as the last in a long line of accidents caused by the systematic neglect of the rail industries and of the government.

Anger was also absent in the coverage of the Bradford disaster, suggesting that anger and blame were not perceived as an acceptable response to this tragedy. The Bradford stadium fire unfolded under somewhat similar circumstances as the Aberfan landslide, although the scale of disaster was larger in Aberfan. First, several fire victims were children; second, in both cases, there had been warnings or signs of the potential accident and lack of precautions; and, third, the culpability was assigned to a collectivity (national industry/football club). An editorial of *The Times* pointed to anger among people but this was not discussed in news stories. Moreover, the goal of the editorial, besides proposing a judicial inquiry to establish responsibility for the fire and safety standards in football stadia, seemed to have been the management and suppression of anger.

The first instinctive reaction to news of the calamity at Bradford football ground is that expressed by the Prime Minister, sorrow at the depth and breadth of the injured and the bereaved. Anger rises close behind, anger that such a thing should have happened at all and anger directed at those who may be responsible or have contributory responsibility. But if anger is to be just and if it is to be constructive, it must be governed by a knowledge of the full facts.

(*The Times*, 'The Bradford tragedy,' May 13, 1985)

Anger has been characterized as a response to something that is felt to be unfair or damaging. As an 'indispensable political emotion' (Lyman 2004), it has been seen to fuel protests and struggles for justice (e.g., Goodwin et al. 2001; Holmes 2004; Perri 6 et al. 2007; Muldoon 2008). The political value of anger has been seen to lie in its capacity to communicate that an injustice has been committed, and through it question the legitimacy of power (Lyman 2004: 133). In the disaster coverage, anger is typically expressed by the citizens (or their representatives, such as a village priest or union-leader) or, as the Paddington coverage shows, by the journalists themselves, either disguised as a description of 'public mood' or described through straight political opinion.

The Aberfan case demonstrates that disaster reporting may authorize, through the expressions of anger, critique of power holders from below. National papers, however, offered a relatively restrained approach to the reporting of anger, communicating it through the use of direct quotes from the citizens of Aberfan, leaving the journalists as impartial observers of the events. The anger directed toward the National Coal Board which had responsibility for the management of the tip was described as shared by the entire mining community. As the village priest was reported to have said, what happened in the village was not 'an act of God' but 'a direct consequence of man's neglect and man's failure to act when every intelligent person must have foreseen a disaster of this kind' (*Daily Mail*, October 10, 1966). The National Coal Board rejected the blame by claiming that it did not know there was a spring in the heart of the tip, the cause of the disaster. Enraged by the Board's denial and audacious post-disaster behavior, the miners reportedly sought justice:

Two angry ex-miners confronted Lord Justice Edmund Davies as he toured Aberfan yesterday. They pushed through a police cordon to reach Sir Edmund, who will head the inquiry into last Friday's disaster. One, Mr Philip Brown, 61, who lost a niece in the landslide, called out: 'Will you listen to me for one

second? – Lord Robens [Coal Board chairman] said the stream had just been discovered. But I have lived in this village all my life and it’s always been there.’

(*Daily Mail*, ‘Disaster judge stopped by angry miners,’ October 26, 1966)

The anger became ritualized in the Aberfan coverage with protests and petitions. For example, Aberfan parents boycotted temporary classrooms built in the shadow of a coal-tip (*Daily Mail*, October 31, 1966). Parents also turned down the proposal that their children would attend another primary school, which had a colliery tip behind it: ‘There was uproar at a meeting attended by 300 parents when the education officials suggested that the children go to Merthyr vale’ (*Daily Mail*, ‘Aberfan parents say NO,’ November 8, 1966). How to use the fund money became a larger conflict – the people of Aberfan objected to spending the money on reconstruction and compensation, which they said should be paid for by the government or the National Coal Board (*Daily Mail*, ‘How Aberfan wants to spend the money,’ November 7, 1966).

The reporting on Aberfan disaster, however, did not challenge the authorities as did in the later reporting on the Paddington disaster. In *The Times*, the report on the day after the disaster lacked directness in accusation, beginning in an understated fashion: ‘The Aberfan slag heap tragedy points to the contrast in mine safety above and below ground.’ Later in the story are we told that ‘the people of Aberfan were bitter yesterday that something had not been done about the tip years ago’ (*The Times*, ‘Warning in 1964 about Aberfan threat,’ October 22, 1966, emphasis added). When anger was expressed, it was not interpreted by the journalists but communicated via the direct quotes from the citizens of Aberfan. The report describing the uproar at the opening of Aberfan inquest also illustrates this. When asphyxiation and multiple injuries were given as the cause of death, relatives of the victims were reported to start protesting:

Anger erupted from grief at the inquest on some of the Aberfan victims yesterday. One father demanded that his son’s death should record: ‘Buried alive by the National Coal Board.’ Amid uproar, a mother cried: ‘He’s right. They killed our children.’

(*Daily Mail*, “Coal Board killed them,” say parents,’ October 25, 1966)

While in the Aberfan coverage expressions of anger were merely described by journalists, the journalists covering the Paddington disaster were more direct in their accusations: the rail industry was criticized aggressively and its comments treated skeptically. As the following example from a *Daily Mail* editorial illustrates, anger was indeed an expected (and required) response to the Ladbroke Grove crash: ‘If, as seems likely, the Ladbroke Grove tragedy was caused by an overshoot, it will fuel anger against both the Government and the previous Tory administration’ (*Daily Mail*, ‘Did driver jump a red light?’, October 6, 1999). Accordingly, the journalists gave citizens an ample opportunity to express their feelings by collecting comments from the angry commuters and citizens:

InterCity Passenger Stuart Allen, who helped others climb to safety through shattered windows, said: ‘My first thought was, “Oh my God, I can’t believe this is happening to me.” And the second thought that goes through my mind

is, "How the hell this is happening on our railways, after Southall and everything else?"'

(*Daily Mail*, 'Engulfed by a tunnel of fire,' October 6, 1999)

Anger was also typically interpreted as public mood by journalists. Newspapers and the *Daily Mail* in particular acted in a representative role to communicate the prevailing emotions of the (national) community, focusing on how people felt and evoking emotions in readers by means of highly emotional examples or eloquent phrasing. In the following example, anger is found among the public's condolence messages:

It is there too, in the messages with the flowers, a focused anger that goes beyond the despairing at fate that is the normal response. – The thoughts of those who have left flowers at the public site, which is against the wall at Sainsbury's have a theme. 'This is crime,' one card says. 'Forget behaving with dignity and sensitivity. We need and we will scream and shout for justice.'

(*The Times*, 'Quiet voice that says this horror is different,' October 10, 1999)

The Paddington disaster has been taken as an example of 'therapy news' focused on sentimental eyewitness accounts and trauma stories (Mayes 2000), but in fact, the newspapers were more engaged with discussing rail safety than working as a public 'counselor.' Journalists' references to the mounting public anger were used to legitimate journalists' own criticism toward the rail industry and the government. Editorials and comments especially presented harsh criticism targeted at Britain's privatized rail industry and the government's inadequate efforts at addressing safety problems:

Understandably, the first feelings of public shock over the Paddington rail tragedy are turning to seething anger. How could such a disaster happen, in the light of the seemingly very similar Southall crash two years ago? ... Why was no action taken, despite the fact that eight trains have passed it at red in the last six years? ... Meanwhile worried commuters accuse those companies of putting profits before safety. Deputy Prime Minister John Prescott faces mounting criticism for doing so little to improve standards.

(*Daily Mail*, 'Why Parliament must be recalled,' October 7, 1999)

Concluding remarks

Working from the assumption that the expressions of emotions take place in particular historical and cultural settings, and that they may open up political opportunities, I have looked at the coverage of six 'man-made' disasters in two British national newspapers, *The Times* and the *Daily Mail* from 1930 to 1999. News stories about tragic national accidents relay the facts of what happened and explain the situation through rational assessment of the causes and consequences, but they also communicate emotions and moral messages in an expressive style. By focusing on collective and individual emotions, including the emotions of journalists, journalists attempt to make sense of the horrific events, suggesting ways of understanding the disaster as well as appropriate emotional responses.

Disaster reporting has developed its own form of storytelling which contains relatively unchanging emotional narratives. This is not to say that disaster reporting is a static genre. Apparent changes in disaster coverage include, first of all, expansion in the amount of news space devoted for disaster reporting. Importantly, this increase concerns especially representations of public emotions. At the same time, disaster coverage gives more expressive authority to the ordinary people beyond their traditional role as eyewitnesses who describe the horror of disaster, paying increasing attention to the expressions of emotions and emotionally charged rituals. Together with the increase of volume, the layout of disaster news has changed: whereas early disaster reports were scattered through the paper, they are now organized in special sections of the newspaper and marked with distinct visual features that highlights the emotional gravity of the event. Third, there is an evident rise in the amount of journalistic reflection in the disaster news. While opinions were earlier confined to editorials and letters to the editor, the most recent Ladbroke Grove disaster provides evidence that journalists are increasingly expressing opinions, although often this is done through references to the 'public mood.' All in all, it could be claimed that the Ladbroke coverage exemplifies a new emotional expressivity.

Media coverage of tragic events is often said to focus excessively on the public expressions of grief. However, there are other discourses of emotion to be found within disaster stories (Pantti and Wahl-Jorgensen 2007). I have focused here on the discourses of compassion and anger in order to show how specific emotion discourses produce different political consequences. The discourse of compassion promotes a sense of moral national community and, thus, works to reconstruct collective identity and reinforce cultural values. This building of moral solidarity found its expression in stories of heroes and selfless actions of the ordinary people. The discourse of anger, on the other hand, demonstrates that mediated disasters can also be less consensual and become opportunities for political criticism (see Cottle 2006). Unlike expressions of compassion which were prevailing in all cases, expressions of anger were selective. Occasionally, however, they provided a site for ordinary people (and journalists) to hold those seen responsible to account for their actions, and as such expressions of anger can be seen as a site of political empowerment. Particularly, the reporting of the Ladbroke Grove disaster created moral narratives not only around grief and compassion but also around anger, questioning the wisdom of privatization and calling for corporate and state responsibility.

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14 Emotion in persuasion and risk communication

Monique M. Turner

Introduction

In 1975, Chaffee and Petrick wrote: ‘There exists in the United States today probably the most extensive and professionalized persuasion industry in world history’ (p. 117). The statement is as true today: advertisers, public relations practitioners, political campaigners, and health and risk communication practitioners all want to influence people’s attitudes and behaviors – and most of them use the media to do so, at least some of the time. Decades of media effects research has posited a variety of models explaining how the media change our attitude(s), including direct effects models, models mediated by selective exposure, agenda setting theories, and cognitive response models, to name but a few.

The role of affect, emotions, and moods on human decision-making should not be underestimated.¹ People are asked to assess information and make decisions that prevent or detect health risks. Advertisements implicitly ask viewers to change brand loyalties. Political campaigns tell the electorate for whom to vote. Receivers of media are constantly confronted with persuasive messages presenting evidence encouraging them to change their attitudes or behaviors. These same people may want to make ‘rational’ decisions, yet they may be unaware of the outside emotion-oriented influences that exert an impact on this process. This chapter will illuminate the impacts that emotions have on persuasion.

Mass-mediated communication creates, informs, and intensifies our emotions. These emotions, in turn, affect how we interpret related and unrelated media information. Advertisements about car insurance may make us laugh. Night-time dramas can cause anxiety and sadness when favorite characters die. The emotions stimulated by these media messages can affect how media recipients understand and process this very information as well as other, seemingly irrelevant information surrounding these media messages. Human emotions affect the ways in which message receivers respond to persuasive messages, process and understand those messages, and, ultimately, whether their attitudes are affected by these. The bottom line is that emotions and media are inextricably tied to one another.

Emotion and persuasion have long been linked. In 55 BC, Cicero (and Aristotle before him; Cicero 2001) thought that communicators with a mastery in both the ‘evocation of emotion and in the emotional framing of argumentation’ were among the most successful persuaders (DeSteno et al. 2004: 43). In more recent times, we find the notion of affect embedded in the definitions of constructs which lie at the core of persuasion. For example, inherent in the definition of attitude (the critical

element of persuasion) is some notion of *feeling*. Fishbein and Ajzen (1975), for example, defined attitude as ‘a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object’ (p. 6). Similarly, Petty and Cacioppo (1981) called an attitude ‘a general and enduring positive or negative feeling about some person, object, or issue’ (p. 7). Of course, attitudes are not simply an amalgamation of feelings about issues. The tripartite conception of attitudes conceives of attitudes as being made up of affective, behavioral, and cognitive elements (Rosenberg and Hovland 1960). The very notion that persuasive message receivers’ attitudes are intrinsically affective underscores the point that emotion and persuasion are correlated.

However, it would be an incorrect assumption that persuasive messages, in and of themselves, are the main factor changing message receivers’ attitudes. Such an assumption argues that target audiences are aware of, pay attention to, comprehend, and act when they are exposed to persuasive messages that are ‘smart.’ Fact is, that there are varieties of environmental factors that affect humans’ abilities to think, recall, judge, and decide; not the least of which are the emotions that people are experiencing before or during the processing of those persuasive messages. In this chapter I will discuss the effect that message-irrelevant emotions can have on cognitive judgments about persuasive messages as well as the effects that message-relevant emotions (i.e., emotions created by emotional appeals) have on persuasion.

Emotion types

There is an important distinction among categories of emotions. Emotions can be incidental or integral. Bodenhausen (1993) proposed that there are two different kinds of emotional contexts which affect decisions and perceptions. The first, *integral emotion*, involves emotional reactions that are generated by thoughts and associations about the *immediately relevant* context. The second category is *incidental emotion*, referring to those emotions that are elicited by factors beyond the immediately relevant context (e.g., the weather, entertainment media, the news).

Thus, incidental emotions are those emotions that individuals experience while making a decision, but have little or nothing to do with the decision itself. Johnson and Tversky (1983), who studied the effect of general affect (versus a discrete emotion) on risk decisions, provided an excellent example. They had participants read news stories that either elicited negative (a boy diagnosed with leukemia) or positive affect. They found that participants who experienced negative emotions rated their perceptions of risks (across a variety of issues, e.g., fire, floods, terrorism) higher than those who experienced positive emotions. In other words, the negative affect aroused by the leukemia story affected judgments which were unrelated to leukemia.

Certainly, Johnson and Tversky’s data also indicated that the negative affect caused by the leukemia story affected participants’ perceptions of their risk for leukemia – an example of integral emotions. Integral emotions, then, are normatively related to the decision at hand. Persuaders often attempt to create integral emotions by eliciting emotions with persuasive messages. Thus, integral emotions may be induced purposefully or be simply relevant to the decision, but they are not induced by any outside factor.

Accordingly, there are two general ways whereby mass media, emotion, and persuasion intersect. First, mass-mediated communication induces emotions (sometimes

purposefully and sometimes not) and those emotions affect the ways in which we process and are persuaded by other messages – mass mediated and otherwise. In other words, the media context, which creates incidental emotions, makes a difference in how irrelevant persuasive messages are received. Second, mass mediated persuasive appeals often appeal directly to our emotions. In this case, the messages employ rhetorical devices, music, fast pace, and even arguments that are framed in a way to invoke fear, guilt, anger, happiness, sadness, or other emotions (cf. Lang et al. 1999; Nabi 1999). In this chapter, I will deal with both situations: the emotions that we are experiencing when we process persuasive messages and the emotions that are created by persuasive messages.

Media context: the role of incidental emotions in persuasion

How the media creates emotion

One of the ways in which the media, emotions, and persuasion intersect is through incidental emotions (Bodenhausen 1993) – that is, emotions which are not directly related to the decision context produced by the media. Media viewers do not receive mediated persuasive messages in sterile conditions. For this reason, one might be justified in criticizing persuasion experiments for their low external validity. Take, for example, a typical procedure of a study on persuasive messages. The participant, a college student, is seated in a social science laboratory. Next, the student is given instructions on the purpose of the study – that is, assessing messages. The participant assesses the message and completes a post-test questionnaire. Among other problems with studies of this type is that this is not how the average media viewer receives mediated persuasive messages. When people receive a mediated persuasive message, they are probably doing something else, talking to someone else, or thinking about something else. When we receive persuasive messages in a mediated context, it is likely that those persuasive messages are received in an affective context (see Oliver 2003).

Research in psychology (e.g., Wegener and Petty 1994) and communication (Dillard and Peck 2000; Mitchell 2000) shows that one particularly relevant and effective context is mood. Mood is relatively easy to manipulate and is often manipulated via mass media. For example, Westermann et al. (1996) conducted a meta-analysis of studies employing mood induction techniques to assess their relative effectiveness on creating the intended mood state. Their meta-analysis suggests a main effect for modality of the mood induction. When moods are generated via film or stories, the resultant moods are felt more intensely. Therefore, emotions (as well as moods) aroused by media offerings, in which or by which advertisements are perceived, may be affected by the aroused emotions. Mediated persuasive messages (such as commercial advertisements and public service advertisements (PSA)) are received in some media context. Thus, if one receives a persuasive message after watching a television comedy, that message will be processed through the lens of an amused person. A very different reaction to the same message may have been evoked when receiving the message after a sad drama.

Similarly, political communication scholars also posit a link between television program type and commercial effectiveness (Murphy et al. 1979). However, it is rarely noted that this effect may be mediated by mood or emotion. For instance,

studies showed that program and commercial type (Kaid et al. 1992) and surrounding context (Basil et al. 1991) moderate the effectiveness of political ads. Research in commercial advertising demonstrated that the effect of the program surrounding an ad is more likely to affect the advertisement within the program when there is congruent emotional content between the ad and the program (Counter 1998). The ability of a message to reach its target audience has often been viewed as the most important consideration message designers make (Grier and Bryant 2005). Yet, it is perhaps equally important that the message is processed in an environment that can increase effectiveness. In fact, negative information can adversely influence the reception of their ads, and therefore their products (see Karrh et al. 2003). For example, in the U.S., the Coca-Cola Company does not advertise during news programming because news programs might contain negative information, and it might be detrimental to associate their product with such unpleasantness. Unfortunately, however, they had less control over having their product placed in the movie *Natural Born Killers* – a fact which they found deeply frustrating (Karrh et al. 2003).

As early as the 1960s, researchers suggested a link between mood and persuasion, finding that research participants made to feel happy were more prone to attitude change than those feeling neutral or sad. It is notable that at this time researchers were focused on mood and did not attempt to test their predictions with discrete emotions. Janis et al. (1965), for example, showed that reading a persuasive message while eating (but not before or after) enhanced persuasion (see also Dabbs and Janis 1965). Galizio and Hendrick (1972) studied the effect of music on attitudes and recall, finding that listening to pleasant music also made individuals more susceptible to the recommendations of a persuasive communication.

In the 1980s and 1990s, research turned to the moderating role that argument cues might play in the relationship between mood and persuasion. Initial studies found that argument quality has a stronger effect on those in a sad mood than it does on those in a happy mood (Bohner et al. 1994; Worth and Mackie 1987). However, of those studies finding a mood by argument quality interaction on attitudes, Hullett (2005) reports that there is a lack of agreement as to why the interaction occurs. Thus, most of the discussions in this area of research have centered on the theoretical mechanisms of mood as a moderator of the relationship between argument quality and attitude. Next, I will elaborate on this research and on the theoretical explanations that have been advanced as an explanation for the mood by argument quality interaction.

Dual processing models

Dual processing models, such as the Elaboration Likelihood Model (Petty and Cacioppo 1981) and the Heuristic Systematic Model (Chaiken 1980) evolved out of the cognitive response approach to persuasion which reasoned that the critical variable mediating the relationship between message exposure and behavior change was thought. Petty and Cacioppo (1981) proposed that there are two routes to persuasion. The first is the central route where persuasion is achieved through careful, rational, message-relevant thinking. The second, the peripheral route, is based on the use of simple decision-making cues such as heuristics. When people are motivated to elaborate a persuasive message and are capable of doing so, the likelihood of systematic processing increases.

Extending this reasoning to a comparison of positive and negative moods, Worth and Mackie (1987) induced persons to be in a positive or neutral mood by manipulating whether they would win money in a lottery. Subsequently, participants were asked to read a print version of a persuasive message that included either weak or strong persuasive arguments. For those people in a happy mood, there was no statistical difference in their attitudes regardless of whether they received a message containing weak arguments or strong arguments. However, for individuals in a neutral mood the differences in attitudinal responses were contingent upon the quality of the arguments in the message: those who read the message containing arguments of high quality showed more attitude change when compared to those who read weak arguments.

Given the argument that systematic processing requires both the ability and the motivation to dedicate cognitive resources to the task (Eagly and Chaiken 1993), Worth and Mackie concluded that a happy mood interferes with individuals' ability to process information systematically. Their argument was that positive mood activates other concepts to which people have attached positive meaning, making it difficult to process other kinds of information (cf. Bower 1981). The explanation was founded on research suggesting that positive affective states increase the accessibility of positive material in memory (Bower et al. 1978), make positive events seem more likely (Erber 1991), and make people more optimistic (Forgas and Moylan 1987) relative to those in a negative mood.

Mackie and Worth's (1989) claim that mood is a distraction interfering with the ability to process a message carefully led them to propose that participants in a positive mood would engage in less systematic processing in limited exposure conditions, but engage in more systematic processing in unlimited exposure (because it increases ability). Although the data were consistent with their predictions, the study's methodology has been subject of criticism (Bohner et al. 1992). Bohner et al. (1992) argue that by telling the participants that they have 'as much time as needed to read a persuasive message,' Mackie and Worth may have cued participants that 'the experimenter expects a careful analysis of message content' (p. 514). Hence, Mackie and Worth might have induced motivation to process systematically with these instructions rather than inducing the ability to process systematically, as they proposed.

Alternative models: feelings as information and hedonic contingency

Bohner et al. (1992) asserted that persons in a positive mood lack the motivation to process persuasive messages systematically. The lack of motivation hypothesis is also inherent to Schwarz's (1990) feelings-as-information model, asserting that a happy mood informs individuals that the environment is safe and thus reduces their motivation to scrutinize information. In conditions believed to be safe, happy individuals tend to rely on general cognitive structures (e.g., scripts, stereotypes) and to think and act in broad, flexible, creative, and open ways. A negative mood, however, would alert people that a problem has arisen and that they need to be more systematic and attentive. The feelings-as-information model proposes that information processing is tuned to meet situational requirements that are signaled by moods (Clore and Parrott 1991). According to this approach, moods often become dissociated from their targets and get misattributed to salient features of the situation.

Pleasant mood also signals that systematic information processing is unnecessary because no problem awaits solution. A number of studies have explicitly tested the ability versus motivational deficits hypotheses, generally finding that people in positive moods retain their ability to scrutinize persuasive messages but are reduced in their motivations to do so (Bless et al. 1990; Bohner et al. 1992). Smith and Shaffer (1991) experimentally varied mood, message strength, and outcome involvement to test the hypothesis proposed by Bohner et al. (1992). Their data were partially consistent with the lack of motivation hypothesis and showed that good moods may have disrupted message processing when the message was low in personal relevance, source information preceded the message itself, or subjects were led to believe that their moods were stabilized by a drug. Thus, Smith and Shaffer's (1991) study, as well as Hullett's (2005) meta-analysis of research in this area, are more consistent with the lack of motivation hypothesis than with the lack of ability hypothesis.

Wegener and Petty's (1994) hedonic contingency model also states that individuals are motivated to achieve and to maintain pleasant moods (Clark and Isen 1982; Smith and Shaffer 1991). Yet, there is an important difference within the hedonic contingency model: the model argues that individuals in pleasant moods scrutinize the mood-altering implications of tasks before investing effort because many tasks are of negative or neutral valence, and therefore threaten their happy state (Wegener and Petty 1994). The hedonic contingency model posits that happy people process tasks expected to be pleasant (and hence not expected to threaten their mood) more systematically than tasks expected to be unpleasant (Wegener et al. 1995). Hedonic contingency proposes that happy people engage in more mood management behaviors than do sad people; one way they may do so is by avoiding processing information that is a 'downer,' such as counter-attitudinal or depressing topics. However, if communication does not threaten the current pleasant state, happy people would show no such topic avoidance. People in a negative mood, conversely, need not consider the hedonic consequences because they have no pleasant dispositions to maintain. Wegener and Petty (1994) wrote:

Consider a person in a very sad mood. For this person, the range of available activities would be almost entirely more positive (or less negative) than the person's present mood. Because of this, engagement in almost any activity would tend to make a sad person feel better (and thus more rewarded).

(p. 1035)

Thus, the hedonic consequences of a persuasive message are proposed as an additional moderator of the effect of both argument strength and mood valence.

Testing this idea in the context of mediated political campaign messages, Turner and Kaid (2005) induced participants to feel either happy or sad by having them watch a video clip from the television show *Emergency Vets* (a dog ends up dying in the clip, inducing sadness) or a clip of a stand-up-comedian. Next, the participants either watched positive or negative political ads. The hypothesis was that a positive political ad might have positive hedonic rewards (controlling for political party) and happy people thus may be more motivated to process that message. Participants viewed political ads they had not seen before, where references to the political party were not mentioned and which dealt with a local nonpartisan issue. Findings

showed that happy people were more persuaded by positive political advertisements overall and were willing to scrutinize the arguments in a persuasive message when it was positive. Sad people, however, were persuaded equally by either appeal and were equally likely to scrutinize either positive or negative political ads. These data further support hedonic contingency as a viable explanation of the mood by message type interaction.

It is important to note that there is still some controversy surrounding the existence of an interaction between mood state and argument quality on persuasion. Although, as I just reviewed, some studies produce data consistent with a two-way interaction between mood and perceived argument quality (e.g., Bohner et al. 1994), others find weak evidence of this interaction (Worth and Mackie 1987), and still others have failed to find this effect at all (Dillard and Smith 1997; Mitchell et al. 2001; Mitchell 2000). In fact, Hullett's (2005) meta-analysis of the impact of mood on persuasion finds that although positive mood can lead to a reduction in systematic processing of persuasive messages, argument quality still has a robust effect on attitudes.

Turner et al. (2004) conducted a study in which participants were first made to feel happy or sad (using the same inductions as in Turner and Kaid 2005) and then read a brochure that was either pro or counter-attitudinal (wheelchair access or mandatory exams for seniors), representing high or low involvement (occurring at the participants' university or elsewhere), and contained weak or strong arguments. Results showed that the best predictor of attitudes was argument quality, not mood. So, why do some studies lack robust mood effects? Are there systematic distinctions in studies that find the interaction of mood and argument quality and those that do not?

One issue is that the parallel processing of emotions and moods should be taken into account. Thus far, emotions (or moods) in persuasive studies were treated as dichotomous variables: people feel either good (happy) or bad (sad or neutral). In fact, much of the extant research on emotion and cognition takes a valence-based perspective (see Johnson and Tversky 1983), which is increasingly criticized for not adequately representing the impact of emotion on decisions (e.g., Cacioppo and Bernston 1994; DeSteno et al. 2000, 2004) as valence does not give a full picture of how emotions affect decisions. In fact, two negatively valenced emotions can lead to opposite outcomes. For example, studies show that anger and fear can elicit opposite effects on perceptions of control and risk (Lerner et al. 2003). Simply put, valence-based approaches seem to oversimplify the way that emotion may affect persuasion (DeSteno et al. 2004). Furthermore, the aforementioned studies did not take the emotional framing of a persuasive message into consideration, while persuasive messages can take on an angry, sad, or even guilty tone. Therefore, the question arises how incidental emotions interact with the emotional tone of a persuasive message.

DeSteno et al. (2004) conducted two experiments manipulating sadness and anger through magazine articles and subsequently providing participants with an emotion-matching persuasive message or a mismatched message (regarding tax policy). Findings demonstrated that when emotional framing of the message matched the emotion experienced by the participant, persuasion was most pronounced. The study also indicated that this finding occurred due to emotion relevant expectancies.

[T]he current studies demonstrate that a match between an extant emotional state and the emotional consequences mentioned in a message facilitates the development of favorable attitudes ... The nature of this matching, moreover, is highly specific. That is, matches between states and message frames based on valence alone are not sufficient to engage the bias. Rather, the matching must occur according to more narrowly defined criteria; frames that match phenomenological states with respect to discrete emotion classifications produce the most persuasion ... That is, the experience of a discrete emotion results in increased expectancies of the existence or occurrence of events or attributes possessing matching emotional overtones. This alteration in expectancies for elements of a persuasive message subsequently leads to the message being more convincing.

(DeSteno et al. 2004: 52)

In a U.S. national field study regarding terrorism risk perceptions, Lerner et al. (2003) induced participants to be either angry or fearful with regard to terrorism. They found that discrete emotions, even when of the same valence, affect risk perception outcomes differently. Findings indicated that feelings of fear increased risk estimates and terrorism preparedness plans, whereas anger decreased these outcomes. Fischhoff et al. (2005) also found that relative to fear, anger activated more optimistic perceptions of risk. Lerner et al. (1998) have shown that, compared to neutral feelings, anger activated more punitive attributions in a fictional tort case and less systematic processing. Clearly, looking at emotions through a valence lens will not yield data that is in line with what emotions actually bring about when perceiving a persuasive message.

One implication of the aforementioned research on incidental moods and emotions is straightforward: media placement matters. This is particularly troubling for public health practitioners who depend upon the free placement of public service announcements on television and radio. In these cases, there is little or no choice regarding the PSAs' broadcast timing. Free PSAs will probably be aired during the early morning or very late at night. There is a lack of understanding, however, of the precise contexts in which various audiences receive public service messages. Although researchers have studied the content of late night comedy and its effect on learning (Hollander 2005; Young 2004), a more general content analysis of late night or early morning television shows or the context in which public health PSAs are shown on TV seems lacking. Such an understanding might help in determining the kinds of incidental emotions and perhaps illuminate one of the reasons for the small effect sizes that campaigns yield on public health outcomes (Snyder et al. 2004).

Emotional appeals: the role of integral emotions in persuasion

The last section of this chapter points to the idea that the moods and emotions which are experienced by media audiences when receiving a persuasive message have an impact on whether messages will be processed either systematically or peripherally. In addition, it is also the case that mediated persuasive messages directly attempt to induce emotions (i.e., message relevant integral emotions) which have an important impact on the messages' persuasiveness.

Making this point, Brader (2006) described seven distinct emotions, or clusters of emotions, that are likely to be targeted by political candidates: fear, anger or disgust, pride, enthusiasm or hope, sadness or disappointment, compassion or sympathy, and amusement. Furthermore, Brader found that emotional appeals are at least weakly present in a quarter of all ads and are utterly absent from less than 1 percent of all political ads he analyzed. The majority of emotional appeals in Brader's study communicated fear, anger, enthusiasm, and pride.

Emotional appeals are also present in arenas outside of politics. One study of direct-to-consumer prescription drug ads, for example, showed that 95 percent of the 103 ads examined were emotional appeals (Frosch et al. 2007). Clearly, emotional appeals are a relied-upon strategy for the development of mass mediated persuasive appeals. However, the prevalence of them does not directly speak to their persuasiveness. I will discuss specific types of emotional appeals and their pervasiveness in the mass media in the following subsections.

Appeals to fear

Fear appeals are messages that communicate imminent harm and/or concrete and sudden social or physical danger (Lazarus 1991). Fear tactics are one of the most relied upon persuasive strategies used in the media (cf. Altheide, this volume; Cantor, this volume). For example, Freimuth et al. (1990) examined the content of AIDS public service announcements and found that fear appeals were used in roughly 26 percent of them. This is not just an effect of public health campaigns: Brader (2006), when talking about famous political attack ads such as the 'Daisy' ad of 1964 and the 'Bear' ad of 1984, noted that fear appeals are one 'staple of modern election campaigns' (p. 6).

Coincidentally, though fear appeals are commonly used as persuasive strategies, they are also perhaps the most ridiculed. Brader (2006: 3) notes that 'Critics often reserve their greatest scorn for fear appeals like those that pervaded campaigns in 2004.' Studies in public health have also attested to their lack of effectiveness. Wolburg's (2006) study of fear tactics employed by the anti-smoking 'Truth' campaign found that smokers perceived the campaign to be ineffective. In fact, Wolburg's qualitative data suggested that the 'Truth' ads may even cause anger, denial, reactance, and defiance among smokers. However, fear appeals would most probably not be employed by advertisers and other practitioners if they were completely ineffective. Brader's (2006) study of political ads found that when fear cues were added to negative ads, candidate choice was affected by the ad. Specifically, participants in the fear condition (as compared to negative ads without fear cues, positive ads or positive ads with enthusiasm cues) were the least likely to rely on their previous preferences and were the most persuaded by the ad. So, when do fear appeals work and when will they fail?

According to Witte's (1992) extended parallel processing model (EPPM), an effective fear appeal should contain four elements: information related to (1) susceptibility, (2) severity, (3) response efficacy, and (4) self-efficacy. The EPPM suggests that fear appeals lead to two appraisals.² First, message receivers appraise the perceived threat, which is a function of perceived susceptibility and severity. Witte argued that the higher the perceived threat, the more intense the emotional reaction. Assuming fear is aroused, the second appraisal of perceived efficacy, based on

thoughts related to self and response efficacy is made. If perceived efficacy exceeds perceived threat such that people perceive they can effectively avert the threat, the EPPM proposes they would engage in danger control processes. If, however, perceived threat outweighs perceived efficacy, fear control, and maladaptive changes (such as reactance, defensive avoidance, denial) will occur.

In a meta-analysis investigating the effects of the message features identifying the EPPM and message acceptance variables, Witte and Allen (2000) report, consistent with Boster and Mongeau (1984) and Mongeau (1998), that as fear increases so does attitude, intention, and behavior change in the direction of the recommendations of the message. Witte and Allen's findings are consistent with positive associations among message acceptance variables and perceived severity and susceptibility, as well as response and self-efficacy. However, their findings are not completely consistent with the predicted two-way interaction between threat and efficacy. Their analyses support both an additive model (main effects) and a multiplicative model (i.e., the EPPM). These data suggest that fear appeals can be effective persuasive techniques for advertisers to employ if the appeal communicates threat and efficacy. These data also imply that, perhaps, the most important element of a fear appeal is not the threat itself but the communication regarding what can be done to avert the threat: efficacy to overcome the fear is more important than the fear itself.

Appeals to guilt

O'Keefe (2002) proposes that guilt appeals typically have two components: the material that evokes guilt (via drawing attention to some discrepancy between the receiver's standards and the receiver's behavior) and the appeal's recommended action or point of view. Individuals are expected to become aware of the discrepancy, thereby feeling guilty, and then rely on the recommended behavior to relieve the resultant guilt. Guilt appeals are a relied-upon strategy in marketing and advertising. Huhmann and Brotherton's (1997) content analysis of the use of guilt appeals in magazine advertisements find that guilt appeals were employed as often as humor appeals and sexual appeals. Their data also reveals that guilt appeals are used in every magazine genre and that the actual appeal to guilt appears in both the ad copy and the visuals. Huhmann and Brotherton note that little attention has been given to the visual stimuli in mediated messages that might cause guilt. Nevertheless, they provide examples such as a crying baby or an overworked mother who feels badly that she could not give her children a proper breakfast. Visuals, such as these, stand in contrast to fear visuals which include threatening stimuli such as sick people or handguns.

Instances of guilt appeals in advertising can be found in public health as well as in commercial advertising. However, they are rarely explicitly labeled as such. For instance, the campaign *Responsibility, Your Anti-Drug* developed and televised a variety of public service announcements about adolescents smoking marijuana. Among other messages, two different messages told viewers about a little girl who got hit by a car driven by a group of adolescents who were under the influence of marijuana and about a toddler who was left alone by a swimming pool because her brother was getting high instead of babysitting. The message to potential drug users was 'think about how guilty you would feel if you killed another person because you were high.' Interestingly enough, although the messages were expected to change

attitudes in an anti-drug use direction, results for adolescent viewers showed an increase in marijuana use intentions (Hornik et al. 2002).

Guilt has been studied in the context of persuasion for decades due to its well-known effect on altruistic behavior. Guilt leads people to act more altruistically than people who do not experience guilt. In one classic study, Freedman et al. (1967) tested whether people who feel guilty, compared to those who do not feel guilty, are more likely to engage in helpful acts they would rather not to be involved in. They reasoned that guilty-feeling individuals would act more compliant as a form of self-punishment. Freedman et al. (1967) suggest that if advertisements can make people feel guilty, then the resultant emotion should push people to engage in the recommended behaviors.

Advertising research has demonstrated the persuasive effects of guilt appeals in given conditions. Pinto and Priest (1991) examined the effect of low, moderate, and high guilt appeals on purchase intentions. They posited a curvilinear effect of the intensity of guilt messages on the amount of guilt people experience. As the intensity of guilt messages increased, felt guilt was expected to increase until it peaked, at which point felt guilt would decrease. The data were consistent with these researchers' expectations. Moreover, Pinto and Priest found that high-intensity guilt appeals aroused anger at the source of the message, not guilty feelings.

In a similar study, Pinto and Worobetz (1992) aroused guilt in working mothers through advertisements attempting to elicit low, moderate and high levels of guilt about purchasing bread. Their data indicated that moderate guilt appeals were more effective than high or low guilt appeals. Further, anger was found to mediate levels of guilt such that as guilt increased, anger also increased, resulting in decreased attitude change. Likewise, Coulter and Pinto (1995) examined consumers' emotional responses, their attitudes toward advertisements and brands, attributions about the companies promoting the brands, and purchase intention for ads depending on the level of guilt appeal. Their data was consistent with a non-monotonic, inverse-U shape, effect of guilt-appeals on purchase intentions. This inverse-U shape suggests that moderate guilt appeals were the most effective at changing intentions. However, their data also supported a linear effect of guilt-appeals on felt anger such that as more guilt was communicated in the ad copy, more anger at the source was experienced by the participants. It is likely that communicating intense guilt in an advertisement caused anger because the participants felt manipulated. In fact, Coulter and Pinto's (1995) data also showed that after reading the high guilt appeal, participants were more likely to report that the corporation mentioned in the appeal was manipulative and desired to make money. The research by Pinto and Worobetz (1992) as well as Coulter and Pinto (1995) indicates that high guilt appeals are not as effective as moderate guilt appeals in bringing about attitude change because participants' anger increases as a result of the message.

Studies in the prosocial (versus commercial) domain, however, show no evidence of a nonmonotonic relationship (an inverse-U) between guilt appeals, feelings of guilt, and other outcomes such as attitude change. Lindsey (2005) investigated the effect of guilt appeals in helping an unknown other by signing up for the bone marrow registry. Participants were randomly assigned either to a control group, naturalistic guilt appeal, or a highly intense guilt appeal. Lindsey hypothesized that guilt appeals would affect guilty feelings, thereby impacting behavioral intentions. Her data were consistent with predictions in the main. However, Lindsey did not

measure angry feelings. Therefore, it is unclear whether the intense guilt appeal might also have induced anger in her study.

Additionally, Lindsey et al.'s (2007) investigation of anticipated guilt and empathy found that guilt appeals had a significant effect on feelings of anticipated guilt, and that personal characteristics such as empathy did not moderate this relationship. Although the study used guilt appeals of varied intensity, the results did not differ significantly. Lindsey et al. argued that these results imply that health communicators may not need to worry about the cognitive and affective dimensions of empathy when constructing appeals to elicit anticipatory guilt.

These data would suggest a contradiction in findings regarding the effects of intense guilt appeals as compared to moderate or low intensity guilt appeals on changing attitudes. However, there is an important distinction among the studies in marketing and the studies conducted with health behaviors – namely, whether the message is prosocial or commercial. With marketing or advertising appeals, there is an inherent conflict of interest in these types of messages, which ultimately seek to sell a product or service. Other types of guilt-inducing persuasive messages, especially within the health communication domain, are seen as simply prosocial and without an ulterior motive. Guilt appeals might cause guilty feelings if the topic advocates helping others or helping oneself. What is unknown, though, is whether guilt appeals in the prosocial domain cause anger. It could very well be that guilt appeals in the prosocial domain cause guilt and therefore lead to increased persuasiveness (and also to the unintended effect of angry feelings). Such an effect would have important implications for the long-term or repeated use of such appeals in the prosocial domain.

O'Keefe (2002) followed up with this research in arguing that explicit guilt appeals may 'create greater guilt and they may also arouse other negative feelings (e.g., anger) that interfere with persuasive success' (p. 331). Thus, a high level of guilt communicated in an appeal may lead to a negative evaluation of that appeal. The critical feature for persuasion seems to be that people must have self-generated feelings of guilt or anticipate feeling guilty in the future. O'Keefe's (2000) meta-analytical review examining the curvilinear relationship of guilt induction on either feelings of guilt or persuasiveness ultimately did not support the curvilinear effect. Therefore, future research is needed to help parse out the role of guilt in persuasive appeals.

The data on guilt appeals suggest that appealing to one's moral standards can be an effective strategy of persuasion. A major consideration that must be made is how intensely the advertisement should appeal to feelings of guilt. The literature does suggest that a relevant moderating variable with this regard is whether the appeal is commercial or prosocial. Yet, no study to date has purposefully varied this factor in an experiment. In addition, there are other potential moderating variables that are thus far uncovered. For example, if efficacy moderates the role of fear on persuasive outcomes, does efficacy moderate the relationship between guilt and outcomes? This and other questions are clear directions for future research.

Appeals to anger

Anger appeals are messages that communicate a demeaning offense to the audience or to those they care about (Lazarus 1991). Anger appeals communicate that a

negative event, caused intentionally by another person, must be paid attention to and taken care of. Nabi (1999) describes anger as: 'generally elicited by situations in which either obstacles are perceived to interfere with goal oriented behavior or demeaning offenses' (p. 297). Although some evidence suggests wide use of anger appeals (cf. Brader 2006), they are possibly the least studied of all kinds of emotional appeals. PSAs developed by the activist group People for the Ethical Treatment of Animals (PETA) often appeal to anger, for example. Their ads use both verbal and visual elements to depict unfair, demeaning, and cruel actions against animals. Visual elements depict the conditions the animals are put in, such as caged puppies or tortured farm animals. Distinct from fear appeals which are aimed at telling audiences 'you are in imminent danger,' these ads suggest 'the way that animals are treated is unfair and unethical, stand up and fight for them!' Anger appeals are often found in political advertisements as well. For example, a 2009-web advertisement about healthcare reform communicates that pro-reform parties are liars and should be fought off, and that those who do not have health care coverage are being treated unfairly.³

Generally speaking, results of extant research on the effects of anger appeals are mixed. Turner (2007) argued that if a persuasive message can make people angry, the likelihood that those angry individuals will pay close attention to the persuasive message and engage in advocated behaviors (if the message has high-quality arguments) is increased. Importantly though, Turner (2007) in her Anger Activism Model (AAM) argues that the positive impact of anger on the persuasion process depends on the intensity of those feelings as well as on efficacy beliefs.

Turner's (2007) rationale in the AAM was based upon research showing that (a) angry people can show constructive behaviors such as focused attention on persuasive arguments (Mitchell et al. 2001); (b) will make use of accessible and relevant heuristics (Moons and Mackie 2007); (c) have the ability to discriminate between weak and strong arguments (Moons and Mackie 2007); and (d) show intentions to engage in behaviors that are difficult to execute (Turner 2007). On the other hand, angry feelings have been shown to lead to negative outcomes such as (a) the optimism bias in risk perception (Lerner and Keltner 2000); (b) the distortion of likelihood estimates (DeSteno et al. 2004); (c) decreased trust (Dunn and Schweitzer 2005), (d) hostility (Baron, 1977); and (e) increased stereotyping (Bodenhausen et al. 1994).

Averill (1983) theorized that the highly intense forms of anger may account for impulsiveness or aggression. Likewise, Loewenstein and Lerner (2003) stated that 'at sufficient levels of intensity, emotion can overwhelm cognitive processing and deliberative decision making altogether' (p. 627). Comparatively, others argued that moderate anger is predictive of constructive responses (Greer and Morris 1975; Thomas 1993). Thus, the level of intensity of anger seems to matter for the effects it may have.

But despite the common conceptualization of anger as a destructive emotion, feeling angry can serve a utilitarian function if the experience is not too intense. Turner (2007) argued that the effect of anger on message-relevant cognitions is moderated by efficacy beliefs (Bandura 1997) – for example, beliefs in one's ability to develop an appropriate course of action (i.e., perceived self-efficacy), and to recognize this course of action as effective (i.e., perceived response-efficacy) (Witte 1992). It is important to recall that the AAM deals with message-relevant (i.e., integral)

anger. In order for persuasive messages to be considered persuasive appeals, they have to advocate some belief, attitude, and/or behavior. Bandura (1982) argued that perceptions of self-efficacy influence thought patterns, actions, and emotional arousal. He also noted that 'perceived self-efficacy helps to account for such diverse phenomena as changes in coping behavior produced by different modes of influence' (p. 122). People's beliefs in their efficacy shape their cognitive processing and elaboration of messages because efficacy directly affects the types of defensive scenarios they construct and rehearse. Individuals with a high sense of efficacy visualize fixing the problem. Those with a low sense of efficacy visualize failure scenarios. A major function of cognition is to help individuals predict events and to develop ways to control those events that affect their lives. Such skills require effective cognitive processing of information (Bandura 1994, 1997). Hence, it is possible that when people perceive high efficacy, it may override the negative effects of intense anger. In such a case, anger provides the motivation to process a message and efficacy provides the ability. Therefore, Turner's AAM posited that when efficacy beliefs are strong, the relationship between angry feelings and message-relevant cognitions is linear.

In a study testing the AAM, Turner et al. (2005) had participants read a brochure, ostensibly created by an activist group on campus regarding the parking problem. The brochures varied in level of anger communicated by varying the numbers of anger-related themes mentioned. Consistent with the AAM, results revealed that people who experienced more anger and had strong efficacy beliefs were the most likely to engage in difficult to execute behaviors such as starting their own student group, engaging in a sit-in, or organizing their own sit-in. This same research also demonstrated that angry people can be difficult to dissuade. Participants were given messages that either indicated outgroup members perceived low efficacy ('They say we can't fix this problem, but we can try!') or communicated high self-efficacy ('This problem is easy to fix, we can do this!'). The data showed that angry participants provided with the non-encouraging message exhibited the highest behavioral intention. It thus appears that angry people perceive high control and challenging that control might actually lead to more action on an angry person's part.

Positive emotional appeals

Although the predominance of ads in public health was fear appeals (Freimuth et al. 1990), we should not ignore the prevalence and effects of positive emotional appeals. Advertisements often rely on humor, for example, to persuade audiences to vote, buy, or change their opinions. However, do positive appeals work?

Early reviews of the humor literature concluded that no consistent evidence exists to support humor's persuasive effect (e.g., Sternthal and Craig 1973), though they did acknowledge that certain types of humor affect perceptions of the source of the message. Weinberger and Gulas' (1992) review of humor advertisements led to the following four conclusions: (a) humorous ads attract more attention than nonhumorous ones, particularly when the humor is related to the product or issue; (b) humor does not help with comprehension of the ad; (c) humor enhances source liking, but is unlikely to affect credibility judgments; and (d) humor may be persuasive for feeling-oriented products (e.g., clothes, perfume) or low involvement

products (nondurable consumer goods). Generally speaking, Weinberger and Gulas (1992) concluded that humorous messages are no more persuasive than non-humorous messages.

Studies on the effects of humor appeals mostly draw from cognitive response theories of persuasion (e.g., Petty and Cacioppo 1981; Chaiken 1980, 1987), which assume that thoughts during message processing predict persuasive outcomes. However, despite the search for key moderating variables in the effectiveness of humor appeals, there still is a lack of understanding regarding what variables might moderate humor's effectiveness. In fact, studies that have examined both individual and message variables interacting with humor's influence including prior attitude (Chattopadhyay and Basu 1990), need for cognition (Zhang 1996), self-monitoring (Lammers 1991), argument strength (Cline and Kellaris 1999), and source reactions (Lyttle 2001) generally find that humor is effective if one already likes the product.

More recent research, however, suggests that gender-related individual differences might be a meaningful moderator of the effect of humor on persuasive outcomes for topics that are threatening. Conway and Dubé (2002) predicted that, for threatening topics, humor appeals will be more effective for high-masculinity individuals compared to appeals with no humor. This prediction stemmed out of the research suggesting that highly masculine people are particularly averse to experiencing distress (i.e., sadness and fear). Conway and Dubé (2002) conducted two experiments: subjects were sunscreen use to prevent skin cancer in a first study, condom use to prevent AIDS in another study. In both studies, men and women high in masculinity exhibited greater intent to engage in the preventive behaviors recommended in the humor appeal compared to the no-humor appeal. No difference emerged for low-masculinity individuals.

Overall, the jury is still out on the overall effectiveness of humor appeals. The extant literature, in general, suggests that humor appeals do little to actually persuade people. But more recent research suggests that the effects depend upon gender orientation (i.e., sex role). Attention needs to be given to other potential moderating variables influencing the role that humor plays in persuasion before claims can be made with regard to their relative effects.

Although this section has reviewed the effects of emotional appeals separately for different discrete emotions, questions concerning similarities and differences between these distinct appeals remain open. An important issue that appears to be missing in much of the overall discussion of emotional appeals is whether they cause systematic or heuristic processing. Nabi's (1999) Cognitive Functional Model (CFM) may help us understand when emotional appeals serve heuristic processing and when it might lead to systematic processing. Whether emotions are approach emotions (e.g., anger) or avoidance emotions (e.g., fear and guilt), may lead to different processing of persuasive messages. The CFM, for example, predicts that an individual experiencing an avoidance emotion expects reassurance from apparent cues in the message and will have low motivation to elaborate the message arguments. Therefore, those experiencing avoidance emotions may be more likely to peripherally process the message for cues to alleviate the fear or guilt. This processing and perception of goal fulfillment or lack is causally antecedent to message rejection or acceptance. Nabi's (1999) model thus provides a robust framework for the comparison of emotional appeals.

Conclusion

This chapter aimed at reviewing and highlighting the literature at the intersection of mass media, emotion, and persuasion and at discussing the benefits and perils of moods and emotions with regard to persuasion. The studies reviewed here help us to understand the role that both incidental emotions and integral emotions play in changing attitudes. However, they seem to spur as many unresolved questions as they provide insight to. People do not receive media messages, in this case persuasive messages, in a vacuum. Moreover, it is often the case that the message itself was intended to create feelings in the audience. But, does emotion facilitate or debilitate the process of persuasion? The answer is unequivocally 'both.'

To date, knowledge is limited about the role of emotion intensity on persuasive message processing, especially in the context of mass-mediated messages. It is unclear whether intensity can account for some of the inconsistent results in the research I have reviewed in this chapter. Some emotional appeals may be more effective than others in arousing intense levels of the intended emotions. For example, Lang's research (1994) shows that the formal features in a mass-mediated message, such as the number of cuts, can affect how stimulating the message is. Hence, such message features may affect how intensely an emotion is being communicated. Likewise, the use of music and visuals in televised appeals 'amp up' the emotion communicated in the appeal (Lang 1994). Furthermore, specifics of the receiver of the message may affect whether an emotion appeal reaches its goal. For example, fear appeals directed at smoking will not reach non-smokers.

The Activation Model of Information Exposure (AMIE) (Donohew et al. 1980) focuses on the relationship between one's need for stimulation and the likelihood that a message will attract and maintain one's attention. A message must meet the audience's need for stimulation. According to AMIE, when individuals are exposed to a message and the arousal-level generated by the message is consistent with their desired arousal-level, then they will be attracted to the message and will continue attending to it. AMIE predicts that when the need for arousal and the arousal provided by the message are congruent, the message receivers will experience positive affect. However, if there is a discrepancy, they will experience negative affect. Thus, too much arousal is just as ineffective as too little arousal. This hints at an important need for research in how emotional appeals are processed in view of the formal features of the message.

A related issue is that scholars need to look closely at the elements of emotional appeals that might lead to reactance. Psychological reactance is the 'negative emotional state that ensues when [one's] freedom is threatened or eliminated' (Eagly and Chaiken 1993: 571). Whether the audience is aware of the emotional intent of the appeal is important in this respect. For example, if people are aware of the intent of the humor in a humor appeal, they may still like the ad. In contrast, appeals that evoke guilt might lead to anger and negative cognitions (Dillard and Shen 2005) among those who feel that the ad is intentionally manipulating the emotions. Further research may inform message designers how to develop such kinds of emotional appeals without necessarily alerting the audience of the message type.

A related issue that demands more attention regards mixed emotions in persuasive media messages. As Brader (2006) noted, clusters of emotions are often manipulated by ads. It is often the case that negative political ads appeal to both fear and anger.

Commercial advertisements sometimes communicate humor and warmth. Theoretical models predicting how mixed emotional appeals induce primary and secondary emotions are needed. It would be interesting to study, for example, if visual portions of the appeal had a stronger impact on the actual emotion experienced than the verbal parts of the appeal. If the answer to this question was a simple model that showed when mixed appeals lead to one emotion experienced, then we could rely on existing models such as the CFM for predictions of the relevant moderators and mediators. However, such simplicity is very unlikely. The question thus remains: What happens when individuals are simultaneously and equally fearful and angry? Recall that the CFM makes distinct predictions for approach emotions (e.g., anger) and avoidance emotions (e.g., fear). Therefore, future theoretical approaches would have to deal with complications such that the appraisal and action tendencies of one emotional reaction could override others.

Finally, scholars are required to pay more attention to the dependent measures they use in their studies of persuasion. A glance back at the findings concerning humor appeals shows us that humor appeals have distinct effects on discrete outcomes such as comprehension, attitudes, liking, and behavior change. However, a systematic investigation of distinct outcomes as a result of guilt, fear, or anger thus far has not been conducted. A cursory look at the research suggests, for instance, that anger might affect behaviors without affecting attitudes. Yet, fear appeals seem to affect behaviors through attitude change. Guilt seems to affect attitudes and behavioral intentions – though, the precise causal model is unclear. Questions such as whether guilt, fear, and anger appeals are related to liking of the ad, source credibility, or comprehension are thus far unanswered.

Related to this is whether emotional appeals affect attitudes beyond the focal attitude targeted by the message. A persuasive message can move some attitudes in the direction of the message advocated and move other attitudes in the direction opposite of that advocated. It is also important to note that the amount of change in these different attitudes varies. Although persuasive messages influence a constellation of related attitudes, most scholarly studies only assess the impact of a persuasive message on a single focal attitude. What is not yet clearly understood by social scientists, however, is how other related attitudes (in the constellation) are affected by the message. For example, if message recipients are exposed to an anti-binge drinking message, it might be that attitudes toward binge drinking become more positive (a typical reactance effect), while the attitude toward drinking and driving becomes more negative. In the end, attitudes toward drinking responsibly may become more positive. This simple example reveals the importance of considering attitude constellations in persuasion processes (Kaplowitz et al. 1983).

Notes

1 I adopt Batson et al.'s (1992) distinction between affect, mood, and emotions. They propose that affect is the most primitive of the three terms. Affect has valence (positive, negative) and intensity (weak, strong), but is not targeted or focused. Mood is conceived as a type of affective state, thus mood also has valence and intensity. But mood involves 'more or less well-formed set of beliefs about whether, in general, we are likely to experience pleasure or pain – positive or negative affect – in the future' (p. 299). Finally, Batson et al. posit that emotions are a specific type of affective state, so it also has valence and intensity. The distinction is that emotions 'reflect the existence of a specific goal or

perceived change in one's relation to a specific goal' (p. 301). Thus, emotions are specific, goal-oriented, targeted, and discrete. Throughout this chapter I switch terms. I do so strategically: I will use the term that the research being reviewed used. Oftentimes researchers use the term 'mood' when the accurate term might have been 'emotion'. In this chapter I will be clear when the research reviewed applies to both.

2 For a comprehensive review on appraisal theories of emotion, see Scherer et al. (2001).

3 <http://patriotroom.com/article/video-new-gop-healthcare-ad-reforma>.

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15 Creating fear

Transforming terrorist attacks into control and consumption

David L. Altheide

We live in a dangerous world. And we need a President who understands the lessons of Sept. 11, 2001: that to protect America, we must stay on the offense, stop attacks before they happen and not wait to be hit again. The man we need is John McCain.

(George W. Bush, *Seattle Times* news services, September 2, 2008)

Fear is a dominant emotion that is used widely in the mass media and popular culture. Researchers identified how news is produced as an organizational product, and delineated the basic features of entertaining news production – including the perspective of journalists – that enabled journalists to simultaneously claim that they were reporting ‘the news,’ while also doing this in an ‘interesting’ way (Altheide 1976; Epstein 1973). Other researchers subsequently have confirmed that TV news, like all news, is an organizational product that relies on ‘infotainment,’ a curious mixture of information and entertainment (Bennett 2005; Ericson et al. 1989; Fishman 1980; Gamson et al. 1992; Gans 1979; Grossman 1997; Iyengar and Kinder 1987; Tuchman 1978). This chapter examines how one source of entertainment, fear, is routinely used in the mass media, and notes some of the consequences of this for public policy. My comments are informed by two books, *Creating Fear: News and the Construction of Crisis* (Altheide 2002) and *Terrorism and the Politics of Fear* (Altheide 2006). Those works argue that:

- 1 The use of the word *fear* has increased in news reports and popular culture.
- 2 This increase is due to the widespread use of an organizational entertainment format for selecting, organizing, and presenting information.
- 3 This widespread use of fear reflects a pervasive ‘discourse of fear,’ or the pervasive communication, symbolic awareness, and expectation that danger and risk are a central feature of everyday life.
- 4 This discourse links emotions of everyday life to organizational control and surveillance.
- 5 Political leaders rely on the politics of fear, which refers to the promotion and use of audience beliefs and assumptions about danger, risk, and fear in order to achieve certain goals.

These points will be illustrated with a discussion of how decades of crime news enabled politicians to enact draconian laws and policies that promoted more social control and surveillance, while promising to protect citizens. I argue that this approach prepared U.S. citizens for more expanded social control following the

attacks on September 11, 2001 (9/11). Moreover, these activities were justified through an extensive propaganda campaign.

Emotions and media logic

The mass media operate according to media logic or the way in which the grammar, syntax, and symbolic representations are discursively organized to present simple narratives, and/or to connect with basic cultural meanings in order to attract audiences and hold their attention (Altheide and Snow 1979). Advertisers have long recognized that striking a 'responsive chord' in audiences is key to the communication process (Ewen and Ewen 1992; Jackall and Hirota 2000; Schwartz 1973; cf. Turner, this volume). The mass media construct, frame, and amplify fear through entertainment formats and programming that define situations for various audiences. This developed through two processes: First, there was competition for the news market: news organizations adapted and expanded popular culture's entertainment formula to attract readers and viewers – sex, fear, and humor would do nicely (cf. Pantti, this volume; Unz, this volume). As suggested by Snow's (1983) analysis of 'media culture,' the entertainment format emphasizes: first, there is an absence of the ordinary; second, is the openness of an adventure, outside the boundaries of routine behavior; third, the audience member is willing to suspend disbelief; fourth, there is an invitation for vicarious involvement. In addition, while the exact outcome may be in doubt, there is a clear and unambiguous point at which it will be resolved. Packaging such emphases within formats that are visual, brief, action-oriented, and dramatic produces an exciting and familiar tempo to audiences. Moreover, as audiences spend more time with these formats, the logic of advertising, entertainment, and popular culture becomes taken for granted as a 'normal form' of communication. Fear is a good way to strike a chord in audiences.

Second, guided by this media logic, news workers would seek out events and topics that could be easily framed as fearful and, therefore, very relevant to viewers. News sources and managers of news events, including politicians, quickly learned how to frame and cast their favorite topics in ways that could be presented in entertaining ways, including fear, victimization, crisis, etc. President Reagan's deputy chief of staff, Michael Deaver, was particularly good at this media logic:

My own contribution to campaign innovation resulted from observing the medium as we prepared for the 1976 presidential race. I noted how the people who run television news were reducing a candidate's thoughtful and specific speech on an issue, say, an upturn in the economy, to a 10-second sound-bite, which was then followed on the screen by an effective visual of someone ... The point is that rather than inventing the effective visual or the 30-second sound bite, we simply adapted an existing TV news technique that was already widely used.

(Deaver 1988)

Presentation and coverage of events, problems, issues, events, and politicians were forever changed when media logic became the prevailing perspective for getting out one's message and for covering the news. I referred to this change in other work as 'postjournalism' (Altheide and Snow 1991). Fear and entertainment are part of this story.

Fear and crime

Fear and crisis was another way to capture news attention within the new bounds of media logic. When it came to crime, TV news could connect with viewers emotionally by stressing individual cases of heroism or deviance – crime – because these were easier to cover visually, and could be tailored to simple cultural narratives about good/evil, strength/weakness, etc. (Cavender 2004; Cavender and Bond-Maupin 1993; Surette 1998). Moreover, the crime news focuses on individual crimes of violence, and threats to children. Social conditions, including differential police enforcement against poor and minorities, are seldom presented. Less common are reports about corporate/business crime, and state crime. Thus, over time, news comes to be defined as ‘crime news,’ and other political and civic information receives less coverage and public interest declines in the non-crime aspects of social life. This is best illustrated with crime news that dominates ‘local news’ coverage in the United States (Surette 1998), as well as in the UK and in Italian news (Forti and Bertolino 2004).

Audiences became accustomed to media logic, and they expected to be entertained. Audiences are cultivated through fear and crisis. The appeal is to emotions and identity, particularly messages and images about ideals and what we lack to achieve them, including the products/policies that will help us overcome the deficiency or solve the problem (Ewen 1999). Fear is one of the most common emotions that is exploited and packaged. We have more coverage about fear today because there is just a lot more media coverage (e.g., cable, satellite, 24-hour news).

The prevalence of fear in public discourse can contribute to stances and reactive social policies that promote state control and surveillance. Fear is a key element of creating ‘the risk society,’ organized around communication oriented to policing, control, and prevention of risks (Ericson and Haggerty 1997; Staples 2000). A constitutive feature of this emerging order is a blanket reminder of fear. While fear is commonly associated with crime, I suggest that fear provides a discursive framework of expectation and meaning within which crime and related ‘problems’ are expressed. Media practices and major news sources (e.g., law enforcement agencies) have cooperatively produced an organizational ‘machine,’ fueled by entertainment and selective use of news sources, that simultaneously connects people to their effective environments even as it generates entertainment-oriented profits (Altheide 1997). As one law enforcement official stated about Arizona’s televised ‘crime stoppers’ dramatizations, ‘If you can have a little entertainment and get your man, too, that’s great’ (Wagner 1989). Fear of crime has become one of the common meanings in our society: we increasingly share understandings about what to fear and how to avoid it. The consequences are felt in numerous ways but particularly in accelerated negative perceptions about public order and even our built environment (Ellin 1997) (e.g., the streets are not safe, strangers are dangerous, the state must provide more control and surveillance). In commenting on everyday life features of society, Stanford M. Lyman observed, ‘Such a fearful disunity undermines the general conditions of trust and order, encouraging intrigues, deceptions and interactions that are strategic rather than spontaneous’ (Lyman 1997: 294).

Public perceptions of problems and issues (the texts they construct from experience) incorporate definitions, scenarios, and language from news reports (Altheide and Snow 1991; Bennett 2005; Comstock 1980; DeFleur and Ball-Rokeach 1982;

Ericson 1995; Ferraro 1995; Snow 1983). 'Because the media often distort crime by over representing more severe, intentional, and gruesome incidents, the public overestimates its frequency and often misperceives reality' (Heath and Gilbert 1996: 371). Indeed, how the mass media report risk suggests that journalists need to be more conscientious and informed in their accounts (Willis and Okunade 1997).

While crime and violence are part of the 'fear story,' there is more to it. For example, the constant coupling of crime and other aspects of urban living with fear have produced a unique perspective about our environment (Ellin 1997). While crime is certainly something to be concerned about, as is any potentially dangerous situation, the danger per se does not make one fearful, just cautious. Fear is not a thing but a characteristic attributed by someone (e.g., a journalist). Often associated as an attitude pertaining to danger, fear is multifaceted in its actual use in popular culture and especially the news media (cf. Cantor, this volume). Examining the impact of subjects' perceptions of crime on their orientations and behavior, Ferraro's (1995) research on 'fear of crime' distinguishes between perceiving a 'risk' and being 'fearful':

Fear of crime is an emotional response of dread or anxiety to crime or symbols that a person associates with crime ... To produce a fear reaction in humans, a recognition of a situation as possessing at least potential anger real or imagined, is necessary. This conception of potential danger is what we may call perceived risk and is clearly defined by the actor in association with others.

(Ferraro 1995: 12)

An actor has options.

Fear is only one of several reactions to judgments of potentially high risk in a situation. Others may include constrained behavior, community or political activism, compensatory defensive actions, and avoidance behaviors including relocation. Perceived risk and the possible reactions to it are viewed as always being developed in an environmental context replete with socially constructed meanings.

(Ferraro 1995: 12)

My study of how fear is used in news reports illustrates how linkages with different issues occur over time (Altheide 2002). Trends in the relationship between fear and selected terms (e.g., crime, gangs, and drugs) were identified by tracking or following these terms across news media over time. To speak metaphorically, fear has 'traveled' across all the topics we examined since 1987, although children, crime, and schools have remained in the top three categories. A discourse of fear is promoted by audience familiarity with and use of the word fear in everyday life. Fear is used as a noun, verb, adjective, and adverb. Fear is increasingly substituted for such words with much different connotations from fear, as 'concern,' 'relevance,' 'trouble,' 'query,' 'issue,' 'item,' and many others. A major finding is that the use of fear nearly doubled during the decade 1984-94, although other work documents that fear has about tripled in headlines in the *Los Angeles Times* and in *ABC* television news reports.

Another finding in this research is that fear 'travels' across topics over time. Fear is not exclusively associated with crime, but rather numerous topics 'appear' with fear, although their relative strength varies over time. Over a three-year period,

more than 21 percent of news reports in the *Los Angeles Times* associated fear in some way with one of the following topics: AIDS, cancer, crime, drugs, environment or violence. Topics become associated with fear through a process. Problems (and associated terms) have a 'meaning career,' often beginning as something that is deviant or immoral, later becoming more accepted – although not necessarily desirable. This occurs in part through public communication and includes the journalists who write about such topics, as well as the 'sources' which supply them with information and understanding. When reports routinely stress suffering and mayhem, for example, fear becomes incorporated into the meaning: signifier and signified are essentially joined and taken for granted.

Social control efforts expand to protect us from the sources of fear. Formal agencies of social control (FASC), and particularly national 'decision-makers' and local police agencies, benefit from the context of fear. Victims provide 'evidence' of the reality of fear, the source of the threats. Indeed, without victims there would be no credible fear, so they would have to be 'created' even if they did not exist. The news media becomes a propaganda agency that produces news accounts about fear and promotes the discourse of fear without adequate elaboration or explanation (Altheide and Johnson 1980; Jackall 1994; Jackall and Hirota 2000). 'The promotion of fear and the propagandist manipulation of information is often justified on the grounds that it is a small price to pay to get a good message across to the public' (Furedi 1997: 25). This helps to produce 'state terror,' as citizens seek protection from risk and threats to safety, and to avoid becoming victims.

Propaganda and fear of terrorism

Fear is the foundation for much of the dominant narrative of the last 50 years (Altheide 2002; Furedi 1997; Glassner 1999). The role of the mass media in promoting fear has become more pronounced since the attacks of 9/11. Popular culture promoted the war on terrorism – especially after the 9/11 attacks – by stressing fear and an uncertain future, although there was a several-decade context of anti-Arab propaganda (Said 1979). This discourse was grounded in an entertainment format that had been developed over several decades, primarily through the 'fear of crime,' but it was also promoted by political action that sought a reorientation and redefinition of the role of the United States in world affairs (Altheide and Grimes 2005).

Propaganda plays to fear (Altheide and Johnson 1980; Jackall 1994; Kellner 2004; Lasswell et al. 1979). The Iraq War propaganda illustrates a process that linked giving and spending to patriotism, domestic control, and a major foreign policy shift following the terrorist attacks on September 11, 2001 (Altheide 2006). Analysis of news reports and advertisements suggests that popular culture and mass media depictions of fear, patriotism, consumption, and victimization contributed to the emergence of a 'national identity' and collective action that was fostered by elite decision-makers' propaganda and the military-media complex (Altheide 1999). Numerous replays of the 'falling towers' transformed buildings into icons of 'the terrorist threat' that morphed into the endless 'war on terrorism,' a battle against a world condition and not a specific country, group, or tactic. Global policing that would justify a 'first strike' against sovereign governments was socially constructed as commensurate with personal caring and a national identity.

The dominant ‘story’ since the attacks of 9/11 was the ‘war on terrorism.’ The American news media, and especially network TV news organizations, chose not to present important contextual and background information about the Middle East, and especially Iraq, because it was not consistent with other news themes nor was it as entertaining. Threats to invade other countries – the ‘axis of evil’ – that included Iraq, were part of an effort to ‘defend’ the United States from future attacks. This broad story included U.S. retaliation, the hunt for Al Qaeda leaders (e.g., Osama bin Laden), and plans to attack countries and ‘outlaw regimes’ that supported or harbored terrorists. Implementing these programs involved invading Afghanistan and expanding the U.S. military presence throughout the world. Other adjustments were made in foreign policy, military budgets, domestic surveillance, and attacks on civil liberties (Johnson 2004; Kellner 2003). Throughout, the emphasis was on fear and safety.

Fear and terrorism became a very broad symbol that encompassed fear, consumption, and international intervention (Kellner 2004). Previous (Altheide 2004) analysis of numerous news reports pertaining to terrorism shows that citizens’ concerns about victims of 9/11 attacks were joined by politicians and advertisers, who marketed and framed fear and dread of terrorism as part of a national identity that was commensurate with personal caring and community (Altheide 2004; Kellner 2004). The meaning of terrorism expanded from a tactic to also mean an idea, a lifestyle, and, ultimately, a condition of the world. News reports contributed to this broad definition of terrorism as a condition (Altheide 2004).

Mass media messages about terrorism, fear and emotional appeals to audiences will be illustrated with three points:

- 1 Fear supported consumption as a meaningful way for audiences to sustain an identity of substance and character.
- 2 The absence of a clear target for reprisals contributed to the construction of broad symbolic enemies and goals referred to as ‘terrorism.’
- 3 The fight against terrorism was also celebrated through the construction of ‘heroes’ and support of ‘troops,’ whose stories were told as part of the emotional bonding of war, family and community.

Consumption and giving were joined symbolically with terrorism

The politics of fear was central to commensuration practices in forging a national identity. Espeland’s analysis of commensuration as ‘the expression or measurement of characteristics normally represented by different units according to a common metric’ (Espeland 2002: 315), conceptually joins individually oriented consumption and communally oriented giving to patriotism and national unity at a time of terrorism. This was accomplished symbolically by expanding the tragic events into an interpretive scheme that connected attacks with renewal, revenge, and deference to leaders who would attack the enemy and save us from other attacks. The communal reaction was informed by drawing on national experiences of fear, consumption, and the role of national leadership in molding a response that would also constitute and justify future actions and relationships between nations, state control, and citizens.

The collective response to the terror attacks was framed as a communal patriotic experience that provided opportunities to ‘come together’ and be ‘united’ in a

'coalition of war and humanitarianism' (Shapiro 2001). Numerous messages also appealed to a nostalgic past about U.S. moral and military dominance, authentic life styles, traditional values (e.g., family, respect), as well as institutions of social control (e.g., police, fire departments, and military).

National symbols were renewed through mournful language of victims and vengeful promises of future action by the military on our behalf. Leaders, with the aid of the mass media, repeatedly bolstered the idea that the moment of attack and tragedy was an opportunity for Americans to renew their commitments to freedom and the American way of life.

Cultural scripts of generosity and sympathy were processed through organizational entertainment formats emphasizing market participation and consumption (Kingston 2002: CP1). Advertising and programming served to normalize the terrorist condition. Unlike reactions to previous 'external attacks' (e.g., 'Pearl Harbor') that stressed conservation, personal sacrifice, and commitment, a prevailing theme of consumption-as-character and financial contributions as commitment and support pervaded mass media messages surrounding the 9/11 attacks. These messages equated giving and buying with patriotism and national unity (Espeland 2002). A nation's grief was directed to giving and spending dollars, or as a General Motors advertisement stated, 'Keep America Rolling.'

Americans gave millions to charities to help the victims of 9/11. Indeed, businesses in the US offered rebates and contributions to charities from individual purchases. The Ad Council (Advertising Research Foundation) adopted a strong coalition stand against terrorism, noting in an online communication that 'it was originally founded as the War Advertising Council during World War II in the aftermath of the bombings of Pearl Harbor.' Following an 'all advertising industry meeting,' a strategy was adopted on September 18, 2001 to 'inform, involve and inspire Americans to participate in activities that will help win the war on terrorism' (Elliott 2001; Shales 2001: G2).

Many Americans responded to the September attacks by arming themselves. Fear of crime and terrorism were joined through purchasing guns. The gun industry and the National Rifle Association (NRA) urged fearful Americans to buy their slogans and products. As one reporter noted, people may say: 'Let Tom Ridge watch out for our shores. I'll watch out for my doors' (Baker 2001). Gun sales were up nationwide 9 to 22 percent, despite the concern of police officials that it would lead to higher levels of local violence (Baker 2001). For example, 'Ithaca Gun Company is selling its Homeland Security model for our current time of national need ... In every respect, these new Homeland Security Model shotguns are up to the demanding tasks which lay before us as a nation.' The Beretta gun company sold two thousand of its 'United We Stand' 9-millimeter pistol, bearing a laser-etched American flag (Baker 2001).

Construction of symbolic terrorism

Patriotism was connected to an expansive fear of terrorism and enemies of the United States. As noted above, the term terrorism was used to encompass an idea, a tactic or method, and, ultimately, a condition of the world. The waging of the 'War on Terrorism' focused on the 'idea' and 'the method' depending on the context of discussion and justification. The very broad definition of terrorism served the

central authorities' purposes while also justifying action of others (e.g., Israel) in their own conflicts (Robin 2001). The mass media were key contributors.

Students of propaganda have noted that the mass media are central propaganda instruments, not only in content, but also the format and overall presentation and 'look' (Altheide and Johnson 1980; Ellenius and Foundation 1998; Jackall 1994; Powell 1999). With network and local nightly newscasts draped in flag colors, lapel flags, and patriotic slogans reporting events 'primarily through the viewpoint of the United States (e.g., 'us' and 'we'), news organizations presented content and form that was interpreted by the publisher of *Harper's Magazine* as sending 'signals to the viewers to some extent that the media are acting as an arm of the government, as opposed to an independent, objective purveyor of information, which is what we're supposed to be' (Rutenberg and Carter 2001).

Dan Rather, CBS anchorman, acknowledged the pressure to comply with propaganda and that many of the tough questions were not being asked. Rather told a British journalist:

'It is an obscene comparison ... but you know there was a time in South Africa that people would put flaming tires around people's necks if they dissented. And in some ways the fear is that you will be necklaced here, you will have a flaming tyre of lack of patriotism put around your neck,' he said. 'Now it is that fear that keeps journalists from asking the toughest of the tough questions ... It starts with a feeling of patriotism within oneself. It carries through with a certain knowledge that the country as a whole – and for all the right reasons – felt and continues to feel this surge of patriotism within themselves. And one finds oneself saying: 'I know the right question, but you know what? This is not exactly the right time to ask it.'

(Engel 2002: 4)

Journalism's repetitious patriotic messages supported the national identity and communal definition of danger and victim that were consistent with a terrorism world. Numerous news reports promoted more fear about potential terrorists and enemies of the United States. There were few specific targets as 'nation states' so the focus was on a key individual, Osama bin Laden, and his 'terrorist network' of camps that were located in Afghanistan. However, commensurate with our avowed character that we do not attack innocent people, the U.S. government stressed that it was not at war with Afghanistan or Muslims, but with terrorism and those who harbor them. Reminiscent of the 'old West' posters of criminals 'wanted dead or alive,' Osama bin Laden provided the symbolic focus of attack that was lacking even during the Cold War. All 'terrorists' would have his face and symbolic identity. Thus, even though Afghanistan was attacked, the official target was global terrorism, whether it was connected to bin Laden or not (e.g., South America).

Terrorism and the drug war

The drug war and ongoing concerns with crime contributed to the expansion of fear with terrorism. Messages demonizing Osama bin Laden, his Taliban supporters, and 'Islamic extremists' linked these suspects with the destructive clout of illegal

drugs and especially drug lords. News reports and advertisements joined drug use with terrorism and helped shift 'drugs' from criminal activity to unpatriotic action. As the destructive acts were defined as 'war' rather than 'attacks,' it became apparent that the propaganda about one war would be replicated in the other one. Messages demonizing Osama bin Laden, his Taliban supporters, and 'Islamic extremists' linked these suspects with the destructive clout of illegal drugs and especially drug lords. One of the strongest public statements linking the 'drug war' and drug use with terrorism was a ten million dollar advertising campaign that included a 2002 Super Bowl commercial stating that buying and using drugs supports terrorism, whether it is Al Qaeda in Afghanistan or guerillas in Colombia. According to President George W. Bush, '[i]f you quit drugs, you join the fight against terror in America' (Huffington 2002). The importance of the ad campaign was to not only reduce drug use, but to also blur boundaries between crime and terror, and to suggest that both have international relevance and can warrant military intervention. One implication, then, was to extend the war against terrorism to those countries producing drugs.

The expanding definition of terrorism

Many countries supported the proposition that terrorism is a condition. Numerous 'internal' conflicts and revolutionary movements were classified as 'terrorism,' and any government that opposed them would, presumably, be joining the USA in its fight against global terrorism. Within a matter of days, countries dealing with revolutionary movements in their own borders, (e.g., Colombia, Peru, and Israel) vowed to join the USA in its fight against terrorism (Bennett 2005). Placing virtually all 'opposition' forces in the terrorist camp was consistent with the military-media script of pervasive fear and opposition. The serious opposition that disappeared with the end of the Cold War was reconstituted worldwide as 'global terrorism.'

Constructing heroes for emotional bonding

Internal dissent was challenged. Attorney General John Ashcroft made it clear that anyone concerned with the civil rights of the suspicious was also suspect. Ashcroft told members of the Senate committee that critics 'aid terrorists' and undermine national unity: 'They give ammunition to America's enemies, and pause to America's friends' (*Star Tribune*, December 9, 2001: 30A). One non-profit group, the American Council of Trustees and Alumni (one founding member is Lynn Cheney, wife of former Vice-President Richard Cheney) posted a web page accusing dozens of scholars, students, and a university president of unpatriotic behavior, accusing them of being 'the weak link in America's response to the attack' and for invoking 'tolerance and diversity as antidotes to evil' (*The Arizona Republic*, November 24, 2001: A11). *Sacramento Bee* president and publisher Janis Besler Heaphy was booed off the stage during a commencement address at California State University, Sacramento, after she suggested that the national response to terrorism could erode press freedoms and individual liberties (*New York Times*, December 21, 2001: B1).

The mass media supported the emerging national identity as commensurate with moral character with a discourse of salvation or 'seeing the light' to guide our way through the new terrorism world. Youth were targeted. For example, *Newsweek*

magazine published a statement by a young woman who ‘confessed’ her naiveté about the ‘real world’:

Before the attack, all I could think of was how to write a good rap ... *I am not eager to say this*, but we do not live in an ideal world ... I’ve come to accept the idea of a focused war on terrorists as the best way to ensure our country’s safety.
(Newman 2001: 9, emphasis added)

A Marine Corps officer chastised professors in a *Newsweek* ‘My Turn’ column to stop undermining the call to service:

As anyone who has attended a top college in the past three decades knows, patriotism in the eyes of many professors is synonymous with a lack of sophistication at best, racism at worst ... Yet, it is clear to me that the antimilitary culture that exists on many campuses is remarkably out of step with the views of the vast majority of Americans ... It is also time for America’s universities to support and encourage – not undermine – this call to service.
(Sullivan 2001: 12)

A ‘call to service’ was illustrated by the Pat Tillman story.

The Pat Tillman story

The Pat Tillman story captured the emotional bonding of sacrifice with youth. Pat Tillman was a 27-year-old promising professional football player, who walked away from a multi-million dollar contract with the Arizona Cardinals to join the Army, with his brother Kevin, and serve as a Ranger in Afghanistan, where he was killed by fellow Rangers. This action was interpreted as turning away from fame and fortune in favor of patriotism and duty to country. The Tillman brothers were fêted as role models by the mass media, and they received the Arthur Ashe Courage Award at the Espy Awards ceremony after their enlistment. Pat Tillman was killed by his own men on April 22, 2004 in what was later described as ‘friendly fire,’ but the initial story of a heroic death was penned to promote individual valor as well as sustain emotional support for the cause – the War in Afghanistan, as well as the Iraq War. One example of the military’s propaganda about Tillman’s death was published in *Sports Illustrated*:

Dusk fell ... the shadows twitched with treachery ... the Rangers scrambled out of their vehicles as they came under ambush and charged the militants on foot. Suddenly Pat was down, Pat was dying. Two other US soldiers were wounded, and a coalition Afghan fighter was killed in a firefight that lasted 15 or 20 minutes before the jihadists melted away.

(Smith 2004: 42–6)

This was the operating narrative for several weeks until the first of a half dozen investigations revealed that the army had covered up a tragedy of errors that led to his death. Indeed, even his brother, Kevin, who had been on the same mission that day, was not told the truth until weeks later. Tillman’s nationally televised memorial

service on May 3, 2004 benefited the army and other participants in the military-media complex. Tillman's parents did not learn how he died until weeks later, and even then many details were not disclosed (Staff 2005). Patrick Tillman Sr., an attorney, decried the 'botched homicide investigation,' adding:

'After it happened, all the people in positions of authority went out of their way to script this,' Patrick Tillman said. 'They purposely interfered with the investigation, they covered it up. I think they thought they could control it, and they realized that their recruiting efforts were going to go to hell in a handbasket if the truth about his death got out. They blew up their poster boy.'

(Staff 2005)

The truth about his death did not alter his emotional appeal. One of the comments posted on the internet illustrates the transfer of emotional meaning, and ironically, the superiority of the American spirit and military:

Pat Tillman was too great of a warrior to be taken out by Taliban types. Only a fluke or mistake could bring him down ... I will always remember Pat Tillman as a Great American Warrior. His spirit will touch us from the other side and inspire us on to crush the evil jihad now upon us. His fight continues with us.

(Wesley 2004)

The facts about his death and the malfeasance of the military in lying about the circumstances did not detract from Tillman's iconic status. Indeed, statues/sculptures were erected at football stadia, the Pat Tillman foundation was established, which provided scholarships for 'leadership through action,' an annual 'Pat's Run' is held, with the finish line in Sun Devil Stadium on the 42 yard line – 42 was Tillman's college number.

Pat Tillman was used for various purposes, and this use was constituted through mass media coverage, publicity, and the entertainment format. The politics of fear shrouded Pat Tillman as a subject and an object. Tillman belonged to media worlds, very much of this world, but certainly not a private, personal world. He became an agent of the politics of fear, a guardian of claims about legitimacy of war, and certainly a defender against those who might question the legitimacy of war. As presidential candidate John McCain stated:

'[t]here is in Pat Tillman's example,' said Senator John McCain of Arizona, 'in his unexpected choice of duty to his country over the riches and other comforts of celebrity, and in his humility, such an inspiration to all of us to reclaim the essential public-spiritedness of Americans that many of us, in low moments, had worried was no longer our common distinguishing trait.'

(Smith 2004: 46)

Conclusion

Fear is a dominant emotion that has been cultivated as part of an entertainment format by the mass media and popular culture. Fear strikes a responsive chord, particularly with TV audiences. The long time association of fear with crime news was

strengthened with numerous news reports about drug wars, random violence, and particularly threats to children. Such reports continued regardless of actual crime trends, and over time constituted a discourse of fear, which may be defined as the pervasive communication, symbolic awareness, and expectation that danger and risk are a central feature of the everyday life. Officials and other news sources recognized the importance of fear for media logic and began to adjust messages and frame issues that would resonate fear and urgency. Mass-mediated citizens gradually permitted officials to take action that would control the source of fear (e.g., criminals, terrorists). Officials became more adept at fashioning policies and programs (e.g., mandatory life sentences) (Grimes 2007) based on an emerging politics of fear, or decision-makers' promotion and use of audience beliefs and assumptions about danger, risk and fear in order to achieve certain goals.

The terrorist attacks on the United States on September 11, 2001 were strategically used by officials to justify various domestic and international actions in order to 'protect us,' including two wars, expanded domestic surveillance, suspension of many civil liberties, torture of suspected terrorists, and kidnapping of foreign citizens (also known as extreme rendition) (Altheide 2006). Patriotism was rampant, critical questions were rare for several years, and those concerned about civil liberties violations were referred to as 'privacy advocates.' This discourse was extended to the drug war, as noted, but it was also applied to immigration threats, which were framed as potential terrorists. This was all consistent with the politics of fear. Such actions were symbolically communicated through a propaganda campaign in which (a) fear supported consumption as a meaningful way for audiences to sustain an identity of substance and character; (b) the absence of a clear target for reprisals contributed to the construction of broad symbolic enemies and goals; and (c) the fight against terrorism also celebrated through the construction of 'heroes' and support of 'troops,' whose stories were told as part of the emotional bonding of war, family, and community. The presidential campaigns of 2004 and 2008 stressed vulnerability, plotting enemies, and the need for strong leadership to protect us. Hopefully, we can all learn the lessons of the politics of fear and avoid future emotional manipulation.

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Part IV

Emotions beyond the message

Features, forms, and functions

16 The influence of form and presentation attributes of media on emotion

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Marshal McLuhan (1964) proposed in his well-known book, *Understanding Media*, that the form of the medium in which a message is delivered, not solely the content of the message, influences how a message is processed and perceived by people. Since then, a growing number of media scholars have focused their attention on how noncontent features of media independently influence media message processing. The content of a message refers to 'the story, its characters, plot, and actions' (Geiger and Reeves 1993). A definitive definition of noncontent features of media may be more difficult to find. Following in the tradition of early research on the formal features of television (e.g., Huston and Wright 1983), Geiger and Reeves (1993) identified noncontent features of television as audio and visual structure of a medium, which are comparable to a grammatical syntax, and include the cuts and edits, pacing, camera angles, and image size.¹ While these features are indeed an integral part of mediated messages, they represent a distinct class of attributes that vary independently of content. Systematic investigation of these attributes over the past three decades has helped to signal a shift away from simplistic media effects research that examines the influence of particular portrayals and depictions (i.e., content) on knowledge attitudes and behavior. Studies of structural and presentation attributes generally reflect an information-processing perspective and aim to provide a more holistic understanding of how people interact with media and what kinds of outcomes are likely under various conditions (Lang et al. 2009).

Although recent research has indicated that the role noncontent features of media can play in impacting people's psychological responses may be smaller than those produced by media content, empirical evidence equally clearly demonstrates that the noncontent attributes of newspaper, magazine, television, and film do affect cognitive and emotional responses. For example, studies have reported the influence of cutting rate (Penn 1971; Geiger and Reeves 1993), camera angles (Kraft 1987; Geiger and Reeves 1993) and pacing (Lang et al. 1999; Lang et al. 2000; Chock et al. 2007; Lang et al. 2007a, 2007b) on the evaluation of characters on film or candidates on television and on emotional responses to the messages. Likewise, research indicates that screen size, picture motion and color can have impact on people's attention (i.e., Reeves et al. 1999; Simons et al. 2003; Potter and Choi 2006), memory (i.e., Lang et al. 2000; Lang et al. 2007a), and arousal and valence (i.e., Reeves et al. 1999; Detenber et al. 2000; Lichtlé 2007). In general, in spite of the conflicting results that sometimes arise as a result of different research designs and measurement techniques, the influence of these media features can be distinguished from those elicited solely by the media content (cf. Bucy this volume; Unz this volume).

Scholars have also proposed theoretical mechanisms that would result in independent influences of structure and content on processing. When examining people's cognitive processing of a television message, Thorson et al. (1986) introduced a processing stage model to explicate how the structure and content may be approached discretely when people are exposed to a television message. Based on the assumption of an independent effect of content and structure, this model identified message structure (or form) as a local attribute which is processed during the first few seconds of message exposure. The message content, on the other hand, identified as a global attribute, may not be processed until the structural processing has been finished. Hence, the cognitive influences of local and global features can be separated and examined independently.

Building on this model, Lang et al. (Lang 2000, 2006a, 2006b) have proposed a limited capacity model of motivated message processing (LC4MP) which suggests that many structural features of media elicit the automatic allocation of cognitive resources to processing messages. These resources are allocated primarily through two mechanisms: the orienting response and automatic increases in motivational activation caused by both structural and content aspects of media which are motivationally relevant (e.g., motion, especially motion toward a person, intense sound, fast rise times, etc.). In this model, the type and pacing of structural features have been shown to influence not only resource allocation but also the memory processes of encoding, storage, and retrieval, and physiological and self-reported feelings of emotion.

Following this approach, mediated message processing is seen as a dynamic interaction among the human-motivated information-processing system, the structural and content features of a message, and the context in which that interaction occurs. Both structural and content features of messages are thought to elicit automatic cognitive and motivational responses in media users. Both structure and content have the ability to elicit attention responses (such as the orienting response) which direct attention to specific features of the message due to their novelty, signal properties, or motivational relevance. In this model, people are assumed to have two underlying motivational systems: the approach or appetitive system and the avoidance or aversive system. These systems developed through evolution to preserve the species by enabling individuals to survive and procreate and thereby protecting the species. As a result, these motivational systems activate automatically (i.e., without conscious control), singly or simultaneously, in response to things in the environment which are motivationally relevant. Motivationally relevant stimuli are those which have come to signal threats and opportunities, either through the process of evolution or through the process of individual learning. Primary motivational stimuli include content types such as sex, food, and violence as well as structural features such as sudden movement, movement toward, and fast rise-time auditory events or sounds. Secondary motivational stimuli include all things that individuals have learned through their lifetime to be signals of threats and opportunities. These include general signals that can be shared by a large population, such as tornado and police sirens, as well as specific cues learned by individuals in certain environments. In any case, the occurrence of motivationally relevant content and structural features both influence how mediated messages are processed.

In particular, the limited capacity model of motivated mediated message processing (LC4MP; Lang 2006, 2006c) suggests that activation in the motivational systems influences both cognitive and emotional responding to messages in an interactive

and dynamic way. For example, some structural features in mediated messages elicit orienting responses (Lang 1990). These orienting responses increase allocation of resources to encoding the message. Encoding is the process of creating a mental representation of the message for later collaborative processing and storage. Some structural features are also motivationally relevant. These motivationally relevant structural features elicit the allocation of additional resources to encoding and are more likely to become part of the mental representation. This makes the mental representation more motivationally relevant, which increases processing.

At the same time, activation in the motivational systems is thought to drive experiential emotional responses. In other words, activation in the appetitive system leads to positive feeling states. Activation in the aversive system leads to negative feeling states. Simultaneous activation in both systems leads to feeling states that are both positive and negative – such as anger (which feels negative but includes substantial activation in both the appetitive and the aversive systems). The degree of activation in the systems influences the intensity of the feeling state. For example, mild activation in the aversive system may create a feeling of sadness or concern, moderate activation might lead to anxiety, while strong activation may result in fear (Lee and Lang 2009).

What this approach to studying mediated messages suggests is that by varying the number and type of structural features in a message, a producer can strongly influence which aspects of the message are encoded and, to some extent, the degree to which the motivational systems activate during message processing. This interaction of the motivational and the cognitive systems is called motivated cognition and research shows that when motivational activation occurs, messages receive greater attention and elicit more activation in both sensory and cortical areas of the brain (Lang et al. 1996). Hence, to the extent that structural features are chosen which increase activation in one or both motivational systems, emotional responses to messages should be increased. In this chapter, as we consider the various types of non-content features in mediated messages, we will also stop to consider the extent to which each one is theoretically likely to activate the motivational systems and thereby increase emotional responding.

In this chapter, we will categorize these noncontent attributes of media into two types: formal features and presentation attributes. The distinction between the two is the extent to which media users can actively modify the attributes. Formal features, including color, motion, and editing pace, are embedded in a message by the media producer, and once created by producers, the features cannot be altered by the audience members. Presentation attributes, including screen size, viewing distance, and volume, however, can be modified by audience members. That is, the audience can buy a bigger TV set to view a large screen, physically sit closer or farther from the screen being viewed, or modify the volume of the medium being listened to. This chapter will review current empirical results indicating how formal and presentation features influence emotional responses to media messages.

Theories of emotion

Communication scholars have extensively employed Peter Lang's (1995) bio-informational theory to conceptualize emotion as action tendencies stored in memory and retrieved in specific stimulus contexts, all of which involve the processing of

information. In his explication of the bio-informational theory of emotion, Lang (1995) stated that emotions constitute a form of action readiness triggered (primarily) by external stimuli. He argued that emotional tendency acts as a kind of computer program in the brain, with a 'data file' containing three components coded as propositions: stimulus proposition, which refers to perceptual objects that people are exposed to; response proposition, including appetitive and aversive acts and physiological responses; and meaning proposition, which ties the two together through imagery and interpretation. The chances of triggering the entire emotional response may be increased by providing stimuli that contain a sufficient number of matched propositions. This perspective also argues that emotional experience is organized along primary dimensions of arousal and valence which are indicative of the underlying appetitive and aversive motivational systems. Recent work has examined the interaction between emotion and attention (called motivated attention) and the extent to which the motivational relevance of stimuli influence attention to and processing of those stimuli.

The information-processing approach to the study of emotion distinguished itself from other theories by its empirical implications. First, the stimulus-response model it introduced allows researchers to modify the noncontent features of emotion-eliciting stimuli (e.g., size, color, or motion) to activate emotional responses (Detenber and Reeves 1996; Detenber et al. 1998, 2000; Reeves et al. 1999). Knowledge of the relationship between form and emotional responding is not limited to researchers. Media producers have an intuitive understanding of how both the content and the structure of media messages can affect audiences. For example, it is quite common for film and television directors to vary the pace of editing to influence viewers' interest and excitement level (cf. Cupchik and Hilscher this volume). Research has shown that manipulation of editing pace can indeed affect both cortical and autonomic arousal (Lang et al. 1999, 2005).

Second, the bio-informational approach conceptualizes emotion as a dimensional construct, and this approach has been widely used in communication research to study emotional responses (Russell and Mehrabian 1977; Lang 1995; Detenber et al. 2000). This approach posits that there are three dimensions underlying all emotions: valence, arousal, and dominance. Generally, the hedonic valence dimension refers to a constant affective response ranging from pleasant to unpleasant. The arousal dimension refers to a steady response ranging from thrilled, animated, and vigilant to composed, still, or peaceful. These two dimensions account for the majority of the variance in emotional response and have close correlations with underlying physiological responses. The dominance dimension, which refers to people's perception of control over a stimulus or situation, tends to explain only a small portion of the variance in emotional responses, is not correlated to any specific physiological response pattern, and is used much less often (Greenwald et al. 1989; Bradley and Lang 2000).

Dimensional theories of emotion generally posit a link to underlying motivational systems (appetitive and aversive), and are grounded in an evolutionary view of human psychology (Lang et al. 1997; Caccioppo and Gardner 1999; Caccioppo et al. 1999; Bradley and Lang 2000; Tooby and Cosmides 2000; cf. Schwab and Schwender this volume). The LC4MP, like other dimensional theories of affective experience, conceives of emotion as having an experiential component which can be indexed using self-report measures, a physiological component, and a behavioral component. The dimensions of valence, arousal, and dominance are used primarily to organize the experiential aspects of emotion. However, the valence dimension is

thought to reflect the direction (approach or avoid) of the underlying motivational activation while the arousal dimension reflects the extent or intensity of activation. Various physiological measures have been shown to correlate with the valence and arousal experiential dimensions and provide evidence for motivational activation. In research settings, a common way to get people to describe the emotions they are feeling is to use the Self-Assessment Manikin (SAM) developed by Peter Lang (1980; see also Lang and Ewoldson this volume). Typically, participants are exposed to some media messages or stimuli and asked to introspect and rate their emotional experience on two or three semantic differential scales representing the different dimensions of emotion. In general, these kinds of self-reports correlate with specific physiological measures (e.g., Lombard et al. 2000; Simons et al. 2000, 2003). However, in some studies, the emotional influence of presentation and formal attributes appears to affect self-reports of emotional experience more than the physiological correlates of valence (Detenber et al. 1998, 2000) and arousal (Ravaja 2004). Scholars have argued that conscious report of emotional experience suffers from impression management efforts by subjects, giving rise to results which may not accurately reflect their real experience while physiological measures assess autonomic responses which cannot be consciously controlled and are thus immune to the kinds of biases sometimes seen with self-report measures (e.g., social desirability) (cf. Lang and Ewoldson this volume). On the other hand, it is also possible that some structural features may indeed influence the experiential aspects of emotion more than the physiological or behavioral components.

The most widely used physiological measures of emotion in communication research are heart-rate (HR), various types of skin-conductance (SC), and facial muscle activation (see Lang and Ewoldson this volume). Other less common measures are the startle response, the postauricular response, and cortisol levels. Each of the techniques is related to one of the two principal dimensions of emotion: valence and arousal. Specifically, hedonic valence can be indexed by HR, facial electromyographic activity (EMG), startle responses, and the postauricular response. In general, in a short-term viewing measurement paradigm (e.g., 6 seconds) subjects exhibit heart rate deceleration when they are viewing unpleasant stimuli, while pleasant stimuli result in an acceleration of heart rate (Fitzgibbons and Simons 1992; Simons and Fiorito 1994). However, in certain media contexts (TV viewing, radio listening, and web surfing), heart rate does not appear to be a good measure of valence, as has been seen in the picture-viewing world, but rather seems to be a better indicator of cognitive effort or attention, both of which are closely related to arousal (Bolls et al. 2001). Skin-conductance, a measure of electrodermal activity (EDA), is one of the primary psychophysiological indicators of activation in the sympathetic nervous system and is very closely correlated with self-reported emotional arousal (Lang 1990; Hopkins and Fletcher 1994). These physiological measures, often used in conjunction with self-reports of emotion, can provide a multi-faceted view of affective experience.

Formal features

Color and emotions

Color is an essential feature of the world that has both perceptual and symbolic significance and can influence people's cognitive and emotional responses to media.

While research on color has been conducted across a number of disciplines, including art, anthropology, architecture, psychology, and philosophy, in communication studies, scholars have studied its effects on attention, memory, persuasion, perception, and emotional response, across both print and electronic media (e.g., Gilbert and Schleuder 1990; Detenber et al. 2000; Lichtlé 2007). There are basically two theoretical approaches media scholars have taken in current color research. In the first approach, color is defined as 'the presence of the full spectrum of visible wavelengths,' which is combined with other features such as shape, size, and angle to form an integral image (Gilbert and Schleuder 1990: 749). From this perspective, color is considered in contrast to achromatic or 'grayscale' representations (i.e., black and white), and the central question addressed is whether color or black and white images have stronger influence on individuals' cognitive and behavioral responses. The other theoretical approach views color as a construct consisting of three dimensions: hue, saturation, and lightness (Valdez and Mehrabian 1994). Hue, referring to the position of the color on the chromatic spectrum, describes the dominant wavelength of light – for instance, red or blue. Saturation refers to the intensity of color, and the dimension of lightness or brightness concerns the amount of light color reflects. Research based on this dimensional approach typically examines the effects of hue and luminance, or differences between colors. What follows is a brief review of color and emotion starting with research comparing colors followed by studies examining color versus black and white.

Each color component – hue, saturation, and lightness – has been shown to have an independent effect on arousal. For instance, Jacobs and Suess (1975) found that the simple presentation of red and yellow on a screen produced higher anxiety levels than did green and blue. Wilson (1966) suggested that 'warm' colors (red, yellow, orange) are physiologically more arousing than 'cold' ones such as blue and green. Also, colors with strong saturation are viewed as more arousing than weakly saturated colors (Mikellides 1990), while lightness has an independent negative influence on emotional arousal regardless of its level of saturation (Valdez 1993; Gorn et al. 1997). Pleasure and dominance, the other two dimensions of emotion, also vary with levels of saturation and brightness. Scholars have suggested that subjects prefer strongly saturated and light colors to 'pastel' and 'dark' colors (Guilford and Smith 1957). Valdez and Mehrabian (1994) required subjects to rate their feelings when exposed to different levels of hue, lightness, and saturation. They found that lightness and saturation are positively linked with pleasure, with brightness yielding a stronger emotional experience. Lightness was found to be negatively related to levels of dominance, while saturation was positively linked with dominance (Valdez and Mehrabian 1994). Although there are universal aspects to color sensation and perception and general patterns of emotional responses, the meaning and significance of color differences vary across cultures (Lichtlé 2007) and are subject to social and historical forces, making categorical statements about color's influence difficult.

Scholars have also examined the influence of color versus achromatic images on different aspects of emotion across media content. Some research on print advertising has suggested that people find color more attractive than black and white (Hornik 1980; Garcia and Fry 1986; Garcia and Stark 1991). However, the emotional impact of color in photographs seems to vary with content (cf. Kappas and Mueller this volume). Bradley et al. (1998) reported that subjects' responses to color

compared to monochromatic photographs were more positive for certain categories of still images than others, yet they did not find a significant effect of color overall. Similarly, Livesay and Porter (1994) found no significant effect of color compared to monochrome versions of neutral and emotional-arousing still images on emotional or physiological responses, and Winn and Everett (1979) found that less than 10 percent of the color versions images in their study were rated more positively. In terms of television programs, empirical research also provides somewhat inconsistent findings. Some studies indicated that color increases the liking of television programs (Scanlon 1970) and the perceived aesthetic quality of political TV ads among women (Donthu et al. 1993). Thurman et al. (1983) found that although participants subjectively reported a preference for color over black and white television presentations, their actual viewing behavior favored black and white programs. Detenber et al. (2000) had participants view color and monochrome film clips and found that color yielded a small but consistent effect on the self-report of arousal and valence dimensions of emotion but had no influence on heart rate, skin conductance, and facial expressions. This pattern of results suggests that color may amplify the inherent emotional significance of visual stimuli (e.g., brown chocolate cake is more stimulating to the appetite and red blood is more aversive than their achromatic versions) in the domain of subjective experience, but perhaps not otherwise. Thus, while color appears to be a very salient and important attribute of media, its power may well be more assumed than actual, as Josephson (1996) has noted.

From an LC4MP perspective color may not be a consistently motivationally relevant feature. Lack of color is a regular occurring feature of the real world. At night, in the rain, in a fog, and another naturally occurring circumstances color is very difficult to discriminate. Therefore, it would not make sense for the lack of color to necessarily signal the need for motivational activation. On the other hand, it is undoubtedly true that certain colors, and color in certain circumstances are learned motivationally relevant signals which vary by culture. This conceptualization of color coincides with the inconsistent findings in the literature and may indeed explain some of the findings above which note effects of color with certain types of contents but not with others.

Motion and emotions

For communication scholars and others, motion and its effects on media audiences have been the subject of thorough examination. Motion is a fundamental attribute of objects and the human brain has evolved in response to it: the brain has specific nerve cells to identify and process motion (Goldstein 1989), and this processing is automatic (Ball and Tronick 1971). Cognitive psychologist J.J. Gibson (1979) theorized that motion provides people with virtually all of the information required to perceive size, distance, speed, and the relative positions of objects in the world. From an esthetic perspective, Zettl (1973) has distinguished three types of motion in filmic presentations: primary, secondary, and tertiary. Primary motion refers to object motion; in other words, the movement of objects in front of the camera. Secondary motion refers to the movement of the camera itself rather than objects in front of it. Tertiary motion is created by the editing of images into sequences of shots. Different types of motion have different influences on viewers' cognitive and emotional responses.

Motion is a defining characteristic of film and television that can elicit and sustain attention or cortical arousal, and evidence for this comes from a variety of physiological measures (Reeves et al. 1985; Lang 1990; Reeves and Nass 1996; Simons et al. 1999, 2003; Ravaja 2004). Motion on web pages in the form of animation and banner ads has also been shown to elicit attention and affect memory (Li and Bukovac 1999; Heo and Sundar 2000; cf. Gratch this volume). From an LC4MP perspective all motion is not created equal. Certain types of motion should elicit orienting responses, or attention, such as motion onsets, offsets, and direction changes. Other types of emotion should elicit motivational activation, in particular these would include motion toward the viewer, extremely quick motion, and sudden onset motion. These are the sorts of motion that elicit automatic protective responses. As a result, they elicit automatic activation in the first motivational system, which should be seen as increased arousal, potentiated startle, and increased corrugator activation. In addition, they may increase experiential emotion (both increased arousal and increased valence) as a result of that motivational activation.

Several studies comparing the effects of moving and static images have yielded consistent results, indicating a positive relationship between motion and the arousal dimension of emotion. Detenber et al. (1998) reported that moving pictures elicited greater arousal, both subjectively and physiologically, as compared to still pictures, and the result was consistent across a wide range of positive and negative content. This pattern of results was replicated with different stimuli and using different experimental designs to ensure that the variance in emotional arousal can be attributed to image motion rather than viewing context or image content (Simons et al. 1999, 2000). Using the same image viewing paradigm, Simons et al. (2003) added EEG as another measure to record the fluctuations in alpha brain waves (an indication of cortical activation or attention). The results indicate that moving images elicit larger drops in alpha power (i.e., greater attention) than still images, and that motion-induced increases in attention are significantly related to subjective reports of emotional arousal. In contrast, Ravaja (2004) found that moving images of faces (compared to still images of newscasters' faces) increase self-reported arousal, but had no effect on the physiological measure of arousal, SCR. This different pattern of results may be accounted for by the fact that the study used 3-minute stimulus presentations rather than the 6s viewing period used in the Simons et al. studies.

Motion's effect on hedonic valence appears to be dependent on the content of images shown. Ravaja (2004) found that both self-reports and facial EMG indicated more positive responses to moving newscaster faces than still images of their faces. However, studies using a wide range of stimuli with varying types of emotional content (Detenber et al. 1998; Simons et al. 1999, 2000) found only subjective influences of motion on valence. Furthermore, participants reported that negative images (e.g., a snake, an open wound, etc.) seemed more negative, and positive images (e.g., a baby smiling, a sailboat gliding over a blue sea, etc.) seemed more positive in the moving condition than in the still condition. However, there was no evidence of motion's effect on valence in the physiological indicators, facial EMG, and heart rate. These results suggest two things: that motion's impact on valence may be more conscious than visceral, and that it can be somewhat attributed to increases in arousal. Although the two dimensions are conceptualized orthogonally,

empirically, valence and arousal have a small but consistent curvilinear relationship such that higher levels of arousal are associated with both greater positive and greater negative feeling (see Lang et al. 1993).

Technological advancements have created tremendous opportunities for communication of all kinds on the internet. Relevant to this review is the advent of animated banner advertisements on the web. Banner advertisements that use moving images and graphics have the ability to highlight and reinforce information (Ellsworth and Ellsworth 1995) and make web pages look 'cool' and innovative (Thomas and Calder 2001). Web designers believe they can also improve users' understanding of advertising content and increase the click through rate (CTR), if applied properly (Nielsen 2000). A recent study by Yoo et al. (2004) supports this view: animation was able to attract more attention, produce better memory, more positive attitudes toward the ads, and raise the CTR. However, other research suggests that animation may not have the kind of positive effects on recall that advertisers would like to see (Bayles and Chaparro 2001; Bayles 2002). Lang et al. have shown that users do indeed have orienting responses (as measured using heart rate) to the initial appearance of animated banner advertisements; however, these orienting responses habituated extremely quickly and resulted in an increase in memory only for the object which was moving, not for the content (brand name or brand claim) of the banner advertisement (Lang et al. 2002). Other studies have shown that animation leads to increased physiological arousal (Heo and Sundar 2000). In a recent study, Sundar and Kalyanaraman (2004) examined skin conductance responses to slow and fast animation. The results indicated a higher skin-conductance level when subjects were exposed to fast compared to slow animation ads. However, it is difficult to be certain if this is an effect of attention (i.e., increased SCR associated with an orienting responses) or physiological arousal associated with an emotional experience.

Pacing and emotions

The effects of the pacing of television and radio structural attributes, as a formal feature of media, on information processing and emotional responses have been widely examined. In most scientific studies of media, pacing is defined as the frequency of the occurrence of structural features in a message. Television structural features include cuts, edits, zooms, and movement, while structural features for radio including voice changes, sound effects, music onset, etc. In some studies, the rate of occurrence of a single type of structural feature has been examined (Lang et al. 1999, 2000; Potter 2000), and in others an entire group of structural features has been used (Potter and Callison 2000; Potter and Choi 2006; Potter et al. 2008). In general, studies examining the effect of pacing in radio and television messages on emotion have found that faster-paced messages increase self-reported positive emotion and arousal (Lang et al. 1999, 2000, 2005, 2007b). Physiological indicators of emotion also suggest that pacing increases emotional experience. In general, fast-paced messages elicit increases in some measures of electrodermal response. For example, fast-paced messages generally increase the frequency of skin conductance responses and slow the decrease in tonic skin conductance level that is generally seen in the television viewing context indicating an increase in physiological arousal.

In general, it has been difficult to separate the study of pacing from the study of the more general concept of message complexity (Potter and Choi 2006). However, most studies looking at message complexity have not examined emotional responses but are more focused on cognitive measures such as attention, encoding, storage, and retrieval. Recent research has been done (Lang et al. 2006, 2007a; Fox et al. 2007) which has attempted to separate the influence of pacing and complexity and examine their effects in messages of varying emotional content. However, this research has been primarily focused on how emotional content interacts with message complexity to influence information processing and has not focused on how the complexity has influenced the emotional responses.

From an LC4MP perspective, pacing is not likely to be particularly motivationally relevant. There is no particular reason why increasing the rate of change should lead to appetitive or aversive activation. On the other hand, it is likely to increase the frequency of orienting responses, and the level of cognitive effort needed to process messages. These two results, in combination, likely drive up sympathetic nervous system activation in order to support this level of effort, which may be interpreted experientially as increased arousal and would create increased skin conductance as seen in many of these studies. At the same time, also as seen in these studies, pacing would have little effect on valence.

Camera angle and point of view

The camera angles used (e.g., high versus low angle), and whether one uses a subjective or an objective camera angle, have also been found to have effects on emotional, cognitive, and evaluative responses (Kraft 1987; Meyers-Levy and Peracchio 1992; Bradley et al. 2006; Cummins et al. 2008; Unz this volume). A fair number of studies have examined the influence of camera angles on evaluations and responses. In general, objects and people are evaluated more favorably when viewed from below compared to when viewed straight on or when viewed from above (Meyers-Levy and Peracchio 1992). Similarly, whether media are presented in first-person (subjective) or third-person (objective) views also influences arousal, emotional response, and presence. In general, studies have reported that first-person point of view is often more engaging and arousing (Krcmar and Farrar 2009). In a recent study, sports fans reported a greater sense of presence during plays seen through an overhead subjective camera compared to an objective sideline camera. The effect was larger for plays that were intrinsically less exciting (Cummins et al. 2008).

Narrative structure

Another element of the structure of the media message is the presence or absence of narrative. Defining narrative is complex (Fisher 1985a, 1985b, 1989) and its presence or strength has been operationalized in many ways. While in some respects it does refer to story or content, it can also be conceptualized as providing a frame or structure to media messages. Considered this way, narrative structure has been found to increase emotional response in multiple media formats and platforms including broadcast news (Lang et al. 2003), video games (Schneider et al. 2004), advertising (Thorson 1989; Shin et al. 2008), television programming (Lang et al. 1995; Zillmann this volume), and health communication (Dunlop et al. 2008; Turner this volume).

Presentation features

Image size

Unlike formal features, which are generally 'fixed' in media messages (i.e., determined by media producers and inalterable after production), presentation attributes such as image size are controlled by the audience or users. That is, some aspects of the experience of mediated presentations are solely determined by the end user based on choices they make in acquiring a delivery system, which have long-term consequences, and more ephemeral choices based on contextual factors (e.g., how loud to set the volume given ambient noise levels). Greater variance in presentational forms of media messages over time and the likelihood that these user-controlled features meaningfully alter mediated experiences has prompted researchers to examine more closely the influence of these variables (Reeves et al. 1993). One of the earliest empirical studies on the influence of screen size on emotion was Shapiro's (1986) examination of viewers' arousal in response to messages presented on a 72-inch, 19-inch and 5-inch screens. As hypothesized, the larger screen size elicited greater arousal, as indicated by increased galvanic skin response. The explanation Shapiro offered was simple: a bigger stimulus meant a bigger response.

In general, empirical studies have found that viewers' self-reports and physiological measures of arousal increase with screen size. Using the SAM scales, Detenber and Reeves (1996) found that participants reported increased arousal when viewing film clips on a large screen compared to a medium-sized screen. Reeves et al. (1999) replicated this finding and found additional support for the influence of screen size in greater electrodermal activity (EDA) during viewing of clips on a large screen, as opposed to the medium and small screens. Research by Lombard et al. indicates that watching television on a large screen leads to more positive, exciting, intense, and realistic perceptions of the content, and greater perceived realism is associated with higher arousal (i.e., higher skin-conductance level: Lombard 1995; Lombard et al. 1997, 2000). Findings from a recent study on affective responses to pictures also suggest that emotional modulation of skin-conductance varied linearly with stimulus size (Codispoti and Cesarei 2007).

Results have consistently shown that larger images elicit more intense responses than smaller images, and there are several possible explanations for this. One is that larger displays are perceived to be more novel and novelty can induce increased emotional arousal (Detenber and Reeves 1996). However, one would expect that the novelty would wear off over time, but the evidence indicates the relationship between screen size and arousal is persistent. Another possibility is that larger screens make objects appear to be closer and may, by occupying a greater proportion of the visual field, trigger a looming effect which can give rise to increased arousal in viewers (Reeves et al. 1999). Finally, it could be that large screens present images more vividly than small screens, which allows people to respond to the images as if they were real rather than mediated (Neuman 1990; Grabe et al. 1999; Lombard et al. 2000). Support for this theoretical proposition can be found in the research of Nico Frijda (1988). In his seminal work on how emotion operates, he articulates the law of apparent reality, which states that emotions are elicited only by events appraised as real, and the intensity of these emotions corresponds to the degree to which these events are appraised as real (Frijda 1988; cf. Konijn and ten

Holt this volume). Thus, if larger screens create a greater sense of reality (and this could be construed in a number of ways), then it is logical that there would be greater arousal or intensity in the emotional responses of viewers.

Unlike the consistently significant influence of screen size on arousal, image size appears to have little effect on valence. To some extent, larger images may increase the already existing feelings of positivity or negativity, but these effects have not been consistently found. Thus, scholars tend to agree that image size produces larger effects on arousal than on valence.

More recently, screen-size research has focused increasingly on small mobile screens (cell phones and ipods). In a recent study comparing 32-inch televisions to iPods, results showed, as expected, that the larger screens elicited more presence and immersion in viewers; however, these results were mediated by pacing. Participants felt more presence in slow-paced large-screen conditions but they felt more immersion in fast-paced small-screen conditions. This study also examined audio delivery, either through headphones or three speakers, and found that headphones lead to a greater sense of immersion compared to speakers (Bracken et al. 2008).

From the LC4MP perspective, it is likely that size matters. In particular, things that are much larger than they should be (in real life) or things that fill the visual field are likely to be motivationally relevant. Size provides an automatic indicator of distance and closer things provide both greater threats and greater opportunities. Therefore, when things are shown in sizes which suggest that they are close, then to the extent that the content of the large thing is motivationally relevant, it should activate the appropriate motivational system and thereby alter emotional experience. However, this approach would suggest that there is an interaction between the thing and the size and the stimulus would not become motivationally relevant until it was shown in a size that suggested it was close enough to be a threat or an opportunity.

Control

Given the rise in interactive media, it is not surprising that some people have begun to study how having control over the stimulus influences emotional responses. In a series of studies, Kevin Wise has examined how having control influences emotional responses to various type of media messages including television (Wise et al. 2008) and computers (Lang et al. 2002; Wise and Reeves 2007). In general, he has found that when users are in control of message onset, they report feeling less of an emotional response than when the medium is in control. However, despite reporting less emotion, they have larger skin conductance responses, which are often indicative of physiological arousal.

Download speed

Another variable somewhat under the control of the media user (and generally not controlled by the producer), is the speed with which audio and video material is downloaded when using on-demand media. In a series of studies which varied the speed with which images are downloaded, Sundar and Wagner (2002) found that download speed does affect physiological arousal; however, the effects are mediated by content. Some content (e.g., erotica), when revealed slowly, increased arousal,

whereas other types of content (e.g., flowers), when revealed slowly led to less arousal.

Image quality

There is a commonly held belief that the better the picture, the more people will feel present and the stronger will be their emotional responses. Recent research has compared high-definition television to standard television and found that viewers felt more presence and self-reported feeling more negative physiological responses when viewing high-definition compared to standard television (Bracken 2005). Other studies, however, have not found differences in emotional responses to variations in video quality, though variations in sound quality have been found to have a large impact on emotional responses. Specifically, poor audio quality diminishes emotional responses (Reeves and Nass 1996).

Conclusion

Form and presentation play a role in the amplitude and direction of our emotional responses to media. Certainly, their effects on emotional responses are much smaller than the effects elicited by the content of the mediated message, but they are not negligible. Examining form and presentation attributes and their relationship to cognitive processing and emotional responding provides a more systematic understanding of how people experience media, and will help scholars to move away from simplistic media effects research and claims. That is, we are advocating a more holistic and cognitively oriented approach to understanding media influence, and a move away from the ‘you are what you eat’ approach to media consumption that pervades much of the popular literature and even still some scholarly work.

As such, we believe that future research on emotional responses to media should aim to take into account not only content, but also form and presentation attributes. Although there is a substantial body of research on noncontent attributes, more work in general is needed to understand mediated experiences. In addition, future research may want to focus on cultural shifts and technological advances that have psychological significance. For example, the influence of narrative structure and interactivity deserve more attention, as both are likely to change in the near future and moderate the impact of content. Other presentation attributes that are likely to affect cognitive and emotional response to media are three dimensional (3-D) displays and other immersive technologies, including augmented reality systems. Currently, the use of augmented reality (AR) systems is limited to specialized applications, but as with many new technologies its use is likely to spread to everyday applications (cf. Gratch this volume). The blending of mediated and unmediated experience that AR affords presents intriguing prospects for both researchers and commercial entities looking to provide people with unique and compelling experiences.

Some may argue that separating form from content is impossible – that they are bound inextricably in media messages, and that research such as that reviewed in this chapter is reductionistic and unnatural. Our response to that is a scientific approach to emotion requires systematic investigation where control is used judiciously to help provide clarity to complex processes. As we come to understand

more about how and why emotions occur, it starts to become clear that although he was no cognitive psychologist, Marshall McLuhan was right about the power inherent in the medium in spite of the content.

The notion that form influences emotional responses is not inherently reductionist. Every person who shops for a high-definition big-screen TV is doing so because he or she thinks it will improve the viewing experience – and that does not mean their ability to understand what is happening – but rather their subjective, emotional responses to what they watch. They want the game to be more exciting, the story more engrossing, and the overall experience to be more all encompassing. In short – they are looking to boost their emotional responses to the same old programs. The same is true when you buy better speakers to listen to your music, buy a bigger monitor, or invest in surround sound. Sometimes we use these features to dampen our emotional response – we move further away from a scary movie or turn down the volume. These, of course, are all examples of what we have called presentation attributes – and are under the control of the media user. People control them all the time in order to alter their emotional experience of media.

Formal features are the producer's opportunity to do the same thing. When reporting less interesting news, one can increase the pacing of the production to hold attention and increase arousal. When Dorothy lands in Oz and the movie switches from black and white to color, you truly feel that Oz is bright and happy and amazingly not like drear, drab, grey Kansas. When Bill Clinton walked toward the camera (thereby getting bigger and looming) during an early town hall meeting in his first presidential campaign, it had a huge impact on people's attention and on their feelings. Nixon's lack of makeup made Jack Kennedy more attractive. Showing candidates from above instead of below makes them less likeable. These are real effects which are made more powerful because they generally function below the level of conscious thought. They have their way with the viewer – without the viewer even knowing it has been done. Understanding these and other interactions among content, presentation, and formal features of media will allow us both to produce more effective media and to create a more media literate populace.

Note

- 1 In this chapter, form and structure are regarded as synonymous and distinct from content. Therefore, formal features and structural attributes refer to essentially the same thing: non-content characteristics of messages that can vary independently of content but are decided upon and set (i.e., 'fixed') at the time of message production. Presentation attributes are also noncontent attributes, but they are not fixed in a message, and can vary with user discretion or audience choices. A fuller description of presentation attributes follows.

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17 Effects of presentation and editing on emotional responses of viewers

The example of TV news

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What role do presentation features play for the processing of TV news? Are they appropriate means to attract attention and to emotionally involve the audience, thus signaling relevance and supporting deeper understanding? Or are attention-grabbing features inappropriate means that signal entertainment, support a superficial attitude toward the content and hinder deeper processing and understanding? The present contribution deals with the emotional processing of TV news and the role of presentation modes and editing. The chapter starts by outlining the importance of TV news. Then, the basic concept of emotion is presented and it is shown that media input may stimulate emotions and ongoing appraisal processes. The following remarks discuss different aspects of emotional responses to TV news. Although content and editing is confounded and presentation features develop impact only in the context of a story, the arguments try to focus on separate effects. First, presentation features within editing effects are considered. Second, the aspect of framing is considered, thus focusing on content aspects. Finally, the interaction of content and presentation is described. The conclusion highlights the importance of emotions for a better understanding of TV news.

TV news and its function in democratic societies

In democratic societies “being informed” is regarded as part of the citizen’s duty in order to form a political opinion and to participate in political life. The media, on the one hand, play a major role in the transmission of information about current events, and are thought to be very influential. To fulfill its democratic responsibilities, the audience, on the other hand, is expected to consume news with a high level of attention in order to get detailed information, and to learn as much as possible. Corresponding to these expectations, television is the principal source of information about current events for most people, and getting the news belongs to their daily routines (Pew Research Center 2006). Research indicates that the acceptance of the civic duty to be informed is correlated with the frequency of news consumption (Poindexter and McCombs 2001).

In contrast to the expectations that the audience should learn as much as possible, many studies show that people remember only a relatively small amount of information presented in the news. The audience’s memory and comprehension of news is often very poor (Schaap et al. 2001). Nonetheless, the audience feels well informed (Robinson and Levy 1986). Therefore, Winterhoff-Spurk (1983) argues that the existence of highly motivated viewers, who are eager to learn and to seek

information, is a widespread fiction in news research. Consuming the news cannot be equated with rational, highly involved information processing. People rather watch the news without great attention and interest, and without the objective to learn any details; it seems that they want to assure themselves that nothing important has happened, that the world keeps on going as usual. Some scholars suggest that consuming television news is associated with a rather heuristic mode of information processing (Brosius 1995).

To resolve these discrepancies, it may be helpful to consider people's motivations for watching news. Uses and gratifications research has identified a series of motivations drawing people to news media. The news serves needs beyond orientation; it also fulfils affective and social needs (Perse 1990). Television news connects the individual to society and provides topics to talk about. Watching the news is not only a matter of being well informed but is also a kind of social activity and entertainment (McQuail 2001).

In order to attract the audience, formal and content elements are embedded in news reports that should trigger attention and emotions in the viewers. A fact which is severely criticized on the one hand: 'Attention-grabbing production features are viewed as inappropriate for news packaging, suspected of blurring the line between information and entertainment, and they are thought to exaggerate factual content' (Grabe et al. 2003: 388). But on the other hand, emotional involvement is at the same time seen as a precondition for knowledge acquisition (Grabe and Zhou 2003). Since emotions are elicited in goal-relevant settings, emotions are signifiers for relevance and influence both attention and information processing (cf. Konijn and ten Holt this volume). 'Emotions ... prompt construals of the world in terms of concepts that are appropriate to the decisions that must be made' (Cosmides and Tooby 2000: 13). Nabi (2003), for instance, showed that fear and anger can differentially affect information accessibility, desired information seeking, and policy preference.

The present contribution hence deals with the emotional processing of TV news and the role of presentation modes and editing. First, theoretical considerations about emotions and the processing of media-induced emotions are briefly outlined. Then the role of presentation modes and editing for emotional processing is considered. Even though media-induced emotions are processed in the same way as naturally occurring emotions, emotions induced by media may differ in some aspects from naturally occurring emotions (Scherer 1998). It is supposed that content-related as well as formal attributes may initiate and influence appraisal processes. From the perspective of media psychology, the specific characteristics of media submissions which remain relatively stable throughout different types of usage are of particular interest (Schwan 2001). Formal attributes of the media presentation might offer the perceiver cues for the emotional classification of a conveyed event, thereby triggering appraisal processes and influencing a recipient's further emotional processes (cf. Detenber and Lang this volume). Even though theoretical considerations suppose an influence of formal attributes on emotional processes, only very few studies regard the relationship between formal attributes and emotions. Therefore, research coming from different areas that link presentation features to certain steps of emotional processing is considered. After regarding the theoretical background of media-induced emotions, theoretical assumptions and research on the impact of formal features on cognitive processes that can be linked to emotional processes in very different areas are outlined. Upcoming

sections focus on research on emotional responses to TV news and, finally, consider the role of presentation modes and the role of editing used in TV news for the emotional processing in particular.

Emotional processing

Emotions are key features of our mental architecture (e.g., Schwab and Schwender this volume). They are activated by specific cues in our environment and focus our attention on urgent and relevant aspects of information. Emotions afford a fast evaluation of a specific situation and they initiate cognitive and physiological processes to support rapid reactions (Cosmides and Tooby 2000). Most theorists support the view that emotions are constituted by several components (e.g., Frijda 1986, Lazarus 1991; cf. Barlett and Gentile this volume). The component-process model of Scherer, as a very prominent model (for a description of the most recent version, see Scherer 2001, 2005), distinguishes between five sub-systems of an emotion: (1) the cognitive appraisal; (2) the physiological arousal; (3) the motor system, and most notable the facial expression as part of this system; (4) the subjective feeling; and (5) the motivational system. The model assumes that within an emotional episode there is a component patterning process driven by the cognitive appraisal. Individuals constantly evaluate the ongoing situation concerning relevance, implications, coping potential, and normative significance. First, the relevance of an event is appraised (including novelty, intrinsic pleasantness, and goal relevance appraisals), followed by an evaluation of the implication (with causal attribution, outcome probability, discrepancy from expectation, goal/need conduciveness, and urgency appraisals). Next, the coping potential is appraised (comprising control, power, and adjustment appraisals) before finally the normative significance of the event is assessed (including internal and external standards appraisals). The result of each check modifies the state of each subsystem in the direction of an adjustment to the event. The pattern of changes in all components is manifested in the subjective feeling component.

Media-induced emotions

Scherer (1998) assumes that media-induced emotions are processed in the same way as naturally occurring emotions (cf. Konijn and ten Holt this volume). Research on narrative contents emphasizes relations to emotional experience. Roseman (1991) manipulated narratives on five appraisal dimensions. Subjective experience reported by subjects corresponded to a great extent to the predictions made by appraisal models (Roseman and Smith 2001). Nevertheless, emotions induced by media may differ in some aspects from naturally occurring emotions (Scherer 1998). Since, in most cases, events conveyed by mass media concern a multitude of people, the relevance of such an event may be of a more general nature than in the case of direct experience. In addition to that, events conveyed by mass media often do not refer to individual goals, but rather to culturally shared goals, norms or values. The interest in news may have, as Schwab and Schwender (this volume) noted, its origin in a 'surveillance module' (see also Shoemaker 1996). Humans thus are primarily interested in fitness-threatening information that directly threatens life and limb or delicate social balance.

The stimuli conveyed by the medium are evaluated in parallel through cognitive appraisal steps on three levels: (1) a quick and automatic processing of biologically rooted evaluations on the sensory-motor level; (2) an evaluation based on experience and learned patterns on the schematic level; and (3) conscious, conceptual processing (Kappas and Müller 2006). It is supposed that content-related as well as formal attributes may initiate and influence appraisal processes.

According to Salomon (e.g., 1994), media may convey transformations via symbol systems (e.g., specific means of representation, such as tracking shots, camera movements or zooms), which are similar or analogue to processes people mentally conduct. Symbol systems differ with respect to the kinds of information they are best suited to convey. They characterize the way in which information is organized and presented, and influence the way in which meaning is construed or generated. Although the work of Salomon is exclusively about cognitive processes, Salomon himself assumes influences on emotional processes: 'the experienced horrors of "Clockwork Orange" or the possible better understanding of group processes after viewing "Twelve Angry Men" are greatly due to the visual mode and the unique "languages" of such films, not just the content' (Salomon 1980: 327).

The question arises if symbol systems – through mechanisms of activation, short circuiting or supplantation posited by Salomon – interact with emotional processing. It can be assumed that the formal attributes of media presentation might offer the perceiver cues for the emotional classification of a conveyed event, in this way triggering appraisal processes and influencing a recipient's further emotional processes. Symbol systems differ with respect to the kinds of information they are best suited to convey (e.g., Salomon 1979). Particularly film and TV contain in their symbolic systems specific codes to represent relatively unique transformations in space and time (e.g., slow motion, zoom, rotations; cf. Cupchik and Hilscher this volume). Motions in space and time are important aspects of emotions, related to action tendencies of withdrawal or approach as adjustments of distance as well as acceleration or deceleration up to motionlessness as adjustments of speed (e.g., see description of links between emotions and action tendencies by Frijda 1986 or Oatley 2004). Whereas in everyday life individuals regulate the distance to other persons or objects depending on pleasantness, in audiovisual media camera work takes over the regulation, for example, by the chosen camera perspective or size of shot. Velocity is used in audiovisual media to express comic (fast motion) or tragic (slow motion) (Visch and Tan 2007). Thus, the question is raised as to whether camera work and editing techniques may represent transformation in space and time that can reflect aspects of emotional processing.

Although these theoretical considerations suppose an influence of formal attributes on emotional processes, only very few studies about the relationship between formal attributes and emotions exist. However, research coming from different areas point to the role of formal attributes for the emotional processes. Even though the studies do not focus explicitly on emotional processing, the results link presentation features to certain steps of emotional processing or to outcomes of appraisal checks. Some considerations about editing aspects are conceptualized for narrative films (e.g., Ohler 1994) or for learning settings (e.g., Schwan 2001). Nevertheless, these considerations address general psychological processes of our mental architecture and the way in which knowledge is structured and organized in memory, such as the concept of schema theory (e.g., Unz 2008). Schwan et al.

(2000), for example, show that film cuts can facilitate the cognitive organization of sequences. Thus, these considerations and findings are of concern when thinking about the emotional processing of TV news.

The limited capacity model of motivated mediated-message processing (e.g., Lang 2000; see also Detenber and Lang this volume) suggests that structural features in mediated messages may trigger orienting responses; these activate the motivational systems and influence cognitive and emotional responses to messages. Lang et al. have presented numerous studies which illustrate the influence of editing on arousal, orientation response, and attention (e.g., Lang 2000; Lang et al. 2007; Lang et al. 2000; see also Detenber and Lang this volume). In their experimental paradigm participants watch television messages which vary in structural and formal features, as in the number of camera changes and the amount of information introduced by those camera changes. It is assumed that a cut or a camera change signals the onset of novel information and induces orienting responses in viewers, resulting in automatic allocation of processing resources. The studies use various variables as operational definitions of an orienting response, including skin-conductance increase (Lang et al. 1999), cardiac deceleration (Lang et al. 1993), alpha-wave decreases in the brain (Reeves et al. 1985) or blood pulse wave (Lang 1990), and on the whole, the studies show that formal features such as editing, camera changes and film cuts, movement, flashes of light or sound elicit orienting responses (see also Grabe 2000). The orienting response is included in the appraisal of novelty in Scherer's model. Scherer (1984) assumes that the intensity of an orienting response influences the speed of processing of subsequent appraisal checks. There is evidence that camera work may have an impact on further appraisal outcomes such as familiarity or causal attribution. Size of shot influences impressions of familiarity or strangeness (Bente and Fromm 1997). Camera perspective affects the attribution of causality as shown in a study of Lassiter et al. (2002b). In this study, participants were supposed to assume the role of jurors and watched either a suspect-focus or a detective-focus version of a videotaped confession of a burglary. The participants were asked to identify the most informative segments in the video by pressing a button each time when a meaningful action ends and another one begins. The button-pressing responses are indicators of the number of actions discriminated by the participants. The point of view (suspect focus or detective focus) affects how people perceive, that means how they segment information from the observed interaction, which in turn affects their judgments of causality. Participants ascribed greater causality to the interacting person who was more visible to them; this visibility was determined wholly by camera perspective. In a similar study Lassiter et al. (2002a) demonstrated that camera perspective in a videotaped confession influences assessments of the confession's voluntariness and guilt judgments: greater perception of voluntariness and guilt is associated with suspect-focus videotapes.

To summarize: various studies have documented that 'camera and editing techniques, as the form-giving components of news packaging, might be bearers of meaning in the same way that the content of the messages conveys meaning' (Grabe et al. 2003: 388). In this sense, the symbol systems of media convey transformations which are similar or analogue to processes people mentally conduct. Camera work and editing might offer the perceiver cues for the emotional classification of a conveyed event, in this way triggering appraisal processes and influencing a recipient's further emotional processes (see also the subsection 'Emotional responses to TV

news: interaction of content and editing'). Whereas the just mentioned studies focus more or less on the impact of formal features on cognitive processes in very different areas, the next section deals with research on emotional responses to TV news.

Emotional responses to TV news: editing effects

Although reaching back to the 1950s (according to Berry et al. 1980), research on the impact of presentation attributes in TV news is still of little importance compared to other questions of TV news research, as the systematization of research questions by Schaap et al. (2001) indicates.

Studies describe certain presentation features (e.g., story placement and story length, repetition and recapping, visuals, redundancy between visuals and verbals) that can influence understanding and memory (see for an overview e.g., Perse 2001: 148; Wicks 2001). Story placement or story length, for example, can serve as cues for importance, thus attracting attention and increasing memory. Typically, attributes of presentation styles associated with different news genres (e.g., tabloid news, breaking news, traditional or standard news) are investigated. This refers, for example, to visual effects, sound effects, editing pace or slow motions. As part of bottom-up processes, such formal elements can attract attention and evoke orientation reactions, which might lead to mental engagement if the message is interesting or important. But, viewers judge TV news that contains entertaining presentation features such as visual effects or slow motion as less credible, informative and enjoyable (Grabe et al. 2000). 'Tabloid production increases attention. This increase in resources allocated to the message can help or hinder the viewer's ability to remember the information in the message. ... During calm content, when sufficient resources are available to respond to these formal calls for resources, this results in increases in both encoding and storage. On the other hand, when stories are arousing, the resources demanded by arousing content coupled with the additional resources required by tabloid packaging appear to overload processing' (Grabe et al. 2003: 407).

Another line of research which deals with the impact on presentation modes centres on visual presentation of arousing content. Effects of visual images in the media and their social implications are issues in a long-standing debate (see also Kappas and Müller this volume). The charge against images 'involves the belief that the image speaks more directly to the emotions than to the logical mind. ... The image's accessibility may distract the populace from the more cerebral merits of the word' (Huxford 2001: 16260). Lang et al. (1996) examined the effects of graphic negative video (NV) on attention, processing capacity, encoding, and retrieval as well as on self-reported emotional arousal and valence. The stimulus material consisted of eight stories, each of which had two versions: a negative video version with graphic images of death, maiming, and injury and one without these negative images. For example, in a story about an airplane crashing into the crowd at an air show, the negative video version contains clear close-ups of the plane falling into the crowd, followed by close-ups of serious bloody injuries, and the dead and dying. In the nonnegative version, the crash in the air is shown, and then some crowd shots from a distance after the plane had hit the ground. Findings show that viewers had slower heart rates, which are associated with an increase in attention, while

watching news stories containing negative graphic video than they did while watching the same news stories without the negative graphic images. Negative videos increase the self-reported negative emotional arousal, and negative valence increase story retrieval ability, facilitate recognition of information present during the negative video, and inhibit recognition of information presented before the negative video. Prior research on the impact of visuals shows that images can attract attention and interest (e.g., Nisbett and Ross 1980), strengthen emotional involvement (Berry, 1988) and increase retention (Berry and Brosius 1989; Berry et al. 1980; Brosius 1989; Davis and Robinson 1986; Edwardson et al. 1981; Edwardson et al. 1985; Graber 1990; Renckstorf 1980). But these findings cannot be considered unrestrained, content features of the message seem to influence the impact of images as well. According to results by Behnke and Miller (1992), a visual presentation mode seems to be superior when spectacular events are presented. When perceiving emotional images viewers tend to overestimate the extent of problems (Brosius 1993). In contrast to these findings, some authors report no effect of presentational format at all (e.g., Boemak and Ohler 1986; Edwardson et al. 1976). Boemak and Ohler (1986) studied the effect of pictures for comprehension of television news texts by producing three versions of a sequence of film reports from the daily news program of a major West German television network: a pure audio version, a version with one still picture for each report, and a version with moving pictures. The presentation was followed by a recognition test containing target and distractor propositions. Results showed no significant effect of presentation modalities and no interaction effect between presentation modalities and subject matter. Only the subject matter of the reports was statistically significant. The results indicate that the visual design of news transmissions is less important for the effectiveness of reception than their content. However, news issues, which are of personal relevance or trigger an emotional concernment, are remembered best – irrespective of presentation format. Research by Lazarus and Alfert (1964) shows that narratives introduced before the film can influence psycho-physiological reactions to a film. ‘Not the visual as such, but the meaning of the visual would change the level of electrodermal conductivity – an indicator of the activation of the sympathetic branch of the autonomic nervous system’ (Müller and Kappas this volume).

Investigating the impact of violence, a study of Unz et al. (2008) picked up the question of how the formal presentation mode influences emotional responses. It was asked whether the verbal presentation of violence causes less intensive feelings compared to a visual presentation of violence. Explicating the law of apparent reality, Frijda (2007: 9) assumes that symbolic information has weaker impact than pictures: ‘A photograph of one distressed child in Vietnam had more effect than reports about thousands killed.’ When depicted events are felt to be real or possible in the real world, the emotional reaction should be more intensive. This can be discussed as the ‘vividness effect’ (see also Fiske and Taylor 1991; Sparks et al. 1995; Steuer 1992). Vividness can be defined as ‘a combination of clarity and liveliness. The more vivid an image, ... the closer it approximates an actual percept’ (Marks 1972: 83). Several researchers proposed that when viewers perceive the content of a stimulus as factual, they are more involved, which in turn creates greater emotional reactivity (e.g., Zillmann 1991). A few studies demonstrate that perception of realism is correlated with the intensity of emotional response (see Konijn and ten Holt this volume). On the other hand, other studies did not find this relationship

(see for an overview, Pouliot and Cowen 2007). As expected in our own study, formal presentation characteristics did influence the emotional responses of viewers. But, contrary to our expectations, it was not the visual presentation mode that intensified emotional responses, but the verbal mode. Thus, this study found no evidence for a 'vividness effect.' One could speculate that the verbal (symbolic) mode may have led to fanciful visualizations of the reported violent events – as in horror movies where the monster is more alarming as long as it is not fully visible. However, one has to consider that the design did not systematically vary the presentation mode for exactly the same event.

Thus, the presented results point to the fact that visuals attain meaning in relations to the settings. Viewing TV news 'involves the simultaneous processing of word and images, with the voice-over commentary representing a particularly interactive relationship between the two modes' (Huxford 2001: 16263). This interaction may encourage viewers to perceive the presented event in a particular way.

In sum, research on the impact of presentational format indicates that under certain conditions visual images can influence subprocesses of emotions, such as attention, appraisal of relevance, importance or goal conduciveness (cf. Detenber and Lang this volume). Some authors (e.g., Newhagen 1998; Shoemaker 1996) propose that in negative, overwhelming images resembling natural situations in which the survival of the individual is endangered, the biological system reacts automatically with a physiological and emotional arousal, attention, and deeper cognitive processing. Nevertheless, these effects are not independent of issues or content features. Presentation features develop impact only in the context of their dramaturgic function in a narrative; their impact is not invariant up to the content (Ohler 1994).

Emotional responses to TV news: content (framing) effects

The interaction between content and formal features is picked up more explicitly in the concept of framing. Frames are staging patterns in news. Frames give meaning to issues and events. A frame is 'a central organizing idea or story line that provides meaning to an unfolding strip of events, weaving a connection among them. The frame suggests what the controversy is about, the essence of the issue' (Gamson and Modigliani 1987: 143). By emphasizing certain aspects of an issue, frames guide the attention of viewers, offer a certain definition of the problem, a certain diagnosis of cause and effect, a certain moral judgement or a solution (Entman 1993). Several news features commonly convey frames, among which are headlines and tickers, subtitles, photographs, graphics etc. (Tankard 2001).

Only a few studies exist that examine the influence of frames on emotional processes. Framing an issue as unfair advantage is related to emotions such as anger, disgust and fury (Kinder and Sanders 1990). Based on cognitive appraisal models Gross and d'Ambrosio (2004) investigated whether frames that focus on different underlying social conditions of riots differently affect emotional responses of recipients. Few systematic framing effects on specific emotions were found; rather, framing effects depend on individual predispositions. However, frames alter the explanations citizens gave for their emotional response. The persuasive effect of a given frame seems to depend on emotional reactions to that frame (Brewer 2001; Nabi 1998). Episodic frames are more emotionally engaging, but this alone does not make them

more persuasive. Controlling the indirect effect of a frame on emotional response, the thematic frame is more persuasive (Gross 2008). The rather subtle induction of a frame by tickers can influence subjective emotional feelings of viewers, especially the feeling of anger (Unz 2007). DeMartino et al. (2006) investigated underlying neurobiological bases of framing effects. The framing effect was associated with amygdala activity, suggesting that framing effects are based on 'affect heuristics by which individuals incorporate a potentially broad range of additional emotional information into the decision process' (DeMartino et al. 2006: 687).

In summary, this research shows that emotional responses to news may depend on how an issue is framed. These emotional responses may serve as heuristics for further information processes. 'In evolutionary terms, this mechanism may confer a strong advantage, because such contextual cues may carry useful, if not critical information. Neglecting such information may ignore the subtle social cues that communicate elements of (possibly unconscious) knowledge that allow optimal decisions to be made in a variety of environments. However, in a modern society ... such mechanisms may render human choices irrational' (De Martino et al. 2006: 687).

Emotional responses to TV news: interaction of content and editing

Following the above outlined argumentation that (1) media's symbol systems, through mechanisms of activation, short circuiting or supplantation posited by Salomon may interact with emotional processing, that (2) camera work and editing techniques may represent transformation in space and time that can reflect aspects of emotional processing and that (3) presentation features develop impact not invariant up to the content, the question arises if formal attributes of audiovisual media may signify the emotional interpretation of a situation by simulating approach or withdrawal toward a person, an object or a situation, by selecting certain details of a situation (e.g., by zooming or size of shot) or setting temporal parameters (e.g., by cutting frequency or slow motion). Thus, presentation modes may serve as cues for emotional processing and trigger appraisal processes, in a sense of 'emotional framing' or 'fine tuning.' Investigating facial expressions of TV news viewers as observable indicators for emotional processes, temporal structured patterns linking facial expressions to the temporal structure and formal presentation features of news reports can be found (Unz and Schwab 2005; Unz and Winterhoff-Spurk 2005). These patterns indicate that formal or structural features of TV news may initiate cognitive-affective appraisal processes.

In order to examine the relationship between form and content, Unz and Schwab (2008) varied size of shot and cutting frequency for news features that present violent issues. Since the type of violence portrayed in a news report influences the intensity and mixture of experienced subjective feelings (Unz et al. 2008), it is assumed that faster cutting intensifies feelings of anger when watching intentional violence. Slower cutting intensifies feelings of sadness when watching nonintentional violence, close-up shots of violence or persons harmed intensify negative emotions. It is found that negative events are appraised as more intrinsically unpleasant, if close-up shots are used. According to the model of Scherer (2001), the intrinsic pleasantness evaluation determines a fundamental reaction: liking or pleasant feelings, generally encouraging approach, versus dislike or aversion, leading to withdrawal or avoidance. Furthermore,

the results show interaction effects of content and presentation mode on the triad of other critical moral emotions such as anger, contempt and disgust (Rozin et al. 1999), but in a more complex way than expected: when watching a report about an airplane crash, the viewers reported more anger when watching a fast-cut version than for a slow-cut version. This result indicates that anger as an emotional reaction to insults, transgressions, and rights violations against oneself or those close to oneself (Rozin et al. 1999) may be linked to an acceleration of mental processing. On the other hand, watching a report about a collapse of a building, a slow-cutting frequency is linked to an intensification of contempt. This may reflect a decelerated motion of withdrawal, as contempt is an emotional reaction linked to negative evaluation of others and their actions and feeling morally superior to someone (Rozin et al. 1999).

In summary, the very few studies dealing explicitly with the impact of editing on emotional processes indicate that camera work and editing techniques may represent transformations that can reflect aspects of emotional processing as adjustments of distance as well as acceleration or deceleration up to motionlessness as adjustments of speed.

Conclusion

In order to attract the audience, formal and content elements are embedded in news reports that should elicit emotions in the viewers. A fact which is severely criticized on the one hand, arousing features seen as distractors that hinder deep, logical processing of the presented facts; on the other hand, emotions are seen as signifiers for relevance and thus as a precondition for deep information processing. Overall, the presented research results advocate the assumption that formal attributes of audiovisual media may activate emotional processing. The interaction between textual and visual aspects in TV news affects emotions of the viewers in a complex way. Studies about the impact of presentational modes show that under certain conditions visual images can influence subprocesses of emotions, such as attention, appraisal of relevance, importance or goal conduciveness (see also Müller and Kappas this volume). Audiovisual media contain in their symbolic systems specific codes to depict transformations in space and time. Camera work and editing techniques may represent transformations that can reflect aspects of emotional processing as adjustments of distance as well as acceleration or deceleration up to motionlessness as adjustments of speed. Thus, camera and editing techniques may convey (emotional) meaning, they might offer the perceiver cues for the emotional classification of a conveyed event, in this way triggering appraisal processes and influencing a recipient's further emotional processing. Nevertheless, effects of camera work or editing are not independent of issues or content features, implicating a kind of form–content–correspondence relationship (Ohler and Nieding 2002). Presentation features develop impact only in connection with their dramatic function in a narrative (Ohler 1994).

Viewers are confronted with the complex task of making sense of the interaction between textual and formal features that develops over time. The emotional responses of viewers to the interwoven arrangement between textual and formal aspects in TV news may serve as heuristic cues for further information processes (cf. Bucy this volume). Up until now, there are only very few studies that pay attention to the complex interaction between textual and visual features on the one hand and

the specific quality of emotional reactions on the other hand. Regarding the specific quality of subjective feelings, results indicate that TV news viewers primarily react with a cluster of ‘other-critical’ moral emotions (Rozin et al. 1999), reflecting a concern for the integrity of the social order and the disapproval of others (see Unz et al. 2008). News serve a surveillance function (Schwab and Schwender this volume; Shoemaker 1996) and seem to provide explanations for events in terms of moral evaluation: ‘To negotiate that intimate social world, evolution equipped our minds with moral heuristics: decision rules that generate intuitions about fairness and justice, punitiveness and approval, right and wrong’ (Cosmides and Tooby 2006: 205). On this basis of moral emotional judgment, formal presentational attributes superimpose.

To summarize, this chapter holds the following assumptions:

- Emotions afford a fast evaluation of a specific situation. Emotions focus attention on urgent and relevant aspects of information and initiate cognitive and physiological processes to support rapid and rather flexible reactions.
- Emotional reactions are driven by appraisal processes.
- Media-induced emotions are processed in the same way as naturally occurring emotions. Content-related as well as formal attributes of media may initiate and influence appraisal processes.
- Media convey transformations via symbol systems (e.g., specific means of representation, such as tracking shots, camera movements or zooms), which are similar or analogue to processes people mentally conduct.
- Formal attributes can signify the emotional interpretation of a situation by simulating approach or withdrawal from a person, an object or a situation, by selecting certain details of a situation (e.g., by zooming or size of shot) or setting temporal parameters (e.g., by cutting frequency or slow motion).
- Presentation features develop impact only in context of their dramaturgic function in a narrative.
- News serves a surveillance function and seems to provide explanations for events in terms of moral evaluation. On this basis of moral emotional judgment, formal presentational attributes superimpose. Thus, presentation modes may serve as cues for emotional processing and trigger appraisal processes in the sense of ‘emotional framing’ or ‘fine tuning.’

The presented considerations and findings have important implications. Formal attributes are not pure packaging attributes; rather, they bear meaning and can influence appraisal outcomes of novelty (orienting response), intrinsic pleasantness, causality, coping etc. As Grabe et al. (2003: 409) noted: ‘When viewers perceive a clash ... as more intense due to production style, or suspects are viewed as more guilty of a crime. ... journalism critics have reason to raise concern about prejudicial news information.’ In light of these considerations, future studies will have to address the following important research questions:

- How do specific content and specific formal features, on the one hand, and the specific quality of emotional reactions, on the other hand, interact?
- How do viewers make sense of the interaction between content and formal features?
- How does this process develop over time?

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18 Visual emotions – emotional visuals

Emotions, pathos formulae, and their relevance for communication research

Marion G. Müller and Arvid Kappas

Emotions and visuals entertain a complex relationship. Emotions in other human beings are mainly perceived through visualization – for example, facial expression – although other senses than vision might also be involved (cf. Unz this volume). The visual perception of facial and bodily expressions is paramount for the communicative interaction between individuals and groups. Vice versa, visual depictions elicit emotions in the beholder, often triggering a cascade of complex intrapersonal as well as interpersonal communication and regulation processes. Thus, emotional visuals and visual emotions should be considered complementary dimensions of interpersonal, group, as well as mass communication processes.

Introduction

This chapter presents an overview of the intricate and still poorly understood interrelations of emotions and visuals. We take a look at both phenomena and their mutual influences from the dual disciplinary perspectives of emotion psychology and visual communication research. Emotional visuals and visual emotions pose complex questions that necessitate an equally complex interdisciplinary research approach. Expertise in understanding emotional processes is provided by experimental psychology, since the early findings of Charles Darwin (1809–82; cf. Schwab and Schwender this volume). His biological approach to understanding human emotions is the theoretical and historical nexus to understanding visual depictions of human emotion, a topic which the cultural historian Aby Warburg (1866–1929) translated into the concept of ‘pathos formulae.’

We will start out with an overview on research regarding the visual display of emotions, exploring how emotions are elicited, how the psychological theory of appraisal is related to meaning-attribution processes, and which role visuals play in these processes. The section on visual emotions then concludes with considerations on the dependency of emotions and visuals on the respective context in which they are displayed. In a second step, we will inverse the question and explore the findings about emotional depictions in art and mass media, suggesting that certain emotional ‘depiction rules’ influence visual communication processes. The chapter concludes with an outlook on the challenges ahead, arguing for increased interdisciplinary research efforts in the field of visual emotions and emotional visuals.

Visual emotions

Emotions are an evolved set of processes that provide rapid and flexible responses to a large set of situational challenges. Emotions are not unique to humans – Darwin (1872) meticulously demonstrated striking similarities in expressive behavior across species (see also Fridlund 1994). Our increasing knowledge in neuroscience further highlights the similarities between structures and processes in the brain that are involved in emotions or the interplay of emotions and related processes in perception, attention, memory, and action (Panksepp 1998) – particularly within mammals, and here specifically within primates.

The Darwinian framework led researchers to emphasize the *functional* aspects of emotions. While early philosophers might have focused on the disruptive aspect of emotions, in post-Darwinian theories it is now believed that the ‘disruption’ serves an adaptational purpose (e.g., Damasio 1994, 1999). Realizing the danger of a situation, or its promise, is a key element in making successful decisions in everyday life. Hence, many psychologists will underline the complex interaction of motivations and emotions (e.g., Frijda 1986). Objects, events or situations might become emotional because they relate to a particular motivation and emotions, in turn, create motivations. For example, negative emotions bias situations, events, or experiences to be generally avoided and positive emotions provide a bias to search them out (Kappas 2008).

Yet, while human environments have changed dramatically in the last 50,000 years, the makeup of human brains has not (see Tooby and Cosmides 2008). Thus, there are no circuits in the brain that deal with newspapers, no structures dedicated for dealing with film, no unique processes for sculptures. Instead, the large variety of ways we use to work, entertain, or inform in mass communication contexts, or in the perception of art, are all dependent on basic processes that are dramatically shaped and constantly impacted by social processes in a number of personal and institutional contexts and the contents and artifacts that make up cultures. The influence of these, in evolutionary terms, very recent and very human factors is enormous and cannot be underestimated. However, our brains cannot, despite phylogenetically unprecedented plasticity and adaptability, restructure themselves outside of biological constraints (see also Schwab 2008).

It is this conceptual background that leaves us hesitant to talk about *media emotions* or the like (for opposing views see e.g., Bartsch et al. 2007; Grau and Keil 2005). Emotions can be elicited and modulated by a variety of factors that did not exist even a mere 100 years ago, but just as it does not make sense to create concepts such as *peanut butter and jelly emotions*, there is no reason to talk about *film emotions* as a separate entity. This does not imply that there are no movie experiences that are unique – but why people make faces, why their heart rate changes, and why people are drawn into a plot is based on the interaction of their biology and the experiences they and their interaction partners past and present have made. Similarly, reasons why people willingly go to see a horror movie might not be that much different from those taking a roller coaster, or eating a sour grapefruit. In that sense, emotions are a joint product of *genes*, *memes* (Dawkins 1976), and, possibly, *temes*.¹

There is no contradiction in positing both cultural and biological determinants and moderators on emotional processes. Instead, cultural elicitors, moderators,

rules, and descriptors of *things* that elicit emotions and how emotional reactions dynamically develop over time always exist within and are shaped by biological constraints. Dawkins proposed that ideas and practices could spread and develop using evolutionary principles. He called these basic cultural units *memes*. Theater is a meme – it is associated with emotions and has developed into a powerful medium possibly because it provides all the necessary stimulation that resonates with our biological makeup. Portraits are memes, poems and rock'n'roll are, and many similar examples can be found. But whatever the meme, the underlying physical processes are biological. Using the term 'meme' emphasizes that evolutionary principles might guide the development, success, and failure of cultural ideas – and this is relevant in the context of understanding why certain visual codes and contents have developed culturally. We will refer to this notion later in the context of the discussion of pathos formulae.

There are consequences of rapid cultural evolution. Just as peanut butter and jelly sandwiches and similar fat and sugary food have led to an unprecedented increase in obesity in many parts of the world, because the ancestral environment did not provide comparable readily available foods, analogous side effects and phenomena are to be expected, linked to media use that might come about because, for example, the ancestral environment did not provide an opportunity to interact online with thousands of anonymous strangers.

The following section will focus on how emotions are elicited by visuals and in doing so explain why some visuals appear to have rather general effects whereas others produce very different responses in different people. We argue that understanding the processes involved in creating, disseminating, and reacting to emotional visuals benefits from a wide array of interdisciplinary collaborations that involve not only the social sciences, the humanities, and the behavioral sciences, but also natural sciences and engineering. Thus, dealing with emotional visuals and visual emotions is a good example of the importance of a transdisciplinary framework to understanding visual communication and expertise (Kappas and Müller 2006; Kappas and Olk 2008). Humans are at the center of mediated visuals and often these humans display emotions and they in turn often elicit emotions. It is these visuals that we will focus on. We believe that knowing how and why people display emotional reactions, and how visuals depicting such reactions trigger processes in the observer is of critical importance for communication research.

How emotions are elicited

As regards theories of emotions, the twentieth century was characterized by many debates and the number of individual theories and concepts (see Kleinginna and Kleinginna 1981) could create the impression of a field in disarray to any observer. At the outset of the third millennium, the situation is markedly different. There is now the sense that a *science of emotion* exists (Cornelius 1996; Kappas 2002; Fox 2008) and within this framework there is a certain consensus regarding (a) the importance of information processes, so called appraisals,² in eliciting emotions (an excellent introduction to appraisal theory can be found in Scherer et al. 2001; see also Kappas 2006; Konijn 2008), (b) the fact that emotions involve changes in a large number of bodily systems, and (c) that there is no single response in any response system that could be used as a gold standard for diagnosing the presence

of an emotion (Kappas 2003; Mauss and Robinson 2009; see also Cornelius' (1996) discussion of a syndromic nature of emotion in Averill's theory and Averill 1980).

The dominant framework for explaining the elicitation of emotions is appraisal theory. Based on the groundbreaking ideas of Magda Arnold (1960) and Richard Lazarus (2001) it is now assumed that external or internal events or conditions are evaluated in an intuitive and direct manner. This process happens largely outside of awareness and in an automatic fashion. In addition, there often is also a conscious process that provides similar evaluations. The interaction of these two types of processes is not yet well understood (Leventhal and Scherer 1987; Scherer 2001; Smith and Kirby 2001). For example, the most fundamental appraisal is whether something is good/bad or liked/not liked. Depending on the complexity of a stimulus, this evaluation is nearly instantaneous or might take seconds or minutes. At the most basic level, such as pain and pleasure, there is a direct link to innate and biologically determined processes (see Leventhal and Scherer 1987; LeDoux 1996; Öhman 2002). There can be a conflict between different levels of appraisal. For example, when eating a sour fruit, clear bodily (e.g., facial) responses can be observed that the sour taste elicits reactions of rejection, and yet, at the same time, there can be learned positive evaluations because the effect of being woken up by the primary response is being evaluated as positive. The possibility of contradictory appraisals due to the multiple levels is an important element – that is, understanding why people might go to see a horror movie. In this case, certain elements of the movie, visual or otherwise, are going to elicit automatic responses that people might experience as pleasurable (cf. Schwab and Schwender, this volume). Hence, the viewer uses the ancient mechanisms of emotions to 'get a kick' out of their own arousal (see also Tan 1996; Bryant et al. 2003).

When describing emotional states, two separate schools of thought can be distinguished. Because of the implications for emotion measurement and interpretation, we will briefly highlight the differences between these approaches here. Some theorists focus on discrete – that is, clearly distinguishable and non-continuous categories of emotional states, such as 'anger' or 'fear' – when discussing or measuring emotions. Many of these theorists use terms such as 'basic emotions' to identify a small subset of emotional states that have evolutionarily developed in our ancestral past. Paul Ekman, likely the most influential emotion theorist at present, holds this view (see Ekman 1999). However, many other researchers focus instead on underlying dimensions that could distinguish emotional states ('dimensional view'). The former view implies that there is a small number of states that are often seen as 'basic' or 'primary,' while the latter view implies that there is not a small number of clearly separable states, but infinite variations. The most important dimension in all affective states is valence – distinguishing highly positive/pleasurable states from highly negative/aversive states. The importance of this dimension translates to how we perceive the world. Arguably the most relevant affective aspect of how we see the world is to what degree something is good or bad for us (Arnold 1960, as the basis of appraisal theory) or, in other words, whether we like something or not (Zajonc 1980, in the context of an argument that preferences do not need cognitive elaboration). A second important dimension is bodily arousal (this goes back to the erroneous notion that all emotions share the same type of physical activation). Thus, someone's emotional state at a specific point of time might be characterized, for example, as being, very negative and highly aroused (see Russell 1997 for a discussion of two-dimensional

approaches; and Fontaine et al. 2007 for higher-dimensional views). The dimensional view also seems to relate naturally with related affective phenomena, specifically moods. While emotions are usually thought of as being associated with specific elicitors and have a relatively short lifespan (seconds or minutes), moods are more diffuse states that have no clear elicitor and could last days. Yet, moods could be described as slow fluctuations in valence and arousal. We focus in this chapter on emotions (see also Konijn 2008).

When asked, laypeople spontaneously perceive and describe their state and affective reactions in terms of categories ('I am sad,' 'this is disgusting,' 'I find this scary!'). There are also certain 'action tendencies' that are typically associated with such states ('want to run away,' 'want to hit the other person'; see also Frijda and Tcherkassof 1997). However, when it comes to measuring emotional states using physiological responses or expressive behavior, it appears that dimensional approaches are more reliable (see Mauss and Robinson 2009; Barrett 2006). This creates potential problems when researchers use different theoretical frameworks, as we will point out later in the chapter.

Appraisal and meaning

Appraisal theory as one branch of emotion psychology focuses on how the personal meaning of events and objects leads to emotions ('meaning structures', Frijda 1988: 349). This interest in 'meaning' links emotion with visual communication research. While the former scrutinizes how meanings elicit emotions, the latter is centered on discovering the meanings of visuals and thus how visuals create emotions (cf. Detenber and Lang this volume). Combining both approaches could lead to disclosing the meanings of visual emotions and emotional visuals.

With respect to the meanings of visuals and the meanings of emotions, at least two types of meanings can be distinguished – producer-intended meanings and perceiver-attributed meanings. Intended meanings reflect the intention of visual producers including humans communicating visually their emotions. Attributed meanings are generated on the side of the recipients. Needless to say that oftentimes the intended and the attributed meanings of visual displays and visual depictions do not match. For the correct interpretation of the intended meanings, prior experience with and knowledge about the type of visual display as well as its situational and systemic contexts is important. Thus, on the contextual level, intended meanings depend on the production context of the visual display or depiction, and attributed meanings rely on the specific reception contexts in which the emotion is displayed or depicted (see Figure 18.1).

With growing expertise, perceivers might react based on personal meaning, but try to guess the intended meaning. For example, watching a bad horror movie, a perceiver might understand the producers' intention to shock, while feeling highly amused at the same time (see also Tan 2008).

Eliciting emotions with visuals

Psychologists frequently use visuals as stimuli in experimental studies on emotions. However, the particularities of visuals are rarely taken into consideration. In most experimental contexts, the visuals are merely considered as emotion-eliciting instruments

		reception context					
		artistic	commercial	journalistic	scientific	political	private
production context	artistic						
	commercial						
	journalistic						
	scientific						
	political						
	private						

} meanings and appraisals

Figure 18.1 Appraisals and meanings arise out of the combination of production and reception contexts.

taken from a ‘tool-box.’ An example for such a tool-oriented approach toward visuals is the International Affective Picture System (IAPS, see Lang et al. 2005). The IAPS is an assortment of more than 900 images which were selected for their relatively small variance in the affective evaluation of participants. For example, pictures showing facial deformations in children are generally met with an unpleasant evaluation by most participants. Note that the IAPS is not created with specific emotion categories in mind but two dimensions: valence and arousal (a third ‘power’ dimension is also at times measured, but this is the exception). Thus, such images of children with deformed faces might elicit fear, or disgust, even anger (e.g., at the current state of medicine) but all of these might be characterized by highly negative valence and high arousal. While there are norms that allow comparisons across many people, these refer only to the dimensional ratings – not discrete emotion categories (e.g., fear or disgust). However, it is highly likely that the focus on affective dimensions hides relevant differences in individual reactions to some degree. Unfortunately, there is no systematic study comparing the variance in elicited affective reactions to visuals when comparing self-report using dimensions vs. emotion categories. However, there are situations of (posed) facial expressions of emotions, using either one or the other method. But faces are very special stimuli, and the highly stereotypical displays typically used might overestimate the recognition of emotion (Kappas 2003).

It is not surprising that many of the evocative IAPS pictures show people or animals. Not all visuals are equal when it comes to eliciting emotional responses. There is the belief that the effect of certain visuals might be associated with an

innate preparedness – for example, to evolutionary significant stimuli such as snakes or spiders that might have a particular relevance (Öhman and Mineka 2001; Öhman 2002). Similarly, it is important in this context where such a stimulus might occur in the visual field. Many direct threats will be at our feet for example (Öhman et al. 2001; Lobue and DeLoache 2008). The most important visual stimuli for us, however, are other people, and here specifically their faces (e.g., Kanwisher 2006; also Kappas and Olk 2008). Thus, we will discuss the role of faces and bodies as elicitors of emotions in more detail.

Darwin (1872) already pointed out that an effective communication of emotion must involve not only the development of certain universal expressions, but also the capacity to recognize them. By now there is ample evidence that recognizing emotions in others is not a ‘cold’ process that might label a particular visual (see Plates 18.1–3) with a particular term (e.g., pain, suffering). Instead, there appears to be a matching that evokes an echo (metaphorically speaking) of that state in the observer. This process is hypothesized to be fundamental for empathy (Kappas and Descôteaux 2003; Smith et al. 1996) and fits with present results suggesting a mirror system in the brain that matches specific observed actions with activation in action systems that are linked to performing the observed action. In fact, there is evidence for facial mimicry of observed facial responses (Dimberg 1982; see also McHugo and Smith 1996). In turn, diminished emotional experience as a function of traumatic brain damage is associated with a diminished capacity of recognizing emotional states in others (McDonald 2005).

However, it is important to note that we obviously do not match the state of every human being we observe. Lanzetta et al. demonstrated, for example, that facial expressions of political leaders seen in news casts were only mimicked when the observer shared the political convictions of the politicians and demonstrated counter-empathic responses otherwise (e.g., a frown in response to smiles of Ronald Reagan in supporters of the Democratic candidate; see McHugo et al. 1991; McHugo and Smith 1996; cf. Bucy this volume). It is findings such as these that emphasize the context dependence of emotional reactions to faces (see also Bucy 2004). Yet, not only emotional reactions are context dependent, but also the interpretation of visual impressions depends on contextual information.

Context dependency of emotions and visuals

The appraisal of visual emotional material and the meanings of emotional visuals depend on the respective contexts in which they are generated and perceived. The visual display of emotions is guided by situational as well as systemic contexts, while the interpretation of visually displayed emotions in recipients is influenced by the respective reception context (see Figure 18.1).

One of the early demonstrations of the importance of appraisal processes for the generation of emotions was in fact related to differences in physiological responses to a film showing a painful ritual circumcision procedure. Lazarus et al. (e.g., Lazarus and Alfert 1964) could demonstrate that when providing different short descriptions about the context either before the film, or as a running commentary, the physiological responses to the same visual stimulus would differ. Not the visual as such, but the meaning of the visual would change the level of electrodermal conductivity – an indicator of the activation of the sympathetic branch of the autonomic nervous system.

Figure 18.2 shows three lines representing three different conditions in the study of Lazarus and Alfert. Each peak corresponds to a particularly strong reaction. For example each of the five operations is associated with a peak, but the highest activation is in the silent condition. The lowest activation is in the denial orientation. In both cases participants see the same visual material, but, in one case, there is no introduction and sound (silent), in the other, the pain of the person undergoing the ritual is downplayed (denial), either before the beginning of the video (denial orientation), or in a running sound track accompanying the film (denial commentary). There is still a peak, indicating a response to the cut and the bleeding, but at a much lower level after the preparation of the viewer in the denial orientation. In other words, the perceived meaning has changed for the experimental participants.

The manipulation of Lazarus and Alfert (1964) can be interpreted as a recontextualization of the film for the viewers in different experimental conditions. For example, by emphasizing the anthropological aspect of the film – a document of an important rite of passage of high importance to the young man undergoing the circumcision procedure – the ‘reception context’ is changed by emphasizing a particular ‘production context’ (see Figure 18.1). Müller (e.g., 2003; Kappas and Müller 2006) has emphasized the importance of taking the complexity of blending different production contexts with reception in different contexts into account in any analysis of visual communication processes. The distinction between production contexts on the one hand, and reception contexts on the other, is relevant because different context-mixes stimulate different appraisals and different meanings in

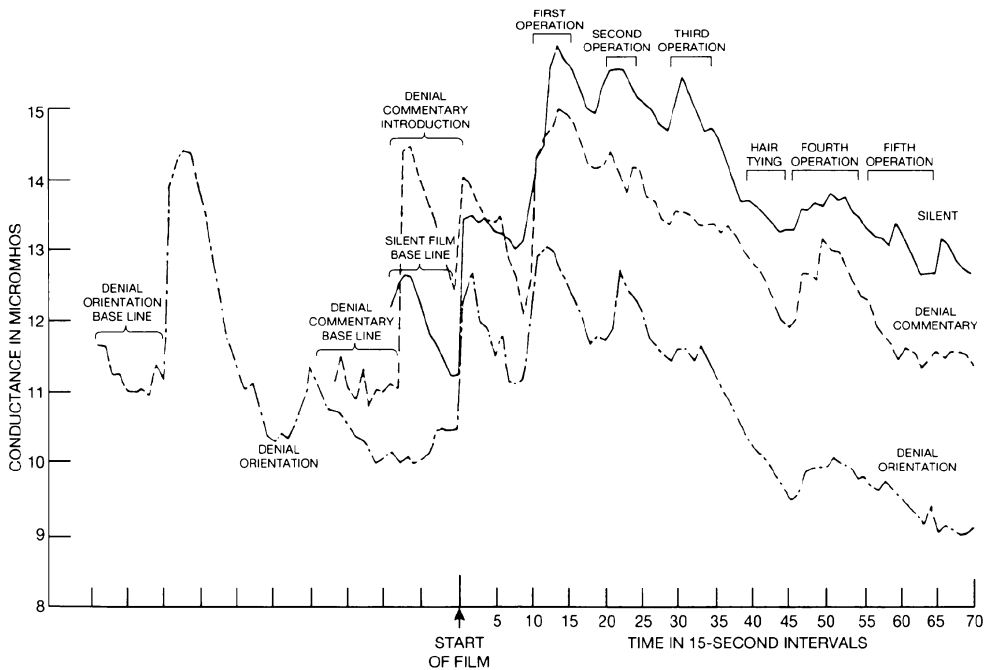


Figure 18.2 Electrodermal skin conductance of three groups of participants before and during the presentation of the stressful movie *Subincision* (from Lazarus and Alfert 1964: 199).

the beholders of visuals. Intended meanings are influenced by both the respective production and the reception contexts (see Figure 18.1).

According to Müller (e.g., Kappas and Müller 2006), visuals are produced in six different production contexts (see Figure 18.1). These particular contexts shape both the structure and the meanings of the visuals. The reception of the visuals might then take place in the same context, or be moved to another context, as, for example, the artistic production of a sculpture which is subsequently reproduced as a photograph and printed as an illustration to an art critic's review in the newspaper. Thus, on the reception level, a journalistic dimension is added to the artistic production context. If the newspaper is read at home, then a private reception context complements the situation. In toto, six ideal types of contexts can be distinguished: the artistic (e.g., paintings, sculptures), commercial (e.g., advertising, movies), journalistic (e.g., press photography, caricatures), scientific (e.g., ultra-sound images, brain-scans, see Figure 18.3), political (e.g., campaign advertising, political propaganda), and private (e.g., wedding photos). In reality those production contexts can overlap. At the reception level, visual context analysis becomes even more complex, since, in theory, a mixture of all six ideal context types is possible.

Consider the case of an ultra-sound image of a healthy fetus in the sixteenth week of gestation (Figure 18.3), taken in a scientific production context, intended to be used for medical diagnosis. The production context changes, and adds a different appraisal and meaning dimension to it, when this image is used as an illustration in a



Figure 18.3 Ultra-sound image of a healthy fetus in the sixteenth week of gestation. © Marion G. Müller

newspaper article on abortion. In turn, the change in production context – from scientific to journalistic – modifies the emotional reaction to the image as a function of (a) the attitudes of the viewer toward abortion on the one hand, and (b) the journalistic presentation and commentary on the other. The same material image can of course be perceived in a very different reception context. For the parents of the depicted child, who perceive the visual in a private reception context, very different appraisals and meanings will be attributed to the very same depiction (see Figure 18.1). A typical emotional reaction to this visualization of a yet unborn child is the elicitation of emotional bonding.

Thus, for an analysis of the emotional impact of the image it is important to realize that (c) the image does not exist independent of production and reception contexts. The same image seen not in a journalistic article, but in a scientific contribution – that is, in a different reception context – would have led to a very different emotional response. Thus, understanding emotional reactions in the context of mass-mediated images demands a clear awareness of the effects of ‘travelling’ visuals – that is, that emotional responses to visuals in their context of origin are likely to be vastly different from other reception contexts into which they might have been transposed.

To draw the connection to aforementioned studies on appraisal (McHugo et al. 1991; McHugo and Smith 1996), the emotional reaction to the depiction of the outraged Israeli settler (Plate 18.3) depends, of course, on intrapersonal political attitudes of the beholder. However, the specific political reception context also influences the appraisal of the press photograph (see Figure 18.1). For a viewer without any connection to the Israeli–Palestine conflict, the appraisal and meaning-attribution might stay in the journalistic reception mode. For a Palestinian refugee, the meaning and appraisal of the same photo might in all likelihood have the opposite emotional effects than for a fellow Israeli settler, who is under a similar threat like the depicted.

The complexity of these visual–emotional processes are even further increased when analyzing moving images. Yet, it appears as if context dependency is also relevant with respect to film and emotion: a famous non-scientific experiment by Russian director Lev Kuleshov in the early twentieth century demonstrated how far context dependency might go when interpreting visuals (cited in Wallbott 1988; Russell 1997). When experimenting with film montage, Kuleshov connected the same facial shot of actor Ivan Mozzhukhin in three different contexts. Viewers, naïve to the technique of editing film in this way were impressed by the actor’s skill in conveying very different emotions when in fact, all expressions were identical! (Such context effects also hold for interpretation of vocal expressions: Kappas and Poliakova 2007.)

In sum, it should be clear that emotional reactions to visuals are dependent on many factors that include not only content and structural properties of the visual itself but also the context in which visuals are presented/received as well as many aspects of the viewer, biological, social and cultural alike, that we cannot cover in this chapter. Any analysis of the emotional impact of visuals needs to be informed regarding this complexity and not treat visuals as independent of what they create in the viewers’ minds (Kappas and Müller 2006).

Emotional visuals

Inspired by Darwin’s (1872) writings on the expression of emotions, the art historian Aby Warburg (1866–1929) hypothesized that there might be widely shared rules as to

how to express emotions in fine art (see e.g., Didi-Huberman 2002). He believed that artists would choose ways of expressing certain mental states and attitudes that would facilitate the recognition of these states in others. Warburg labelled these particularly expressive emotional depictions *Pathosformeln* (pathos formulae):

Warburg, eponymous founder of an entire institute and approach to art history, has been influential enough; and it has been said that his concept of the pathos formula ‘may well prove to be one of the enduring motions which the study of the visual arts has contributed to modern thought.’ ...

Pathos, in its Classical Greek sense, signifies some strong feeling, or passion. In Stoic philosophy, *pathe* were defined as ‘excessive impulses.’ Such *pathe* amounted to ‘the extremes of physiognomic expression in the moment of the highest excitement’ (in Warburg’s words). Accordingly, a repertoire of bodily attitudes and compositional patterns was developed by Classical artists, to denote the extraordinary seizures and transports of human mood and sensation: primarily the ecstasies of pain, fear, longing and delight.

(Spivey 2001: 118)

Thus, pathos formulae are examples of memes that have developed because of their consistent tendency to elicit specific (discrete) emotions within the viewer. Idiosyncratic depictions that will not consistently elicit specific meaning attributions and hence emotions will not propagate.

Depicting emotions in art and mass media

The classic pathos formula example is the so-called *Laocoön-group* (see Plate 18.1): an antique marble sculpture dating from the first century before Christ, crafted by three Greek sculptors – Hagesandros, Polydoros, and Athanodoros. The sculpture has been rediscovered in 1506 and is kept in the Museum of the Vatican in Rome. Already before the German writer Gotthold Ephraim Lessing dedicated an essay to Laocoön (1766), the sculpture had been the focus of heated intellectual debates among German enlightenment philosophers (Kreuzer 1990: 215–17). The sculpture depicts a scene from Greek mythology. Laocoön was a priest in Troy who had warned his fellow citizens to mistrust the ‘gift’ that the Greek army had left after a long and unsuccessful siege of Troy. Laocoön had thrown a spear at the Trojan horse and soon after was killed together with his two adolescent sons by two enormous sea snakes. Laocoön’s suffering and death was misinterpreted by the Trojans as a divine punishment for his violation of the horse, which was subsequently pulled into the city, leading to the destruction of Troy.

The sculpture depicts the moment in which Laocoön seems to realize that he and his sons are doomed. In an expressive gesture, he tries with all his bodily strength to avail himself of one of the snakes who is about to bite his hip. The agony and pain he appears to sense is displayed on his face which is at the center of attention, as his head is slightly tilted toward his left shoulder, his eyes raised toward the sky, as if imploring the gods. Characteristic for this highly moving sculpture is both the opened mouth of Laocoön and his curly hair and beard which give his head a very agile, lively impression, contrasting his impressive muscular

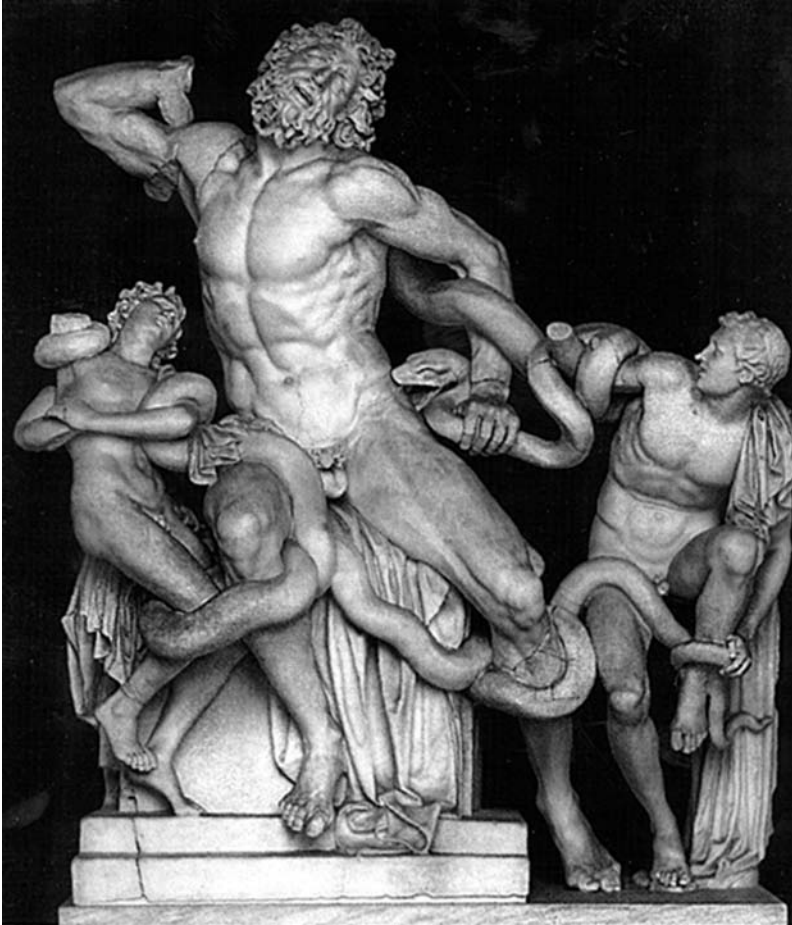


Plate 18.1 Laocoön group, marble sculpture, first century BC, *Vatican Museum, Rome*, black and white photographic reproduction: *Frankfurter Allgemeine Zeitung* (January 10, 2007: 34).

physique with his impending death. Darwin himself commented on the Laocoön group:

The ancient Greek sculptors were familiar with the expression, as shown in the statues of the Laocoön and Arretino; but, ... they carried the transverse furrows across the whole breadth of the forehead, and thus committed a great anatomical mistake: this is likewise the case in some modern statues. It is, however, more probable that these wonderfully accurate observers intentionally sacrificed truth for the sake of beauty, than that they made a mistake; for rectangular furrows on the forehead would not have had a grand appearance on the marble. The expression, in its fully developed condition, is, as far as I can discover, not often represented in pictures by the old masters, no doubt owing to the same cause.

(Darwin 1872: 183)



Plate 18.2 Actress Iris Berben playing Katharina von Strahlberg in the TV-series *Afrika, mon amour* weeping over the dead body of her adolescent son (not in the screenshot), *Frankfurter Allgemeine Zeitung* (8 January 2007, p. 36). Screenshot source: ZDF (Second German Public TV channel).

Laocoön's facial expression can also be found in contemporary visuals (see Plates 18.2 and 18.3). However, the 'missing' vertical furrows in the classic sculpture are clearly visible on the faces both of the woman depicted on Plate 18.2 and the man on Plate 18.3. Yet, the resemblance of the facial expression of the two contemporary pictures with the antique sculpture is stunning – Plate 18.2 depicts a still image from a German television mini-series, and Plate 18.3 a press photograph. The actress portrayed on Plate 18.2 weeps over her killed son, whose body is lying at his mother's feet (this detail was, however, not represented in the screenshot). The press photo on Plate 18.3 depicts a scene in Palestine – Israeli police forcefully removing a settler from the Gaza strip and the resisting man expressing extreme distress and awe.

Artistic production contexts create an artificially heightened expression, as exemplified by the transverse furrows on Laocoön's forehead (Plate 18.1). This artistic modification, however, is an addition to and not a transformation of the 'basic' visual expression of pain. The two examples of the film still on Plate 18.2 (commercial production context) and the press photograph on Plate 18.3 (journalistic production context) show a more realistic visualization of pain that is visually similar to the artistic depiction in the ancient sculpture. The visual form of expressing extreme pain shows a remarkable continuity across time and across different cultural backgrounds. While the visual form is relatively consistent, emotional appraisal and attributed meanings depend on a complex mix of personal relevance of the visual, prior experiences, intrapersonal attitudes as well as contextual influences. For visuals depicting extreme emotional states certain patterns apply which we

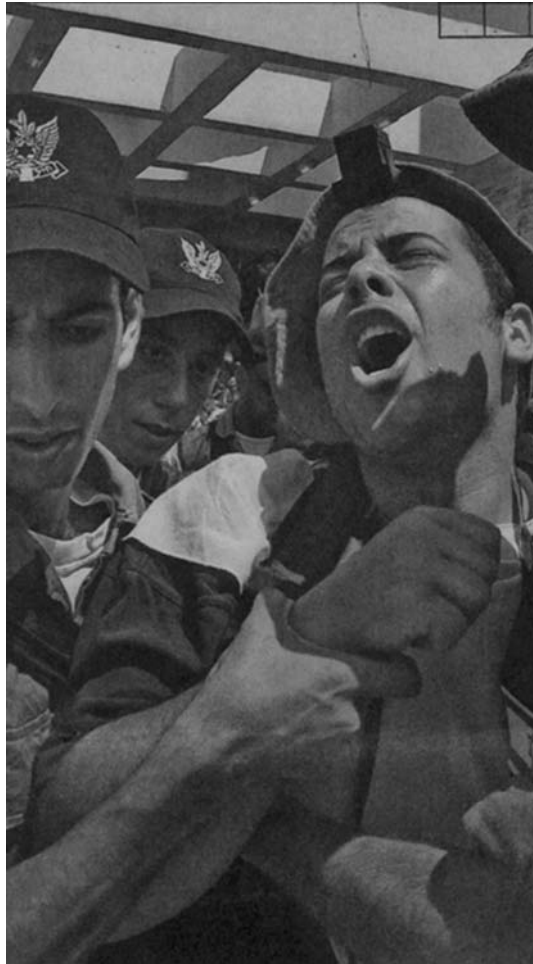


Plate 18.3 An Israeli man is forcibly removed from the Gaza strip, *Financial Times* (18 August 2005, p.1). Photo: AFP.

labeled ‘depiction rules’ (Kappas and Müller 2006). More research is needed to confirm whether these visual depiction rules are universal or rather culture-specific. In Warburg’s concept, pathos formulae were universal human expressions of emotions (Warnke 1980; Barta-Fliedl et al. 1999). As the comparison between the depictions on Plates 18.1, 18.2, and 18.3 exemplified, human expression has hardly changed over centuries. While visual production technologies have undergone fundamental changes, the visual motifs expressing extreme human emotional states remain largely the same.

Following Darwin’s argument, Warburg tried to demonstrate that pathos formulae as visual depictions had an *afterlife*. Since antiquity, pathos formulae kept reappearing in later centuries and Warburg was trying to decipher the ‘rules’ or ‘patterns’ that conditioned the re-emergence of particular pathos formulae. However, Warburg died in

1929, before he could complete his last research project – the *Mnemosyne-Atlas* (Barta-Fliedl et al. 1999; Warnke and Brink 2008). Yet, Warburg's pathos formulae could provide a crucial contribution to understanding visual emotions and emotional visuals in so far as they relate to critically important genetic and mimetic processes in emotions.

Display rules and depiction rules

If indeed displays of emotions are powerful in eliciting emotions in others, it is not surprising that they play a privileged role in art and mass communication. Understanding how emotions shape expressions is helpful, but neither sufficient in understanding facial or bodily displays in-vivo, nor in art or mass-mediated contexts. For Warburg the particular property of pathos formulae was their intrinsic connection between 'inner' mental image and 'outer' material image. In the words of one of Warburg's closest collaborators, his assistant Gertrud Bing: 'The *Pathosformeln* are meant to be considered as visible expressions of *psychic* states that had become fossilized, so to speak, in the images' (cited in Michaud 2004: 15). If you consider visuals as 'fossilized emotional expressions' and assume that visuals and emotions are two dimensions of human communication processes, then visuals can play a more important role in the research on emotions than just being a 'stimulation-tool.' Additionally, Warburg considered the ongoing production of visuals a direct outcome of an emotional process – coping with fear (Bauerle 1988: 22; Barta-Fliedl et al. 1999: 214). In other words, to Warburg the production of visuals was the outcome of an emotion-regulating process. People produce visuals – from holiday snapshots to *YouTube* videos (private production context), from press photographs to TV news (journalistic production context), from political posters to commercials (political production context), from ultra-sound images to information graphics (scientific production context), from print advertisement to movies (commercial production context). If Warburg was right, then beyond the primary motivation for visual production is an emotional 'coping strategy.' However, considering what we know about appraisal processes and emotional display rules, there might be a similar motivation at the core of the 'visual production mystery' – namely, to communicate visually and emotionally with other people, and to self-express and elicit emotional reactions in others, conveyed in a visual form.

One of Darwin's important insights (1872) was that while there is a biological origin to most expressive behavior, the latter is often, if not typically, controlled. It is rare that we see 'uncontrolled' rage or fear in adults in real life. Instead, such expressions seem to be typically regulated by the individual. Ekman and Friesen (1969) have proposed the now popular concept of *display rules* to explain such processes. Display rules are thought to be culture-specific and learned in social interaction already in early childhood. While some of them might be explicitly stated ('Do not laugh in church!'), others might be communicated in very subtle ways by reinforcing or discouraging certain behavior in interaction without ever stating a rule explicitly in words. In the most general form, display rules are supposed to define *who* can show *what* to *whom* and *when*. This can happen by amplifying or attenuating the expressions that would be shown spontaneously or by masking one expression with a different one. While the concept is very attractive on an intuitive basis and has been used in many theoretical contexts, there is no coherent theory of display rules that would allow to predict display rules in a testable way

(Kappas 2003) – instead, display rules are typically inferred from observation and no clear empirical investigations have documented to what degree display rules are followed or what the consequences of not observing them might be (Kappas 2003; Fridlund and Russell 2006). Fridlund (1991, 1994) has challenged the display rule concept on theoretical grounds and has presented data on the influence of social context that appear not compatible with the way social context is supposed to influence expressive activity (also Hess et al. 1995; Jakobs et al. 1999a, 1999b, 2001).

In his seminal study, Fridlund (1991) furthermore demonstrated that the actual facial behavior shown in a series of experimental conditions did not only diverge from what would have been predicted by display rule theory (Ekman and Friesen 1969), but also from beliefs of different groups he had obtained. Specifically, he asked a large number of students to make predictions, as well as a group of advanced graduate students in emotion science. Neither group predicted the behavior actually observed in Fridlund (1991). This could indicate that display rules might indeed influence our beliefs and expectations partially independent of our manifest behavior, which is determined by many factors outside of our awareness. Thus, one can speculate that display rules can also refer to stereotypes or scripts that define what behavior is appropriate in a given context, much like the concept of feeling rules proposed by Hochschild (1979, 1983). She argued that in work and private context we are obliged to arrange our emotional processes – including our feelings – according to certain explicit and implicit demands (cf. Döveling 2005). Hence, while the empirical evidence of Fridlund and others cast a doubt over the usefulness of display rule theory to predict facial behavior in certain contexts (see also Kappas 2003), the theory might be very useful to deal with socially shared stereotypes as to social norms of expressive behavior (see also Rimé et al. 1990 for a discussion of social stereotypes of emotional physiological changes). More research is necessary regarding the scope and validity of display rule theory and how display rules might relate to pathos formulae.

We have argued for a visual equivalent of emotional display rules (Kappas and Müller 2006: 17–18). Those *depiction rules* – patterns of visualizing particular human emotions and expressions – have been under different names and in different guises the topic of many art theoretical discussions since antiquity. In painting theory, the French court painter of Louis XIV, Charles Le Brun, gave an influential lecture in 1688 on the depiction of human expression (Le Brun 1994/1688; Montagu 1994), and contemporary visual researchers have applied the concept of pathos formula to both art and popular images alike (Spivey 2001; Didi-Huberman 2003; Eisenman 2007). Eisenman explains the lack of empathy with the Abu Ghraib torture victims on the side of the U.S. public to a large degree with the patterns of depiction, using Warburg's pathos formulae as a concept. Interdisciplinary collaboration between visual communication research (see Müller 2007), on the one hand, and emotion research, on the other hand, are necessary to explain contemporary phenomena, such as the anger and frustration about the publication of Muhammad cartoons (Müller et al. 2009; Müller and Özcan 2007), the potential traumatizing effect of visual news coverage (e.g., Knieper 2006; Petersen 2006), the emotional effects of watching violent movies (e.g., Unz 2007; Eder 2007; Früh and Fahr 2006), or emotions in cyberspace – that is, various forms of computer-mediated communication (e.g., Konijn et al. 2008). However, at this point no formal attempt at describing such depiction rules has been made.

Future challenges

Important research questions that future studies in the transdisciplinary field of visual emotions and emotional visuals will have to address, are: What is the relationship of display rules and depiction rules? How universal are pathos formulae really? Can they be interpreted as successful memes? How do they change over time in the light of increasingly global mass communication? How do appraisal processes and meaning-attribution processes relate to each other? How do biological, social, and cultural factors interact in visual communication and emotional reactions to visuals? Can mass-mediated visuals have traumatizing effects on audiences? How are visuals related to emotional coping strategies?

Such questions are central when discussing emotional visuals and visual emotions. We have tried to underscore the complexity of the phenomenon, on the one hand, and the different types of approaches involved in answering to this complexity, on the other hand. A multi-disciplinary emotional visual approach in communication research is necessary and both experimental studies as well as empirical case studies are needed in order to gain an improved understanding of the complex interaction of visuals and emotions. Emotion research can contribute to progress in this field by taking into account the properties of visual stimuli. Additionally, more sophisticated research designs could be tailored to test different contextual conditions for emotion-eliciting experiments involving visuals. Visual communication research should start a mapping process of emotional visuals in news contexts, aiming at a typology of contemporary pathos formulae, thereby following up on Aby Warburg's unfinished project of a *Mnemosyne-Atlas*. For addressing the question, how particular pathos formulae rank on the dimension of universal vs. culture-specific expressions, it will be necessary to enlarge and to intensify already existing transdisciplinary research networks.

Conclusion

Visuals elicit emotional reactions, and, in turn, emotions are expressed and conveyed in a visual form. There is a connection between these two communication processes. Yet, we still do not know about their intricacies nor do we know the particular cause and effect relations involved. We are only at the beginning of scientifically understanding the interplay between visuals and emotions. The findings are scattered over different disciplines and research fields. What is needed for future research is a common research framework that integrates the pertinent questions posed by visual emotions and emotional visuals. Despite these difficulties, some common assumptions on emotional and visual communication exist:

- Emotions are an evolved set of processes that provide rapid and flexible responses to a large set of situational challenges.
- While the human environment has changed dramatically during the evolutionary process, the makeup of human brains has not.
- Interpersonal communication conveying emotional messages is neither idiosyncratic nor random, but relies on context- and culture-specific 'display rules.'
- Appraisal processes guide emotional reactions to external and internal events or conditions. These appraisals are direct, immediate, intuitive, and often escaping awareness.

- Visuals both depict and elicit emotions.
- Visual communication is guided by association and happens in an intuitive way that appears to share some similarities with appraisal processes.
- Visuals and emotions are both context-dependent. For emotional appraisal, the reception context is paramount, while for meaning-attribution to visuals, assumptions about or experience with the visual production context matter, in conjunction with the specific reception situation.
- Mirroring the emotional ‘display rules,’ certain ‘depiction rules’ – patterns of visually expressing emotions – exist in art and in mass media.
- Both ‘display rules’ and ‘depiction rules’ are remarkably consistent over time and space, leading to the – yet unconfirmed – hypothesis that emotional expression and its depiction are a universal human heritage.

In light of these assumptions, and considering the rapid advances with regard to visual technology, the prospects are good for significant progress in the understanding of visual emotions and emotional visuals in the near future.

Notes

- 1 Inspired by the concept of genes in explaining evolutionary processes, the concept of memes was introduced by Richard Dawkins (1976). It refers to small chunks of cultural ideas that replicate, mutate, adapt, and are copied from person to person. The basic unit of memes is not well defined; these can also be practices or symbols, melodies, expressions, etc. While the usefulness of memes in understanding the evolution of cultural ideas is still debated, the concept has definitely found entry into mainstream discussions on culture and biology. In 2008 Susan Blackmore introduced the concept of memes (technological memes) at the TED2008 conference. She refers to technological carriers of knowledge that do not need humans for spreading and selecting and believes them to be a potential ‘third replicator.’ The future will tell whether the meme of memes will survive or become extinct.
- 2 Appraisals refer to both very fast automatic and direct intuitive processes and more conscious and slow evaluations. Some authors use the term ‘appraisals’ falsely only to conscious processes. However, Magda Arnold, who coined the term ‘appraisal’ for the information processing causal to emotion clearly talked much about unconscious rapid processing (see Kappas 2006).

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19 Reactive and reflective responses to mass media

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The primary goal of this chapter is to contrast two ways of approaching media offerings. In a reactive mode, viewers select programs which resolve needs and alter mood states. A superficial appraisal of programming is sufficient to determine the presence of properties, such as suspense, which can modulate the experience of pleasure and excitement in accordance with the principle of 'affective covariation.' In a reflective mode, viewers become deeply engaged in programs that relate to personal life experiences in accordance with the principle of 'emotional elaboration.' These modes of aesthetic engagement underscore the interaction of cognitive and affective processes and are related to contrasting theories of emotion. The reactive mode is associated with mechanistic and functionalist ideas of behavioral cognitivism reaching back to the Enlightenment. The reflective mode is associated with organismic and holistic ideas of Gestalt psychology, psychodynamics, and phenomenology reminiscent of German Romanticism.

Tan (2008) has summarized a functionalist account relating emotion to entertainment, incorporating Tannenbaum's (1980) analysis of vicarious emotion and television viewing, Zillmann's account of 'excitation transfer' (Zillmann 1971) and mood management (Zillmann 1988) and, more recently, Vorderer et al.'s (2004) treatment of enjoyment as a 'meta-emotion'. Vorderer et al.'s (2004) comprehensive model encompasses 'user prerequisites' (e.g., empathy, parasocial relationships, presence, and interest) and motives (e.g., escapism, mood management) to produce effects such as catharsis and learning which are manifested in a broad range of qualities related to enjoyment including serenity, laughter, surprise, exhilaration, sadness, thoughtfulness, sensory delight, control, and self-efficacy. According to Vorderer et al. (2006), viewers ascribe reality to the simulation underlying media entertainment, identify with relevant characters, and feel a kind of control over their worlds by confronting the narrative and emotional challenges embedded in a program.

Tan treats emotion as a mechanism of survival that initiates action tendencies in response to information processing analyses of the stimulus situation. It mediates between a 'proximal cause,' the experience of entertainment, and 'distal' organizational needs. Interest is identified as the 'main engine' in support of entertainment activities, the 'central emotion' that is responsive to stimulus qualities which can resolve needs and motivate actions. 'Imagination activity' is also functional because it provides an opportunity for the playful simulation of real-life challenges in response to 'paradigm scenarios presenting the difficulties of life' (Tan 2008: 38) related to emotions 'like mirth, fear, sadness, sympathy, etc.' (p. 38). Accordingly, 'emotion

lends “reality” to imagined events’ which ‘entertainment users are motivated to construct’ in order to ‘get the strongest emotions out of the paradigm scenario’ (p. 42). They combine a ‘diminished awareness of the artificiality of entertainment’ with the willful ‘embodied simulation of’ ‘imagined objects and events’ (p. 42). Entertainment stimuli automatically produce ‘representations of paradigm scenario events’ that ‘may be as vivid as real events’ and ‘provoke emotion, thus enhancing perceived reality’ which may in turn ‘pave the way for deeper processing of the scenarios’ and ‘more complex emotional appraisals ... enabling an exploration of the most remote backgrounds and consequences of events in paradigm scenarios’ (p. 44). Therefore, the value of emotional experiences tied to media offerings is that they ‘help train people’s adaptive capacities’ (p. 28).

In functionalist accounts of emotion, either in everyday life or in response to media encounters, the critical terms have nothing to do with emotions at all. These include appraisal, simulation, action tendencies, adaptive action, mechanism, and so on, which are characteristic of behavioral cognitive discourse. I am not arguing that the functionalist and behavioral cognitivist analysis is ‘wrong’ but that it fits into the psychological study of motivational processes. There are other traditions concerned with the symbolic, individual, and cultural aspects of emotional experience that should also be taken into account. In addition, there appears to be a sea of concepts adrift in accounts of emotion and entertainment. In this chapter, I will explore the complementary roles played by action and experience accounts of emotion in general and in relation to mass media. In accordance with a principle of parsimony, I will search for a minimal set of concepts and principles which are sufficient to account for these complementary processes. An examination of Gestalt psychology’s approach to aesthetics and media is a good place to start.

Helpful Gestalt concepts

In 1935, Rudolf Arnheim (1971a) wrote a piece titled ‘A Forecast of Television’ which he described as ‘a means of cultural transportation’ (p. 194) whereby the ‘wide world itself enters our room’ (p. 194). It ‘gives us a feeling for the multiplicity of what happens simultaneously in different places’ so that we ‘come to recognize the place where we are located as one among many: we become more modest, less egocentric’ (p. 194). In spite of this optimism, he also expressed some reservations. As ‘a mere instrument of transmission’ it ‘does not offer new means for the artistic interpretation of reality – as radio and film did’ (p. 194). Further, ‘the more perfect our means of direct experience, the more easily we are caught by the dangerous illusion that perceiving is tantamount to knowing and understanding’ (p. 195). While television may ‘give a cozy family touch to public life,’ it ‘may also keep the individual citizen from meeting his fellows’ such that ‘the more isolated will be the individual in his retreat’ (p. 197) as a ‘lonesome consumer of spectacles’ (p. 198).

Arnheim thus underscored the duality of television as an instrument which unites the world by making it visually accessible, while at the same time prompting a retreat to the relative safety of the living room. His critical view of television for not fostering artistic creativity emphasized its documentary rather than dramatic value. Although a multiplicity of channels has enhanced the diversity of what is available by way of ‘cultural transportation’ to the ‘wide world,’ the ultimate passivity of television reception has now given way to the personal agency associated with engaging the World

Wide Web. Internet users are active participants who construct their own media experience by selecting and hybridizing images, ‘blogging,’ or posting experiences on *YouTube* and thereby lending a bi-directional character to mediated communication.

Consider how the fundamental principles of Gestalt psychology can help us understand processes underlying engagement with mass media. Gestalt terms such as ‘good form,’ ‘hierarchy,’ and ‘dynamic forces’ can serve as ‘generative metaphors’ that stimulate fresh ideas without our having to treat them literally (Danziger 1990). Principles which were originally applied by Wertheimer (1914, cited in Ash 1998) to static images, and were later extended to film by Arnheim (1971a), can be generalized to television and internet usage.

Good form

Wertheimer formalized the law of *Prägnanz* (i.e., *good continuation* or *good form*) according to which objects within perceptual fields assume the simplest structure permitted by the given conditions (Ash 1998) and this gave rise to what are called figure/ground effects (Rubin 1921, cited in Ash 1998). Viewers balance parts and wholes to conceive the integrated structure of an artwork against a background and this principle has been applied to unfolding narratives as well (Iser 1978). Gestalt psychologists, such as Kohler and others, assume that ‘the objects we perceive are always located in what would now be called self-organizing systems – constantly changing dynamic contexts or situations, of which our phenomenal selves, too, are parts’ (Ash 1998: 2). This echoes Goethe’s nineteenth-century account of the ‘self-actualizing wholeness of organic forms’ (Ash 1998: 85).

We treat objects that appear against a background, whether in everyday life, or in paintings, films or television, as *real*. Arnheim argued, with reference to artists, there ‘seems to be little doubt that they see in their works nothing but the exact equivalent of the object’ and ‘that they think of “style” simply as a means for obtaining the result’ (Arnheim 1971b: 117). Pictures from a person’s ‘cultural environments’ (p. 119) therefore appear ‘styleless,’ depicting things naturally and correctly. This isomorphism between perceived image and assumed ‘reality’ is based on matching expectations rather than on an absolute standard so ‘that progress in pictorial life-likeness will create the illusion of life itself’ (p. 117). With each passing generation, the criteria for matching become progressively more informationally dense as in the enhanced visual impact of high-definition television. What is considered ‘real’ is the final stage in an interpretive process which is performed more or less automatically. Since people do not attend to these stages, they are rendered unconscious and are not recollected unless attention is explicitly drawn to them. This is what Arnheim (1971a) meant when he made reference to the ‘dangerous illusion that perceiving is tantamount to knowing and understanding’ (p. 195).

Hierarchy

The idea of figure/ground relations is substantially expanded by the important concept of hierarchy which focuses on levels of organization in systems. Berlyne (1971) and Moles (1968) distinguished the fundamental elements of an artwork (level one) as dabs of paint which could then be organized to create (level two) expressive visual effects which are used to (level three) denote people, objects, and

events. Arnheim's Gestalt analysis of complex visual patterns examined 'a hierarchy of structural levels' and, when it comes to 'seeing' a work of art, 'one must often explore various structural levels, starting from the broadest overall patterns' (Arnheim 1971b: 6). While the inexperienced viewer of art might focus on one or another identifiable figure, training sensitizes a person to the more fundamental use of composition and color that bring harmony to the work and within which individual figures or objects are situated. According to Arnheim, a 'part is a Gestalt embedded in a larger context. A whole, more often than not, is also a part of a larger context, which, however, is being ignored, with or without justification' (Arnheim 1986: 284). Sophistication in art or media reception presumes an ability to move between structural levels.

For Kreitler and Kreitler (1972), 'Multileveledness is the capacity of a work of art to be grasped, elaborated and experienced in several systems of connected potential meanings, each of which allows a meaningful, clear, comprehensive, and sometimes even autonomous organization of all the major constituents of the work of art' (Kreitler and Kreitler 1972: 294–5). As a consequence, 'multileveledness appears to be a joint product of characteristics in a work of art and of certain modes of perception and elaboration on the part of the observer' (p. 297). This seemingly abstract discussion has important implications. As viewers, we treat the perceptually salient level as immediate and 'real' but hidden behind it in the background, so to speak, are levels which go unrecognized. Thus, individual television programs can be the focus of our attention while the commercial and social contexts within which they take place are taken for granted and not reflected upon.

The active role of the reader who searches for coherent order in an unfolding narrative is central to reception theorists such as Iser (1978) and can be readily generalized to mass media reception. He described the reader as synthesizing a text into an expanding network of connections integrating denoted references and contexts. The reader is constantly retrieving things from memory and modifying them while anticipating future events in the text. Texts always challenge the Gestalt principle of *good continuation* (i.e. *Prägnanz*) because the fragmenting of text segments runs counter to the process of consistency building. Breaks in *good continuation* embedded in a text by its author, through 'fragmented, counterfactual, contrastive or telescoped sequence' (Iser 1978: 186), mobilize interpretive activity. Thus, an 'impeded text' promotes the production of diversified interpretive images. Meaning emerges from the grouping of these interpretations with coherence serving as a criterion for interrelating 'the polyphonic harmony of the layered structure' (Iser 1978: 175) of the text. Relations between part and whole or 'theme' and 'field' are defined in terms of a criterion of 'relevance' (Gurwitsch 1964). Themes can be juxtaposed against different contexts or 'fields' in accordance with a sender's or receiver's goals, needs, etc. This notion of *thematic relevance* is particularly important for the problem of multilayered meaning because a change of context can lead to the reconceptualization of meaning. The concept of in-depth analysis is tied to acts of contextualization. *Meaning* does not merely apply to an integration of scenes from a developing narrative but also to *emotional meaning* for the person who has faced a common challenge in his or her life personally or because of membership in a particular social group whose historical realities are depicted in the program.

The central implication here in relation to media reception is that programs have an integral structure which becomes the focus of an audience's attention. The

perceptual salience of the unfolding program absorbs the viewer whose goal is to find narrative coherence by placing the unfolding scenes in context. Media socialization is required to enable the viewer to recognize the stylistic structure of a program and separate it from the advertising which represents another level of organization taking place against the background of yet another level of organization associated with corporate sponsorship of the program, and so on. We therefore move from the salient level of programming itself to the background contexts within which it takes place. It can be argued that sophistication in media reception entails an ability to examine the structure of content and form at each independent level and then to move smoothly through the levels of organization within which the program is embedded.

Dynamic expressive forces

According to the concept of physiognomic perception, we discern emotional expression rapidly and spontaneously because it is an inherent characteristic of the field of forces embedded in perceptual patterns (see Arnheim 1971b). While this notion was initially applied to facial expressions, the idea that feelings accompany perception from the first interpretive moment was central to the *Aktualgenese* school of Gestalt psychology in the 1930s. Arnheim has cogently argued that 'expression is a configuration of forces' (Arnheim 1971b: 434) and that the dynamic effects of forces are created in artworks through contrasts which evoke an experience of tension (Arnheim 1982). The metaphorical meaning in a painting emerges when its subject matter is experienced in the context of its expressive structure. A mere configuration of forces in the artwork transfers to the mental world where 'Motifs like rising and falling, dominance and submission, weakness and strength, harmony and discord, struggle and conformance, underlie all existence' (Arnheim 1971b: 434).

A unified theory of emotion

In order to comment on relations between feelings or emotions and mass media, we need a unified theory of emotion that gives proper due to the two major scholarly traditions – one focusing on *action related to motivation* and the other on focusing on *experience related to emotion*. A central principle which guides this reconciliation is that cognition and emotion are inextricably bound and can be considered complementary. The question then becomes, how are mind and body linked in *action* and *experience* episodes? Two cognitive processes can be distinguished. A cognitive process that is relevant to the *motivational model of action* involves *matching* stimuli against expectations that are based on drives, needs, and concerns. A cognitive process that relates *experience to emotion* integrates an emotion-evoking situation into a *coherent whole* in which personal experiences and related memories play a significant role. Two kinds of bodily processes can also be distinguished, one emphasizing feelings and the other focusing on emotions (see Izard 1971). Feelings of pleasure and arousal are bodily responses which can be quantitatively measured and covary with appraisals of the relative value of stimuli, according to the *action theory* tradition in psychology. Primary emotions, such as happiness, sadness, anger, or fear are hard-wired and tied to fundamental situations of intimacy, loss or threat that shape enduring *experiences*.

Action theory

The functionalist *action* approach to emotion (see Frijda 1986) is dominant in academic circles today and has been generalized by Ed Tan (2008) to the study of ‘entertainment as emotion.’ The *action* tradition is primarily behavioral/cognitive in its outlook and functions according to a principle of *affective covariation* whereby the perceived good or bad value of stimuli are correlated with dimensions of feeling, including pleasure and arousal. A *matching criterion* is used to determine whether or not a stimulus has the potential for a positive or negative effect on pleasure or arousal (hence the covariation principle) thereby helping to resolve needs and desires.

This tradition can be traced back to the British Enlightenment which focused on practical *action* and the *pleasure* that would be consequent to astute and pragmatic decisions (see Danziger 1997; Dixon 2003). It was elaborated in Darwin’s *theory of adaptation* together with the nineteenth-century notion of *mental energy* described by Bain and the idea of *action tendencies* proposed by Maudsley. The concepts of *mental energy* and *action* were unified in a ‘two-factor model’ of emotion (Emotion = Cognition + Arousal) first proposed in the 1920s by the Spanish physician Gregorio Marañón and revised by Elizabeth Duffy (1962) among many others (e.g., Magda Arnold 1960) to describe how the individual *feels* and *acts* depending on whether or not a stimulus situation makes it possible to realize a goal. It was dramatically recreated by Schachter (Schachter and Singer 1962) in the 1960s whose name is associated with the two-factor model just as Frijda is associated with an action tendency model which was articulated a century earlier.

Experience theory

In contrast, an approach that emphasized *experience* was developed by philosophers of the Romantic period in Germany during the later 1700s. The German tradition was more holistic in its account of emotional experience as unifying mind and body and laid the foundation for an approach to emotion based on profound meanings. William James’ (1884) *peripheralist* account of emotion described feedback from the visceral nervous system and expressive reactions as shaping experience thereby lending each primary emotion, such as happiness or sadness, its unique character. Freud’s (see Ellenberger 1970) notion of the dynamic unconscious helped account for the powerful effects of symbolically rich stimulus situations (in real life or in art) which spontaneously evoke emotions tied to personally and historically meaningful life experiences. The phenomenological approach is closely allied to the Gestalt view in its concern for the structure of experience. In particular, it describes how emotional experience embodies subjective distortions of time, space, causality, materiality, and social connection (Straus 1958). According to a principle of *emotional elaboration*, the multileveled theme of an emotional episode *fits coherently* with the symbolic, sensory, spatial, and temporal structure of the experience.

Reactive and reflective modes of engagement

The *action* and *experience* traditions in emotion underlie two modes of engaging aesthetic materials: the *reactive* and *reflective*, respectively (Cupchik and Winston 1992;

Cupchik 1995). These two processes reflect an individual's desire to *modulate feelings*, by exposing himself or herself to pleasurable and exciting programs, or to *experience deep emotions* by engaging programs that are multileveled and richly symbolic. The *reactive* mode is best applied to resolving transitory needs or states, whereas the *reflective* mode is related to deeper personal meanings which provide a more profound link to the aesthetic offering and imply greater emotional elaboration.

Reactive mode

Basic principles

From a motivational perspective, transitory internal states can prompt a person to search for particular stimuli which help resolve needs. According to the principle of *affective covariation*, a person selects stimuli which modulate feelings of pleasure or excitement. This is a homeostatic process because exposure to an appropriate stimulus will ultimately diminish the need and thereby terminate interest in and engagement with the stimulus. A superficial analysis would be sufficient to identify the relevant stimulus features thereby rendering a deeper elaboration unnecessary. Thus, someone in a nostalgic mood might choose a romantic film which elicits experiences of warm and pleasurable feelings. Another person who is bored and in need of stimulation might prefer action films which foster an energized experience of dramatic uncertainty. Of course, the process is bi-directional because some films, books, or television programs are designed to elicit feelings of pleasure or excitement in readers or viewers. One can argue about the relative contribution of external stimulus properties versus internal need states but essentially we have a reciprocal relationship predicated on matching a program against one's needs.

Historical foundation

This affective covariation between particular stimulus properties and feelings of pleasure or excitement was embodied in aesthetic theory of the Enlightenment (see Cupchik 2002). The British Empiricists believed that knowledge of the world was conveyed by sense data which could evoke feelings of pleasure or pain. *Mimesis*, a faithful representation of the everyday world, 'as if it were the thing itself' (Schneider 1995: 83), was essential in aesthetics. Knight (1786, cited in Burwick 1991) offered an associationist account of how sensory stimulation would produce aesthetic reactions of pleasure and pain in his description of a person's response to the vaulted roof of a Gothic cathedral supported by slender columns. If the person suspects that the columns are not sufficient, then ideas of 'weakness and danger' may be experienced – sensation thus translates into experience. The theme of manipulation was also central to his explanation of illusion in theater whereby the audience *passively* responds 'in sympathy with increasing emotional stimulation until reason surrenders to the force of the passions' (Burwick 1991: 222). French neoclassicism similarly emphasized the importance of the 'three unities' of time, place, and action in determining dramatic illusion and the evocative power of a play (Burwick 1991). The essential idea is that carefully selected qualities embedded in the external stimulus can manipulate an individual's experience.

Empirical foundation

The *principle of covariation* associated with the *reactive mode* underlay Daniel Berlyne's (1971, 1974) approach to aesthetics which was consistent with Fechner's (1978) seminal principles. Berlyne argued that structural properties, such as complexity and orderliness, would have profound effects on states of pleasure, interest and arousal. Following in this tradition, we have shown that the relative complexity and unfamiliarity (or novelty) of paintings increased interest, whereas emotional associations to paintings depicting simple and warm social interactions enhanced the experience of pleasure (Cupchik and Gebotys 1990). Indeed, the relative orderliness of stimulus patterns and paintings could be discerned after a single glance (50 milliseconds) and subjects avoided 'high arousal' paintings, the structure of which could not readily be resolved after the first glance (Cupchik and Berlyne 1979). In a study on recognition of segments from rock music videos (Cupchik and Saltzman 1999), subjects were accurate when the piece was interesting and the image fit the music. The behavioral effects of stimulus uncertainty were shown in a study on reading (Cupchik and Laszlo 1994) where 'surprising' segments of action-oriented stories were read more quickly as subjects approached the climax. On the response side, subjects who entered the laboratory in a negative affect state expressed a preference for highly expressive artworks onto which they could project their feelings and thereby experience catharsis (Cupchik and Gignac 2007).

*Reflective mode**Basic principles*

The basic principles underlying the reflective mode are derived from Gestalt psychology and pertain to long-term emotional meanings in a person's life. An emphasis is placed on interpreting the multileveled and symbolic meaning of complex works, visual or literary, which relate to ongoing personal life themes. A deeper and more comprehensive analysis is required to personally resonate with a work. By engaging the aesthetic situation in a kind of personal repartee, the viewer can express emotions and achieve insight into his or her own life. The *reflective mode* links personal emotional meanings with an ongoing search for coherence between situations, characters, and actions in the aesthetic stimulus. More profound emotional responses related to an 'effort after meaning' require an ongoing contextualization of scenes so that the unfolding plot is rendered coherent. The reflective experience unfolds over time, is responsive to symbolic meanings perceived in the stimulus, and is shaped by transformations in fundamental dimensions of experience including temporality, spatiality, sensuality, and connectedness. This process of emotional elaboration is more challenging and profound than a transient attempt at affective covariation because it touches upon a person's life history and should therefore result in a deeper appreciation of the program offering.

Historical foundation

Scholars and dramatists in the German Romantic tradition focused on an audience's collaborative role in interpreting theatrical dramas. For Johann Schlegel (1719–49), the playwright's duty is to select critical moments in life and express

them in carefully fashioned dialogue (Wilkinson 1945). By exposing the hidden workings of a character's mind, the dramatist provides motives to account for actions as they unfold in a play to a greater degree than is available in daily life. August Schlegel (1767–1845) proposed the very modern idea that reality and illusion actually coexist. Illusion is sustained because the audience is aware of the artifice underlying seemingly spontaneous dialogue and this contributes to the overall aesthetic process. Samuel Taylor Coleridge (1772–1834) took this one step further by describing aesthetic illusion as the product of a 'willing suspension of disbelief for the moment, which constitutes poetic faith' (Coleridge, *Biographia Literaria*, 1817/1983, cited in Burwick 1991: 221). He emphasized the logic of imagination which provides a basis for a fluid continuity of conscious experience.

John Dewey also emphasized the active role of an audience in aesthetic reception. In order 'to perceive, a beholder must *create* his own experience. And his creation must include relations comparable to those which the original producer underwent ... Without an act of recreation the object is not perceived as work of art' (Dewey 1969: 367). The observer must be like the artist who 'selected, simplified, clarified, abridged and condensed according to his interest' and

go through these operations according to his point of view and interest. In both, an act of abstraction, that is extraction of what is significant, takes place. In both, there is comprehension in its literal signification – that is, a gathering together of details and particularly physically scattered into an experienced whole.

(Dewey 1969: 367)

Reader-response theorists (Holland 1975; Fish 1980) and constructivist scholars (Schmidt 1982) in the latter half of the twentieth century stressed the active interpretive roles of individuals and communities. Imagination plays an even greater role when works are seen as polyvalent (Schmidt 1982), indeterminate (Iser 1971), and open-ended (Eco 1989) without any ultimate constraint on the interpretation of truth and realism.

Empirical foundation

The *reflective* mode is responsive to multilayered works (see Kreidler and Kreidler 1972) which are complex and rich in meanings. Some people are disposed to becoming absorbed in art, literature, film, and music and these subjects were highly responsive to multileveled artworks that elicited personal memories and stimulated thoughts about personal growth (Cupchik and Gignac 2007). The art study described earlier (Cupchik and Gebotys 1990) also showed that meaningfully interpreting challenging paintings produces a sense of *competence* or *effectance* as an important component of aesthetic pleasure. In the reading study described above (Cupchik and Laszlo 1994), subjects slowed the pace of reading if they judged the text to be 'rich in meaning about life.' The finding that personal intellectual challenge slowed the pace of reading, whereas suspense-based arousal increased it, was observed in another experiment that focused on re-reading literary texts (Cupchik et al. 1998). Miall and Kuiken (2002; see also Kuiken et al. 2004) have also explored the implications of 'expressive enactment' whereby the reader engages a text to

produce metaphors of self-understanding. The same kind of rich personal responses related to identity and self were observed in a study in which subjects described their experiences of 'moving' industrial design objects (Cupchik and Hilscher 2007).

The interface between feelings or emotions and mass media

In this section I will apply the concepts gleaned from Gestalt psychology along with the principles of *affective covariation* and *emotional elaboration* to help us understand engagement with all forms of mass media. Gestalt psychology has described three fundamental concepts which are relevant, including good form, hierarchy, and spontaneous responses to dynamic and expressive 'forces.'

Good form

The principle of good form means that people will look for the simplest possible configuration that renders an image coherent or, for our purposes, *real*. From a sensory perspective, the quality of the signal and of the receiving apparatus, will determine just how 'real' the image appears to be. The higher the signal density, the greater will be the experience of 'presence,' according to the criterion of *mimesis*. The television program is thereby a vehicle of 'cultural transportation' linking viewers directly with a scene that is literally taking place elsewhere. It is *as if* you were there – for example, at a soccer or football game, in New York on 9/11, a distant witness to the unfolding scene. From a cognitive perspective, *good form* reflects the person's ability to determine a coherent and logically causal structure underlying a series of unfolding events. From an emotional perspective, *good form* implies that the emotions attributed to characters are consistent with our cultural and personally determined understanding of situations and their implications.

Hierarchy

This is a crucial concept because it applies not just to our appreciation of an individual program, but to the television medium as a whole. The ability to engage in media parsing is part of the media socialization process. The goal is to develop media fluency and reflective awareness so that a user can move smoothly through all the levels of organization both within and between programs. Consider the multiple layers of segmentation which have to be addressed. First, a user must learn the technical aspects of engaging television which become automatic over time until a new interface comes along. Second, there are the many different programming genres which appear on publicly or privately owned channels. Third, it is essential to draw a clear segmented boundary between programs and commercials. The Italian comedy film *The Icicle Thief* describes how characters from a dramatic program suddenly find themselves embedded in the commercials. Only at the fourth level do we begin to deal with the actual construction of a meaningfully unfolding program. And, within this 'effort after meaning' (Bartlett 1932), we begin to appreciate the stylistic structure that is characteristic of a genre or program offering which bears the mark of a writer or director's stylistic signature. This includes the kinds of camera shots taken (close ups, panning, hand held), the lighting of the

scene, the nature of the dialogue, the role of previous programs in setting up the current one, and so on. These various framing variations must be understood so that the program unfolds realistically and coherently.

There are many more layers behind the scenes which have to do with the social and commercial structure underlying media. Television programming tends to be digitized and delayed which makes it possible to fragment the transmission in accordance with the goals of the owners of the channels. The commercialization of this process makes the underwriting of programs and insertion of advertisements readily achieved. In the case of television, power over an individual program lies in the hands of producers who control all aspects of the creative process including the selection of writers, actors, technicians, and so on. However, we should not forget that there are many channels and that, ultimately, power resides in the hand of the person holding the remote channel changer. This aspect of personal agency is massively increased in the case of the internet because individuals can choose unending possible programs and provide immediate commentary via blogs.

It is important to understand that *good form* and the appreciation of hierarchy are fundamentally related. At a simple level, a figure appears against a ground (e.g., a bird appears in flight against the background of a forest). However, as Arnheim (1986) forcefully pointed out, there are many backgrounds and layers upon layers of organization. This is particularly true for mass media offerings where the foregrounded program is only a first step in the layering process. It is our wired-in disposition to accept the final perceptual layer, set in a meaningful context, as real and to forget about or not recognize the background layers. To the extent that the subject matter is personally meaningful, we are drawn into the image and respond emotionally. According to Bullough's (1912) classic concept of 'psychical distance' (i.e., aesthetic distance) states, and his *principle of concordance*, we become more absorbed in a work which 'corresponds with our intellectual and emotional peculiarities and the idiosyncrasies of our experience' (Bullough 1912: 92). However, media socialization requires that ultimately the viewer must succeed 'in keeping the Distance between the action of the play and his personal feelings' (p. 93). The goal is maximal involvement without excessive self-absorption: '*utmost decrease of Distance without its disappearance*' (p. 94). We might become absorbed in a program which has a high degree of realism and whose theme is personally meaningful. Salient stylistic qualities increase aesthetic distance because realism is diminished. Critical reflection involves trying to find a meaningful context within which to interpret stylistic codes.

One can reexamine the concept of 'psychical distance' as it applies to television in contemporary society. Under-distancing, the absorbing experience of intense emotion, is facilitated by large television screens, high-definition images, surround sound and any other manipulations, such as a darkened room, which serve to enhance realism and recreate the cinematic experience of theaters. Hybridizations of real and virtual images which appear in video games can also serve to create a New Realism. The effect of these manipulations is to enhance the perceptual side of experience as a foundation for 'presence.' The careful selection of theme, characters, plot, and action can reduce aesthetic distance and absorb the viewer. Serialization can also have an important impact. Some television shows are internally complete so that plot uncertainties are resolved within the allotted time slot. Other programs, such as *The Wire*, a police program set in Baltimore, USA, offer much

greater challenges with more complex characters and plot elements or uncertainties which are addressed over a series of episodes. This heightened demand for patience and viewing depth should be accompanied by greater cognitive and emotional elaboration and yield a more committed audience.

Increased aesthetic distancing, a more detached viewpoint, is a function of various aspects of television presentation including the presence of the TV set as a framed object, the lived-space around the set which physically distances it from the viewer, the complex remote control which offers a mute button and affirms the segmented nature of channel and program offerings. The remote 'clicker' has taken on a very important distancing role because a viewer is able to quickly sample across potential offerings or view one image inset on the larger screen. The ability to engage in rapid attentional and cognitive shift further separates the viewer from the television as a source of entertainment. The detachment associated with over-distancing has helped wean a new generation from television to the internet as a source of entertainment over which control is maximized.

Ultimately, the viewer must be able to move away from the *good form* of the image-scape that is both realistically engaging and personally meaningful. Knowing that media involvement entails Coleridge's 'willing suspension of disbelief' enables the viewer to gain aesthetic distance. This is crucial for critically evaluating the media offering to appraise just how 'real' it is. In this chapter, I have focused on encounters with dramatic episodes, but critical reflection is particularly relevant for news programming which offers images that appear 'real' but which might be manipulated by self-interested governments who wish to convince the viewer about the truth value of their assertions. For example, embedding reporters in carefully contrived military scenarios can justify the invasion of a country just as the careful selection of available media 'feeds' can create an image of which country is the aggressor. Without the ability to move between empathic engagement and critical reflection, the viewer may become lost in the apparent 'reality' of an image that is in fact contrived.

Dynamic and expressive forces

The critical point here is that affective responses are ever-present in our encounters with aesthetic or media offerings. Emotions are clearly elicited by subject matter or programming with which we are familiar. Negative emotions in particular are experienced immediately and are resistant to change as demonstrated by a study of responses to photographs relating to the themes of tragedy, sexuality, and irony (Cupchik and Izadpanah 1998). Feelings of pleasure or arousal accompany the very act of decoding or interpreting an image from a person's earliest exposure to it. There is an inverse relationship between visual or narrative conventions and the experience of affect or emotion. The more structured and conventional an image, the less the impact of the style of presentation. However, when programming style becomes more original, the viewer is challenged to find a proper perspective within which to interpret the program. Tan (2008) has expressed the hope for greater communication between the creators and recipients of mass media offerings. This presumes that the recipient can relate to the emotional themes and appreciate how they are embodied in the style of *auteurs*.

A central theme underlying this chapter is that cognitive and affective processes are intertwined. The depth of processing metaphor from cognitive psychology

(Lockhart and Craik 1990) is highly relevant to my account of emotion and mass media. Feeling-oriented processing associated with the *reactive mode* tends to be more superficial and is concerned with alleviating transitory needs through the judicious selection of relevant stimuli. There is no need for an elaborate 'effort after meaning' because the covariation between stimulus and need is sufficient to return the person to a homeostatic state. The selected stimuli are of a more general kind and explicit meanings need not be resolved.

Emotion-oriented processing is closely tied to the self and the multilayered meaning of complex narratives engages a person in the *reflective mode* in a more elaborate 'effort after meaning.' This search is more exhaustive in its effort to find coherence in a narrative, a coherence that resonates with the person's life experiences. The kind of Reader Response activity is open-ended and there is no official answer regarding the meaning of a mass media offering. While the nuances of interpretation may vary, there is still a central tendency in the meaning which can link the viewing audience with the main author of the program. Themes that govern a person's life, unresolved issues, buried emotions, and so on, will make unique programming and short series of particular interest because the characters and dilemmas that they face are salient for the individual. The bridge that is built from the depths of the individual to the heart of an excellent dramatic series should yield long-term attachment and profound recall of programming details.

Over time, power has moved to the hand of consumers who can turn their backs on television per se in order to create their own hybrid forms of entertainment. This change has important implications for the role of feelings and emotions in mass media. John Dewey's words were prophetic: 'to perceive, a beholder must create his own experience' because this creation of experience goes beyond the 'willing suspension of disbelief' and the construction of individual or collective meanings. Now viewers can experience the pleasure, excitement, and personal meaning which guide the creation of personal profiles on *Facebook* and recreate their identities on an ongoing basis. They can produce short films which appear on *YouTube* for mass audiences. Film and television have spawned a generation of *auteurs* for whom the narrative of personal subject matter trumps the subtlety of style. And yet in the hands of a talented person, the medium becomes the message both personal and emotional.

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Part V

**Emotions and next
generation media**

20 Using automated facial expression analysis for emotion and behavior prediction

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The expression of emotion is achieved through intricate combinations of verbal and nonverbal information produced from various sources of the body and the brain. Nonverbal information encompasses any message that is not expressed in words (DePaulo and Friedman 1998) including gestures, postures, and vocal tones. Though people often do not invest much thought to the nonverbal aspect of communication due to its automaticity, nonverbal cues are the primary vehicles for expressing emotions and managing emotional experiences (Burgoon and Hoobler 2002). Among the communicative channels that express emotions, the face is often considered to be the richest source of nonverbal information (e.g., Collier 1985; Ekman 2003).

In the past, much of the research on facial expression has been based on Ekman's proposed method of measurement by dividing expressions into categories of predefined emotion labels (Ekman and Friesen 1978). Not only is this process labor-intensive but it is also restrictive in the sense that the interpretation of facial expressions must be based on this predefined number of categories regardless of the intensity, duration, and variety of feature movements. Automated facial expression analysis offers many benefits when compared to these methods; computers enable researchers to process incredible volumes of data in a short amount of time in a more systematic manner (Colmenarez et al. 2004). However, most of the work applying automatic facial feature detection until now is limited in that it still depends heavily on the conventional category-based measurements in the data analysis phase.

In this chapter, we propose a model of approaching facial expression detection and analysis that goes beyond category-based measurements by incorporating automated technologies that make create and automatically improve prediction models based on raw facial feature movements. Using a computer equipped with a small camera, tracking software, and machine learning (an automated form of computer-generated self-enhancement), we are able to select the most relevant facial features out of the massive collection of raw data and improve the prediction model in a time- and cost-efficient way. This allows us to utilize the raw data without fitting them into predefined categories, giving us greater analytical power than conventional category-based predictions. Moreover, our suggested methodology is notably unobtrusive when compared to other behavioral measures such as physiological measures, which usually require numerous sensors to be attached to the body.

We begin the discussion with a brief survey of facial expressions as a source of emotion signaling and conventional measurement methodologies used in prior studies of facial expression. We then introduce some advantages of using computers to classify emotions and to predict behavior based on raw facial feature data. The

following section presents our proposed methodology of coupling automated facial expression analysis and machine learning in detail. In order to facilitate the understanding of this rather technically dense section, we also introduce several empirical studies applying the proposed methodology. Finally, we discuss the implications of this technology and suggest that automated facial expression analysis may be a valid new methodological tool for social scientists across diverse fields.

Facial expression of emotion

People have long believed that facial expressions are indicative of mental states but the scientific community has yet to reach a consensus regarding the relationship between facial expressions and emotions (for review, see Bente et al. 2008; Manstead and Fischer 2002; Russell and Fernandez-Dols 1997). The assumptions underlying our proposed methodology are that automatically gauged facial expressions will be valid reflections of mental states (see Izard 2009 for a review) which will allow us to predict future behaviors. Thus, the debates most relevant to our proposal would be those regarding the automaticity (vs. conscious control) and universality (vs. specificity) of facial expressions across individuals.

The bulk of the debate surrounding the emotion–expression link is based on dual-processing theories that give way to models with differing arguments for the interplay between automatic and controlled processing following stimuli (e.g., Gilbert 1991; Trope 1986). These models reflect contesting views on the degree of influence exercised by conscious control over the emotional response, determining the degree of expressed emotion. At the same time, the models agree that the initial emotional response following the stimulus is automatic (Barrett et al. 2007). Furthermore, as conscious control of emotion expression tends to be driven by social context (Jakobs et al. 1996) or particular goals (Zaalberg et al. 2004), it may be inferred that in situations devoid of particular social interactions, the emotional responses following stimuli are generated automatically.

In contrast to automatic facial responses, Ekman and Friesen (1969a) coined the term *display rules*, which are socially learned and often culturally distinct rules about the management of expression. Emotional responses are initially automatic and not controlled by conscious will (LeDoux 1996), but it appears that social rules can regulate the appropriate manifestation of emotion expressions. Ekman (1972) provided empirical evidence of these display rules by demonstrating in a series of studies that upon viewing films of surgery and accidents, Japanese people tend to mask negative expressions with a smile when in the presence of another person. When left alone, however, the Japanese participants displayed the same facial expressions demonstrated by American participants in a separate group. Thus, in situations where individuals need not incorporate such conscious control of emotion expression, they will allow the initial automatic responses to dominate, yielding veridical reflections of the internal state of their minds.

The issue of universality of facial expression across cultures has also gained some persuasive evidence. Recently, Matsumoto and Willingham (2009) tested the universality of emotion expression via facial expressions by using blind participants. Their results indicated that people who were born blind, people who became blind later on in their lives, and normally sighted people all shared common expressions of happy smiles after winning an athletic event. Further evidence is provided by neuroscience

such as Panksepp's (1998) neurobiological model (see also Panksepp et al. 2000) which focuses on the emotions behind expressions. Similar to Ekman's work (1972) on universality of the expression for a set of 'basic' or 'core' emotions (e.g., anger, fear, joy, sadness, playfulness) across cultures, Panksepp also argues for basic emotion systems which are hardwired at birth by using positron emission tomography (PET) and functional magnetic resonance imaging (fMRI) technologies. Although all emotion cannot be categorized into discrete, predetermined categories, these researchers maintain that the emotional range is created from subtle variations of the basic set of emotions.

Thus, according to the theories of automatic and universal expressions of emotion, detecting and assessing facial expressions will yield insights to internal emotional states and these results may even be generalized across cultures. Therefore, the discussion of various methodologies to scientifically measure and analyze facial movements is important in our attempt to capture the expressions of the face. Wagner (1997) divides these methods into two groups: measurement studies, which answer questions regarding facial behavior by the objective measurement of facial movements, and judgment studies, which answer research questions by gauging responses from observers. This chapter focuses on the former, as it applies to the prediction of emotion and behavior. One of the two most widely used methods in measurement studies of the face is electromyography (EMG), which measures the contraction of the muscles underlying facial skin (Cacioppo et al. 1990). However, the EMG tends to be intrusive due to the use of electrodes, the equipment is costly, and the output data can be unreliable (Wagner 1997).

The other form of measurement uses objective coding schemes based on visible units of facial behavior. This is usually done by post-processing videos recorded during an experiment, using slow-motion replay and frame-by-frame analysis of facial movements by human coders who systematically follow descriptive rules of judgment. Systematic measurements, such as the Facial Action Coding System (FACS) created by Ekman and Friesen (1978), the Maximally Discriminative Facial Movement Coding System (MAX) (Izard 1979), and emotional FACS (EMFACS) (Ekman and Friesen 1982) have been developed to objectively study the relationship between facial expressions and emotions. However, use of these methodologies requires extensive prior training of the coders and a frame-by-frame analysis of videotaped participants, which is labor intensive and raises problems regarding inter-observer reliability (Sayette et al. 2001). Furthermore, this process often leaves room for measurement variance due to human error, as there is no way to determine the precise onset, progression, and termination of each expression.

A factor that makes the measurement of facial expression difficult is that manifestation of emotion is fleeting and transitory, typically lasting from half a second up to four seconds (Ekman and Friesen 1969a, 1969b; Ekman 1984; Izard 1997). Despite conscious efforts to conceal true emotions following display rules, these involuntary micro-expressions tend to slip through and 'leak' actual internal states (Ekman 1997). For instance, in deception, a person may be able to consciously maintain an expressionless face (i.e., 'poker face') but may unconsciously shake his or her leg at the same time, leaking signs of nervousness.

In order to detect patterns in these veridical leakages of emotion on the face (i.e., by modeling facial feature movements), extensive observation is required, in which case using a computer to replace the human coder would yield optimal

outcome. Frank (1997) comments that automatic facial tracking ‘has the potential to save countless hours in scoring the dynamics of facial actions, thus it may make viable the discovery and exploratory work that is needed on dynamic markers of emotion in the face’ (p. 240). As such, more researchers are embracing computers to collect, classify, and interpret various forms of nonverbal cues such as facial expressions, voice, or gestures as a more effective means of investigating emotion expressions compared to the human-coder. For instance, Picard’s (1997) recent work includes using sensory inputs from multiple sources (e.g., facial expressions, head movement, and posture) to predict frustration in learning environments (Kapoor et al. 2007), monitoring dialogue, posture, and facial features to detect and respond to a learner’s emotions and cognitive states (D’Mello et al. 2008), and developing portable aids which track, capture, and interpret facial and head movements of other people to assist individuals diagnosed with autism spectrum disorders in social interaction (Madsen et al. 2008).

Advantages of automatic facial expression analysis

Computer systems open up new horizons for emotion detection by recognizing and detecting nonverbal cues via automated devices. Although these systems are still far from achieving the capacity of human perception, they are able to classify and assess user emotions through predetermined mathematical models with limited human intervention (for a review, see Konijn and Van Vugt 2008; cf. Gratch this volume; Prendinger and Ishizuka this volume). Among the various modes of nonverbal communication, we focus on facial expressions which are captured by small cameras and later analyzed with computer software. Before introducing our proposed method in detail, we highlight some advantages of using technology to replace the more traditional forms of measurement discussed earlier.

First of all, automatic facial expression analysis performs with a higher accuracy than human coders who have large margins of error and may overlook important information. As Osgood (1953) noted, ‘From the total splurge of sounds made by an actively vocal infant, only the small sample that happens to strike the observer is recorded at all’ (p. 684). In contrast, computers are able to detect micro-expressions, even those that last for only a few seconds at a time, that human coders may miss. In addition, the computer does not fatigue and shows relatively little inconsistency in performance. As Webb et al. (2000) point out, ‘People are low-fidelity observational instruments ... recording and interpretation may be erratic over time, as the observer learns and responds to the research phenomena he [or she] observes’ (pp. 143–4).

Recent studies applied automated feature extraction and classification to extract macro features such as the head and hand position and angle from video cameras (but not changes in facial features) taken during an experiment where a mock theft took place (Meservy et al. 2005). Computer models obtained up to 71 percent correct classification of innocent or guilty participants based on the macro features extracted from the video camera. Furthermore, in an overview of deception detection research, Meservy et al. (2008) noted that the accuracy of humans coding behavioral indicators only falls around 50 percent, but that computers trained to automatically extract and identify relevant behavioral cues detect deception with significantly higher accuracy. Furthermore, computers operate without the invasiveness of other methods

(e.g., physiological measures such as polygraph machines or lie detectors) and the cost of extensively trained human interviewers.

Yet another advantage of using automated facial detection technology coupled with computational models is that once the system secures the parameters for a model, *prediction* of behavior (vs. simple detection and classification) can be made using only a small sample. This is a computational rendering of what social psychologists call ‘thin-slicing,’ a way people sample a short excerpt from social behavior to draw inferences about states, traits, and other personally relevant characteristics (Ambady and Rosenthal 1992). Prior research has demonstrated that initial moments of behavior have high correlations to the decisions made and actions taken in the future (Carrère and Gottman 1999; Gottman and Levenson 1992; Gottman and Notarius 2000). For instance, based on an observation of a three-minute video clip of a conflict between a married couple, Carrère and Gottman (1999) were able to predict the outcome of that marriage after six years. Using machine learning coupled with computer vision allows computers to mimic this human cognitive process; models are trained on a short sample of facial features and from those features automatically predict future behaviors.

Using this approach, Curhan and Pentland (2007) demonstrated that computers can use thin-slices of behavior in the first few minutes of a negotiation task to predict future outcomes. The methodology used in their study is comparable to ours in that they used data collected via computers and thin-slicing to predict behavior. In their study, computers were used in place of human coders to detect vocal behaviors (e.g., time spent speaking, influence over conversation partner, variation in pitch and volume, and behavior mirroring) during a negotiation task. Their results imply that the speech features extracted during the first five minutes of negotiation are highly predictive of future outcomes. The researchers also noted that using computers to code speech features offers advantages such as high test–retest reliability and real-time feedback.

As a cost-effective and relatively accurate method to detect, track, and create models for behavior classification and prediction, automatic facial expression analysis has the potential to be applied to multiple disciplines. Capturing behavioral data from participants such as facial expressions or head movements may be a more accurate representation of how and what they feel, and a better alternative to self-report questionnaires that interrupt participants’ affective–cognitive processes and are subject to bias (Reynolds and Picard 2005; Picard and Daily 2005).

In the studies detailed in the following pages, we present some empirical applications of automatic facial detection coupled with learning algorithms. We begin with an introduction of the common methodology used in all of our experimental work and describe how we are able to derive behavior predictions from facial features.

Overview of proposed methodology

Facial expression recognition is a method of classifying facial motion and facial feature deformation into abstract classes based on visual information alone (Fasel and Luetttin 2003). Our proposed method is a bottom-up approach in which the correlation between facial movement and a particular output (e.g., behavior, attitude, or emotion) becomes the formula for establishing not only a classification model but also a prediction model. As all of the raw facial feature movement data

are processed to create these models, they reflect intricate combinations of feature movements and movement patterns which would be lost to the human coder using conventional measurement schemes.

Computer vision and machine learning form the cornerstones of our approach to modeling and predicting human behavior. Machine learning is a technique in which computers are programmed to modify and improve their performance based on novel data input (Bishop 2006). In this way the machines mimic the process of learning, autonomously adapting to external change in the environment (i.e., new input factors) and reducing the need for constant re-design.

Many of the problems approached with machine learning are *linearly separable*, which means that there is a clear distinction between one group and another in a given space. In this case, a model can be created to perform classifications in which parameters are established and modified until an optimal standard for categorizing different objects into a certain space is set. That is, through repeated trial and error, the model improves the method of calculating and estimating how to correctly classify individual instances of data until it reaches its optimum performance level. This is considered to be the *training* process through which these machine algorithms learn.

Although the computations behind this process are extremely complex, in greatly simplified terms, machine learning used in linearly separable classifications can be likened to a linear regression. There is an *input layer*, which is similar to independent variables, and an *output layer*, which is analogous to dependent variables. By detecting correlations between the input and output layers, the computer 'learns' how to derive the output with the given input. Once the computer goes through numerous sequences of input and output information, it is able to secure the parameters for a model. Then, as in regression analysis, this model can be used to predict a novel output with novel input data, thus successfully completing classification tasks.

However, not all problems in the real world are linearly distinguishable. The strength of certain machine learning methods, such as the Support Vector Machine (SVM), is that the machine classifier is effectively able to handle nonlinear problems (Elizondo 2006). This requires complex computations that map nonlinearly separable data into numerous independently linear dimensions until the data becomes linearly separable. This would be analogous to breaking down complex, multi-dimensional data into uni-dimensional data for ease of analysis. Using computers allows researchers to resolve this issue as the machine classifier is able to comb through large amounts of data and detect linear patterns from what seems to be a complex, nonlinear spread of data. This is a powerful alternative to conventional statistical methods in finding causal relationships in social science research.

To create our models we used facial feature data extracted from recorded video clips as the input layer and participant behavior gauged through behavioral measures or surveys as the output layer. Once the computer secured the parameters of its computational model, we were able to predict the behavior of a new person based solely on his or her new face feature data. Because we are looking at twenty-two or thirty-seven characteristic points on the face (depending on the specification of the tracking software) rather than at a single feature to derive correlations between facial features and behaviors, our input space is often complex and nonlinear. Using machine learning algorithms provides us with the analytic power to search for patterns on multiple dimensions.

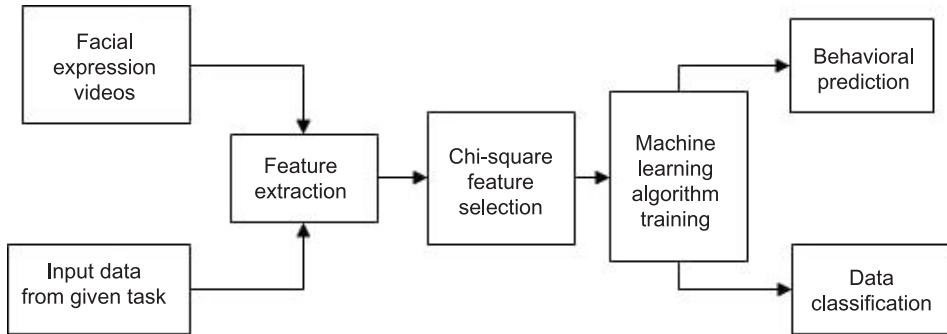


Figure 20.1 Data analysis procedure.

Although previous work has used machine learning to detect and classify the movement of facial features, our approach extends these efforts by focusing on the predictive function of these models. That is, although prior models stop at either detecting facial movements or classifying them into pre-designated categories, our model goes beyond to predict the future behavior within a given task (e.g., a virtual car accident or an error in performance). This opens up the possibility of such models becoming a common methodology in social scientific and behavioral research, as discussed in detail in the final pages of this chapter. Figure 20.1 summarizes the typical phases of data analysis used in our experiments.

Facial feature extraction

The first step in the construction of a typical dataset includes post-processing the videos of facial movements recorded during experimental tasks to extract key facial features and head movements. In our studies, a computer vision library, such as the Neven or the OKAO vision library, was used. The Neven vision library automatically detects, without any preset markers worn on the face, the x and y coordinates of 22 points along with eyes and mouth openness levels and head movements such as yaw, pitch, and roll (the measurement of object rotation for X , Y , and Z axes, respectively) for each frame of the video. The OKAO vision library, developed by OMRON Corporation, automatically detects and tracks 37 points on the face, head movements such as pitch, yaw, and roll, as well as eye and mouth openness levels. In Figure 20.2, we present a screenshot of OKAO face tracking software.

Data synchronization and time series statistics calculation

In the next phase of analysis, video recordings are synchronized with data collected from experimental tasks such as surveys or simple motor tasks. This is done to map the extracted facial geometry information to behavioral output data. In the experiments described in this chapter, three to five second intervals of facial expressions were taken one to two seconds before each instance of the behavior to be predicted and used as the input data. After data synchronization we also computed a series of time-domain

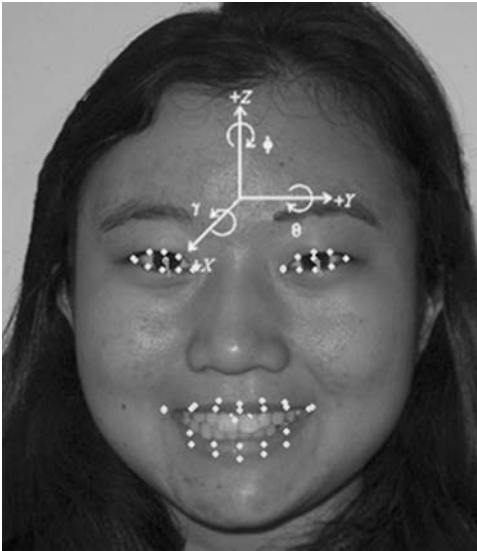


Figure 20.2 OKAO vision tracking points on participant's face.

statistics on the coordinates in each interval to use as additional inputs to our classifiers. Statistics calculated included averages, velocity, maximum value, minimum value, standard deviation, and range. All of these values were computed for each of the Neven or OKAO outputs. For some important facial characteristics, such as the eye and mouth openness levels, we created five-bin histograms from 0 percent to 100 percent to capture the distribution of eye and mouth state over the interval. We also calculated the percentage of the time the eyes were closed during each interval.

Statistical feature extraction

In our experiments, we discovered that classifiers using a reduced feature set tended to perform better because training the model with an excessive number of features leads to over-fitting. One reason for over-fitting is that there is often much overlap among our features. For instance, the left eye x -coordinate usually correlates well with the right eye x -coordinate. Including this redundant information results in reduced accuracy in our models. Thus, in order to reduce our datasets to only the most relevant features for each analysis, we performed a chi-square analysis for each of our datasets. A chi-square analysis evaluates the worth of an attribute by computing the value of the chi-squared statistic with respect to the class. By performing this analysis and ranking the obtained scores we were able to determine the most informative features for a given dataset and select only those above a certain threshold to use in our final classifications. This not only alleviated the problem of over-fitting, but also reduced computation costs and identified which features were most important indicators of the behavior we were aiming to predict, and sped up the process of training.

Dataset creation

To prepare our data for classification, we split each dataset into two subsets – an independent test and training set – by selecting test instances from a certain group of participants and training instances from a different, nonoverlapping set of participants. This was done so that we could secure the parameters of our model from one group of participants and be sure that none of those participants appeared in the dataset we tested our models on, which would result in falsely high reported accuracies.

Evaluation of classifier performance

Machine learning, as discussed above, was then used to analyze the dataset created. To select the type of classifier which would best perform each task, we tested some state of the art machine learning classifiers, including Support Vector Machines, Logitboost with a decision stump weak classifiers, Multilayer Perceptron Neural Networks, and Bayes Net Classifiers (Freund and Schapire 1996; Friedman et al. 2000) on each dataset. We built all classifiers using the freely distributed machine learning software package *Waikato Environment for Knowledge Analysis*.

To gauge the performance of our classifiers, we used two main measures: *precision* and *overall accuracy*. *Overall accuracy* is defined as the percentage of correctly classified instances. *Precision* is defined as the percentage of correctly classified instances in a given class. Note that *overall accuracy* is a gross measure of performance while *precision* is a measure of the accuracy within a given class. Thus in looking at both *overall accuracy* and *precision* we are able to obtain a comprehensive measure of the performance of our classifiers.

When viewing results, however, we also consider the *chance overall accuracy* and the *chance precision* for each class. We define a *chance classifier* as a classifier that would naively guess the class of an instance using the proportional split of the data; if the dataset consisted of twenty-five error instances and seventy-five nonerror instances, the *chance classifier* would classify an instance as error 25 percent of the time and as nonerror 75 percent of the time. The *chance overall accuracy* is defined as the percentage of instances such a naïve classifier would correctly classify and the *chance precision* for each class is the accuracy it would achieve in each class individually. By comparing our classification results to the results of this chance classifier, we are able to gauge the statistical significance of our models.

Empirical applications

In this section, we introduce some of our empirical studies that used computer vision coupled with machine learning algorithms to detect and classify facial features as well as predict future behavior based on these facial features. Compared to facial expression studies that use human coders, all of our studies were able to process more data faster with less labor, achieve high test–retest accuracy across all participants, and detect patterns in facial movements that predict future behaviors that may have been lost to the human eye. Along with research benefits for social scientists, implications for real-life applications will also be discussed for each experiment.

Real-time classification of evoked emotions

Our initial study (Bailenson et al. 2008) demonstrated the application of automatic facial recognition and machine learning to detect facial patterns and movements that correlate to discrete emotions. The processes and results of this study will further help readers understand how automated facial tracking and prediction based on computer vision and machine learning algorithm can be used to predict emotion.

The input data for this study consisted of videotapes of forty-one participants watching films that elicited the emotions of either amusement or sadness, along with measures of their cardiovascular activity, somatic activity, and electrodermal responding. It should be noted that the recorded expressions were spontaneously elicited expressions, unlike the photographs of deliberately posed faces often used in prior facial expression research (e.g., Ekman and Friesen 1971). Therefore, the probability that we accessed veridical emotions is higher than in studies that used deliberately posed faces (see Nass and Brave 2005 for further discussion of this distinction).

The output criteria was the intensity of the two emotions rated by trained coders looking at a second-by-second assessment of sadness or amusement of the recorded facial expressions using coding software informed by Ekman and Friesen's (1978) FACS. We correlated these input layers to the output layer (i.e., emotion) by building algorithms that used extracted points from the participants' faces as well as their physiological responses to predict the level of amusement or sadness for every person at every second.

We first created classifiers to detect discrete emotions (amusement, sadness, and neutral). These models were highly successful, demonstrating 90 percent overall accuracy in classifying amusement and 72 percent overall accuracy in classifying sadness, using only facial feature data. Furthermore, the overall accuracy rates increased to 91 percent and 75 percent respectively when physiological data was included with facial expressions as input layers.

Given the success of our initial binary classifiers, we also attempted the more difficult task of predicting the intensity of emotion. In predicting the emotional intensity of amusement, in terms of variance covered the model performed with a correlation coefficient of 0.53 ($MSE = 1.44$) based on just facial features. For predicting the intensity of sadness, the linear regression function performed with a correlation coefficient of 0.23 ($MSE = .79$). This suggests that machine learning algorithms may be successfully used to predict emotional intensity of amusement and sadness based solely on facial expression.

The results imply that computer vision coupled with machine learning algorithms may be used to detect, classify, and predict emotion and emotion intensity with relatively high accuracy. Along with important academic implications, the possibilities of industry applications are infinite. Examples of interested parties may include advertisers wanting to know the emotions of consumers, participants on dating sites interested in the emotion felt by their partners, and television producers interested in the emotions of their viewers.

Predicting unsafe driving behavior

Driving is an integral activity in the lives of many and emotions may well play a large role in driver safety (Lerner et al. 2008; Ranney 2008). There have been many

recent research efforts to develop vehicle collision avoidance systems (Bertozzi et al. 2005; Kurihata et al. 2005; Suzuki et al. 2005; Williamson and Chamberlain 2005). These studies demonstrated that systems inside vehicles can use information collected about the driver, such as emotional states or distraction levels, to predict unsafe driving behavior. We extend the previous work by attempting to use facial expressions in not only detecting mental and emotional states but also in predicting driving accidents two full seconds before they occur.

For our study (Jabon, Bailenson, Pontikakis, Takayama, and Nass 2010), participants were asked to drive through a 40-minute course in a driving simulator. The driving simulator was set up to run on a personal computer and the simulated image of the roadway was projected onto a white wall in the lab. The course simulated driving in a suburban environment with conditions varying from light to intense traffic (see Figure 20.3).

Based just on facial features, our system was able to predict minor and major automobile accidents with an average overall accuracy of 78.8 percent, which is over 25 percent better than the performance of a chance classifier. As explained earlier, chance classifiers are naïve methods of classification based purely on the proportions of instances. We also found that including supplementary information from the car, such as brake and accelerator maneuvers, improved the accuracy by 10 percentage points or more.

The results indicate that it would be relatively easy to create and apply a driver safety system using a small camera and a small computer to detect and analyze driver emotions and behaviors through facial expressions in real-time. Prior studies have shown that drivers who are more likely to become angry (e.g., those with high trait anger rates) tend to engage in more aggressive behavior on the road, which can result in negative outcomes such as crashes (Deffenbacher et al. 2003). Our model of accident prediction in this study and the model to predict emotional



Figure 20.3 Participant being monitored in STISIM driving simulator.

state and intensity discussed earlier could be coupled and applied to predict such emotional states *and* accidents before they occur.

Monitoring operator fatigue

Another area that we focused on is performance prediction, in particular, predicting the learning process of people tackling new and unfamiliar motor tasks. Many activities in everyday life require learning and performing some sort of motor skill, as do many jobs at workplaces. The ability to gauge the process of learning and predict future performance would lead to solutions that could optimize the productivity of both the individual and the organization.

This study (Ahn et al. 2009) aimed to use computer vision coupled with machine learning algorithms to predict errors before they occurred, to correctly identify whether a participant is learning or has already mastered a given task based on facial expressions, and also to predict overall participant performance quality based only on facial features. Moreover, we used thin-slicing to base our prediction of overall performance quality on facial data from the first seven minutes of participation.

The experimental task in this study was a simulation of a factory assembly line in which participants fit screws into designated holes using a *haptic device*, an input-equipment which allows users to feel, touch, and manipulate objects in virtual space. On the left-hand side of the monitor, participants saw three boxes, each containing a screw with a different part number. In the center of the screen, there was a wooden box with seven holes labeled with part numbers. The wooden boards were programmed to refresh to a new board after a pre-programmed amount of time. Every time the participant successfully filled out two consecutive boards without any errors (indicating that the level of difficulty was too low), the given time was curtailed by three seconds. This ensured that the participants were working at a rate of difficulty that corresponded to their level of learning. As can be seen in Figure 20.4, we recorded videos of the participants' faces and the movements of the haptic pen.



Figure 20.4 Experimental setup.

Using the collected facial expression data from the web-camera recordings and the performance data from the haptic pen, datasets were then constructed to build our computational models according to the processes discussed above.

We then built five separate prediction models. The first used facial data collected two seconds before an error occurred to predict the impending error. The second model classified whether or not a participant was in a 'learning' phase or 'mastery' phase of the experiment. *Learning* was defined as sessions in which the given time continuously decreased. Decreasing completion time indicated that participants were adjusting to the task and that they were gaining speed and accuracy. *Mastery* was defined as sessions in which the given time had stopped decreasing and had leveled off. This indicated that a participant reached his or her maximum performance capacity and was unable to complete the task any faster. The final three models predicted the overall quality of performance, learning capacity, and the rate of fatigue for each participant. In making the last three models we used only data from the first seven minutes of facial features, mimicking cognitive thin-slicing.

Results indicated that the face does indeed reveal information about impending errors and participant performance. The three models built to predict overall performance, learning capacity, and the rate of fatigue for each participant based on only a thin slice of data performed with overall accuracies of 91 percent, 78 percent, and 99 percent. The overall accuracy rate for error prediction two seconds before the event was 88.7 percent, and the overall accuracy of classifying learning and mastery phases were 66 percent.

Thus, we have evidence that computer vision coupled with machine learning algorithms is not only able to predict complex behaviors such as motor tasks and learning, but is also able to mimic cognitive thin-slicing. That is, the patterns of facial expressions detected within the first few minutes of the task could be used to predict the overall performance outcomes of participants at the end of the task. This further demonstrates the predictive power of patterns within fleeting facial movements. An example of a real-life implementation of this finding may be a system with which the facial expressions of workers are monitored to assess fatigue levels and establish the most effective work–rest schedules.

Online shopping

This study (Ahn et al. 2008) explored the possibility of predicting whether or not a consumer on an online shopping site will purchase a certain product based on only his or her facial expressions moments prior to the purchase. Online behavior involves countless dispositional and environmental variables. By predicting consumer behavior based on facial expression alone, our system would not only shed light onto online consumer decision-making processes but also yield important implications for developing advertisements or sales aids that react to the facial expressions of consumers. This could also lead to the establishment of an interactive shopping experience.

Until recently, clickstream has been the most widely used measure of online consumer behavior. Clickstream is a tracking technique that denotes the path a visitor takes through websites (Bucklin et al. 2002). Two aspects of browsing behavior are tracked: the visitor's decision to continue browsing or exit the site, and the length of time spent in each page. However, Fox and Spencer (2006) point out that

although clickstream data can point out the 'when' and 'what' of web visits, it fails to answer questions about the 'how' and 'why' of consumer site use. In this light, supplementing facial data with click-through data will provide greater accuracy in predicting online consumer behavior.

The first part of the experimental task was to answer two rating questions regarding the twenty-four products selected from the pretest. The first question measured how much a participant liked the product and the second measured how likely the participant was to purchase it. The second part of the task showed a complete list of the twenty-four products rated by the participant in thumbnail pictures and required the participant to choose the final set of five products that he or she would like to buy. This was to relate the purchase intention measured in the first task to actual purchase behavior measured by this second task.

The dataset construction for this study first required extracting the facial features of the participants from the web camera videos taken during the study and then synchronizing this data with the user responses to the survey. Statistics were then computed on these facial points.

Overall, classifiers we subsequently created demonstrated better accuracies when predicting purchasing behavior than when predicting liking. For all categories of products, the classifiers performed from 8.35 percent to 44.4 percent above the performance of a chance classifier. This implies that consumers incorporate different information processing tactics when they evaluate products versus when they make purchasing decisions. In relation, previous work by Sood and Forehand (2005) demonstrated that memory tracing for choice tasks is higher than for judgment tasks. Choice tasks can be paralleled to the buying ratings in our study and judgment tasks to our liking ratings. The authors note that choice tasks encourage consumers to rely on heuristics which implies that the buying rating may be based more on heuristics than the liking ratings. Because heuristic decision-making takes into account peripheral cues such as emotions, and an increase in emotional stimuli leads to an increase in facial expressions, participants are likely to show richer facial expressions for buying ratings than for liking ratings, thus increasing the probability of better predictions.

Among products with a high likelihood of purchase, products that invoked amusement had a purchase intention prediction rate of 10 percent above chance. This could be accounted for by the fact that humor triggers an orienting response where individuals display a certain level of arousal and increased attention to process the novel stimulus. This could lead to leakage in facial expressions as the individual loses cognitive control of the face and the variance of facial feature movement may be intensified. In other words, the orienting response toward humorous products may have enriched the expressions displayed on the face, yielding a greater variance within the data for analysis.

Another category that yielded significant results among products that the participants wanted to buy was the high involvement products, with a purchase intention prediction rate of 44.4 percent above chance. Intuitively, high involvement products encourage consumers to become personally engaged in the decision-making process (Greenwald and Leavitt 1984; Zaichkowsky 1985) and such personal connections are bound to bring in heuristic cues heavily loaded with emotions and personal memories. Similar to orienting responses, high involvement in a product may then yield richer facial expressions, which would explain the higher predictive power.

Although this study did not focus on detecting the emotions of consumers as they shopped online, it is highly likely that some level of affect was involved in producing facial expressions, especially for high involvement and humorous products. One of the strengths of our approach is the system's ability to predict behavior without having to define emotions or to decide their relationships with facial expressions. The model is able to objectify facial movement regardless of the specificities of the felt emotion and establish a real-time system that can predict the purchasing behavior of consumers.

Discussion and implications

The face is an important nonverbal channel to signal emotions and its expressions hold important implications in communication and social interactions. Although more than 10,000 expressions can be made using just the facial muscles (Ekman 2003), scholars are still actively debating about a handful of basic emotions expressed through spontaneous facial movements (e.g., Fridlund 1994; Izard 1990; Matsumoto 1987; Russell 1997).

The difficulty of the topic of facial expression and emotions lies in the fact that, as noted by scholars such as Ruch (1997) and Zajonc (1998), emotions tend to be a slippery, hypothetical concept that cannot be defined and observed directly, but can only be inferred from several indicators such as behavior, physiological changes, or self-reports. Using a systematical measurement tool such as FACS helps researchers by breaking down facial expressions into distinctively measurable units, providing a tangible approach to investigating the causes and effects of facial expressions. However, FACS is labor-intensive, susceptible to problems of inter-coder reliability, and limits the usage of data.

Computer vision coupled with machine learning offers a cost effective and reliable alternative to human coding of emotion. Computers are able to offer measurement of facial feature movements with precision that would be difficult to match by human coders and provide accurate data on the duration and intensity of the movement. With the incredible rate of technical development, the machine's ability to detect and analyze facial expressions is likely to increase in the future. Just as computer programs now execute most statistical calculations, it may not be long before we rely heavily on computer power to plough through the massive amounts of data to figure out the relationship between facial expression, emotion, and behavior.

Our empirical studies demonstrate that coupling computer vision and machine learning algorithms can take facial expression research beyond the limited capacities of prior methodologies and help researchers obtain a firmer grip on this slippery topic. Based only on the raw data of facial feature movements, our models were able to: classify different emotions; predict an automobile accident before it happens; classify whether a person is learning or has mastered a task; predict an error for a given task before it occurs; predict whether a person will excel at a task, learn quickly, or fatigue quickly; and predict whether a consumer will purchase a product or not. All of these predictions were made via unobtrusive real-time collection of facial features. The models were even able to mimic thin-slicing and make predictions based on only a short sample of data.

In addition to some of the implications discussed with the empirical studies, our models have application potentials for other studies of mass media that involve

emotion and media effects. One area that would benefit greatly from adopting automated facial detection technology would be research on children and media. Most studies use self-reports to measure responses from children after they view television programs (Cantor et al. 1993; Cantor and Nathanson 1996), but children have immature cognitive abilities compared to adults (Flavell et al. 2002). It may be difficult for them to fully comprehend some of the questions used in scales developed for adults. Measurement of children's emotions and responses via spontaneous facial expressions would be much more accurate than these self-reports.

This technology would also facilitate research of other media effects, such as those investigating the motivation and selection of media content. For instance, there have been numerous studies that incorporate Zillmann's concept of mood management (Zillmann 1988a; Zillmann this volume), which explains media selection and consumption as a means for users to sustain positive moods or to terminate negative moods (Zillmann 1988b; Knobloch and Zillmann 2002). Using our system, researchers would be able to monitor emotional fluctuations in real time as participants make their selection of media content and verify whether or not the choices are indeed contributing toward managing an optimal state of happiness based on their facial expressions. Moreover, predictions of future media selection could be made based on the theory of mood management supplemented by analyses of facial expressions, further progressing current findings.

Another possible application of our proposed method in media research would be as a tool that supplements another methodology. One such example would be physiological measures that are used to gauge real-time responses to media exposure to assess such variables as attention, arousal, and orienting responses. In addition to measures of facial electromyography (EMG), skin conductance, and heart rate, which are often the standards in physiological measurements (Bradley et al. 1996; Bradley et al. 2001), automatic facial expression tracking could either successfully replace any one of these measures or complement them. As facial EMG involves obtrusive electrodes being placed directly on the face, and skin conductance and heart rate can reliably measure arousal but not valence (Winton et al. 1984), the use of our proposed system could offer simple solutions to overcome these limitations.

Beyond gauging intrapersonal responses, this technology could also serve to assist research endeavors in interpersonal communication. Interpersonal communication is vital to relationship management as it is a skill essential to the initiation, negotiation, maintenance, and termination of relationships between individuals (Burlinson et al. 2000). For instance, prior research has demonstrated that communication success is one of the most important indicators of marital satisfaction (Steggell and Harper 1991). Since interpersonal competence, or the quality and skills of interaction, differ from individual to individual (Spitzberg and Cupach 1984), our system could improve the veracity and fidelity of interpersonal interactions by providing information from facial expressions that supplements the verbal message. More importantly, the system could aid in the resolution of interpersonal conflict, particularly when the complaint is withheld rather than confronted. Such unexpressed conflicts are harmful as they can lead to delayed and excessively emotional interactions that the confronted person may think are unjustified (Baumeister et al. 1990). Our proposed methodology could help detect dissatisfactions even when they are not expressed verbally and prevent relationship failures.

Finally, we discussed earlier how facial expressions could yield meaningful cues for deception detection and consumer behavior, which are highly relevant to influence and persuasion. Studying interpersonal influences is important since data suggest that influence attempts are more often successful than not (Cody et al. 1994). Our method of facial expression analysis could facilitate the efforts in compliance-gaining research. Many scholars have lamented about the shortcomings of relying on paper-and-pencil measures in lieu of behavioral measures, and basing their observations only on a single episode of message delivery rather than extended interactions (Berger 1985; Miller 1987). The nonverbal response data from tracking facial expressions will provide more concrete cues to behavioral changes induced by interpersonal influences compared to the use of self-reports alone. Furthermore, our system will endow researchers with the power to closely observe and analyze participant behavior for an extended period of time.

The face, as rich as its expressions are, is in no way a singular source of emotional expression that gives us insight into the human mind. Human emotion and its expressions are intricate combinations of mental, physical, internal, and external processes. Nevertheless, we focus on the face because it is the most evident signal of emotion and there is much to benefit from studying the face and its gestures. In the same way, the computer, lacking instinct or 'gut feelings,' may never perform entirely like the human mind. In fact, using computer vision and machine learning to predict human behavior is far from flawless. But we focus on the system because such shortcomings pale in comparison to the obvious advantages offered. If the face has a story to tell, systems of real-time behavior prediction based on facial expressions will be an effective methodological tool to help detect and interpret its message.

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21 Emotionally resonant media

Advances in sensing, understanding, and influencing human emotion through interactive media¹

Jonathan Gratch

Introduction

In *The Diamond Age*, novelist Neal Stephenson envisions the early twenty-first century as a time when mass media is radically transformed (Stephenson 1995). Rather than watching *passives* – traditional linear media such as TV and movies – the public engages in *ractives*, a form of interactive entertainment that effortlessly senses and stimulates human emotion. This creates something akin to a virtual theater-in-the-round, where everyone can be the star of their own personal drama.

Traditional mass media can certainly evoke emotion, but it is ultimately limited by the medium's static nature. In contrast, human emotion is inherently relational and dynamic (Parkinson 2001). As social animals, we evolved to survive through close relationships and emotions are a fundamental building block of effective social interchange (Keltner and Haidt 1999). Emotions arise from our moment-to-moment understanding of the social environment but, further, are broadcast to other social actors through words and expressions, changing the behavior of other social actors. This creates cycles of emotional resonance such as rapport (Tickle-Degnen and Rosenthal 1990) or emotional contagion (Hatfield et al. 1994). Although performers or advertisers sometimes anticipate and simulate such feedback loops, mass media is inherently impoverished, 'one-sided, non-dialectical, controlled by the performer, and not susceptible of mutual development' (Horton and Wohl 1956).

Technological advances are slowly breaking down the rigidity of traditional mass media but the work is proceeding in fits and starts. Virtual worlds such as *Second Life*TM seek to create a portal whereby people can establish real emotional relationships through media, although these technological systems strip out much of the subtlety of human interpersonal communication. Computer games allow rich opportunities for interactivity but typically reduce social intercourse to stylized archetypes such as war, as in *Call of Duty*; sex, as in *The Sims* or *Grand Theft Auto*; or parenting, as in *Petz*. More recently, intelligent entities called 'virtual humans' are beginning to simulate some of the basic aspects of resonant emotional behavior. For example, Figure 21.1 illustrates (clockwise from the upper left) Mr. Bubb, an emotionally intelligent agent that simulates the emotions a small child might express when playing a game of catch (Loyall et al. 2004); *Façade*, an interactive game that puts the player in the middle of a failing marriage (Mateas and Stern 2003); *Justina*, an educational tool that allows psychiatry students to practice their skills at interviewing a synthetic rape victim (Kenny et al. 2008) and *SASO*, a system that allows people to practice negotiation and conflict resolution in a virtual war-torn Iraq (Swartout et al. 2006).



Figure 21.1 Some examples of emotionally resonant media. Clockwise from the upper left: Mr. Bubb, Façade, Justina, and SASO.

In this chapter, I review recent technological advances that are creating the building blocks for a revolution in mass communication. Already, computational techniques are beginning to recognize, understand, synthesize, and respond to human emotions. Ultimately, these tools will enable the creation of personalized and emotionally resonant experiences that will allow society to re-envision how we teach, entertain, and communicate in the twenty-first century.

An architecture for emotionally resonant media

The plot of *The Diamond Age* revolves around a girl's relationship with new media. A street urchin, Nell, stumbles across an experimental device designed to guide a child's cognitive and emotional development. Cast in the form of an incredibly sophisticated interactive book, this device acts both as an expert tutor and an improvisational artist, stimulating learning through a series of interactive games and stories. In an abstract sense, this tool can be seen as an 'intelligent agent.' This is a term used in artificial intelligence to refer to a software artifact that observes and acts upon an environment and directs its activity toward achieving goals (Russell and Norvig 2002). The technology to construct such a device exists today, albeit in a more limited form. Imagining how such

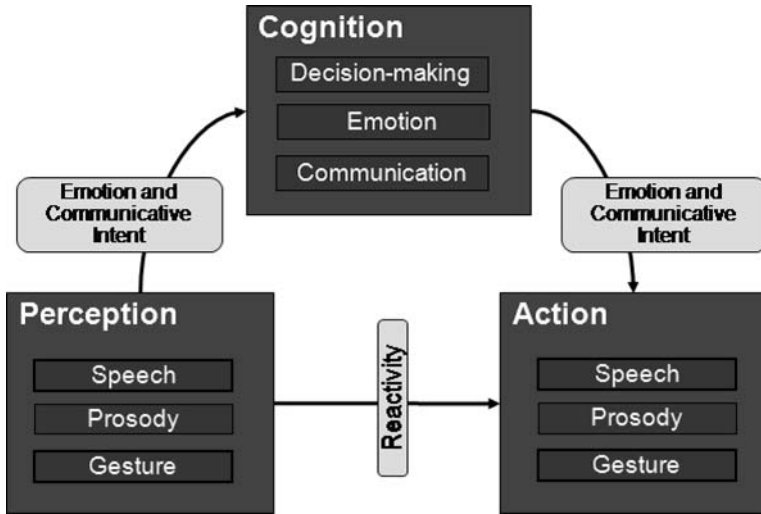


Figure 21.2 A typical software architecture for an emotionally resonant system. Such techniques must recognize and interpret human emotional signals, reason about the social context from which they arise, and generate appropriate responses.

a tool could be constructed will serve to illustrate the state-of-the-art in computational methods to sense and respond to human emotion and suggest one possible approach to building emotional mass media.

Figure 21.2 illustrates a likely architectural diagram of Nell’s ractive tutor. In fact, this basic design is shared by several existing applications that will be reviewed below. To create a personalized media experience, such a system must be able to sense and respond to human intentions and also emotions. This starts with *perception*: when Nell speaks, she broadcasts a myriad of signals that can be diagnostic, not only of explicit communicative acts (e.g., ‘I command my dinosaur to enter the castle’), but also underlying emotional undertones (e.g., Nell is frustrated and may give up on today’s lesson). These signals include not only words but also the rhythm, stress, and intonation of speech and the accompanying nonverbal cues including facial expressions, gestures, and body posture. Then it moves to *cognition*: the device must relate these percepts to its goals. This allows it to craft an engaging story that teaches Nell to cope with bullies, select an appropriate high-level response to Nell’s preceding behavior to advance the story, conveys characters’ emotions and mental state, as well as stimulate social effects, such as inducing empathy and shifting Nell’s focus from her own frustration to the emotions of other social actors. Finally the device must *act*, translating this high-level decision into rich and emotional behaviors of story characters.

Each step in this cycle – perception, cognition, action – involves significant challenges, in terms of both our limited scientific understanding of human emotion and the practical difficulties of translating existing knowledge into a working media system. In the following sections, I will discuss the obstacles that arise at each step and illustrate how computational methods are beginning to overcome them. I will

then illustrate some working media systems that exploit these techniques in creating a personalized and emotional media experience.

Progress in perceiving human emotional cues

Computer scientists and engineers have made significant strides in perceiving human emotional cues. Computers can now reliably recognize facial movements and gestures associated with emotion. They can extract affective cues from word choice or from the subtle aspects of the human voice. They can even, in some circumstances, use these cues to predict and influence human behavior. Here, I give a high-level overview of the state-of-the-art in emotion perception techniques.²

In human-to-human interaction, participants can never truly know what is transpiring in the mind and heart of their conversation partner, and the same holds for human-computer interaction. Just as occurs between people, the computer must intuit a person's mental state from a variety of physical cues and contextual information. Giving the computer the capability to perceive surfaces cues is the first link in creating emotionally responsive media. For example, before a media system can respond appropriately when Nell is happy, it must infer she is happy from behavioral cues (e.g., she is smiling). But this in itself is a complex process. The computer must first find Nell's face in a video image, distinguishing it from distracters such as the doll she's holding. Next, it must find specific features in her face such as the eyes and the corners of her mouth. Even subtle features such as the wrinkles of the eye can be crucial as this may distinguish, for example, if Nell is genuinely happy or merely being polite (Ekman et al.1990). Further, the system must also understand how expressions shift over time. For example, the dynamics of a smile – how quickly the corners of the mouth turn up, how long the expression is held and how long it takes to fade away – can be diagnostic of true feeling (Krumhuber et al. 2007).

Computer scientists have made rapid progress in automatically identifying and tracking a wealth of low-level behavioral features (see also Ahn et al. this volume). Figure 21.3 illustrates some contemporary methods for automatically detecting gaze, facial expressions, gestures, and speech quality. To achieve this capability, researchers must hypothesize the appropriate level of abstraction (i.e., language) with which to describe emotionally diagnostic behaviors, and then develop techniques that accurately identify behaviors described at this level. For example, facial activity can be characterized at a low level by tracking the movement of individual feature points on the face (e.g., the corners of the mouth). Under this approach, a facial expression is characterized by a *pose* (i.e., the position and orientation of each of these feature points) and techniques must faithfully follow the movements of these individual features. Examples of such an approach include Ashish and Rosalind's (2002). Alternatively, some approaches try to describe facial activity in a more abstract way by identifying *facial action units* (Bartlett et al. 2006; Lucey et al. 2006), which is a common coding system for describing facial expressions. For example, CERT uses this approach to detect – many times per second – the raising and lowering of inner and outer brows, the pulling of the lip corners, the wrinkling of the nose, etc. (Bartlett et al. 2006; also Ahn et al., this volume). Even more abstractly, one could attempt to directly recognize conceptually meaningful features (e.g., a happy or sad face), with *FaceReader*TM by Noldus being an example of such an approach. Each representational choice has its own advantages and disadvantages:

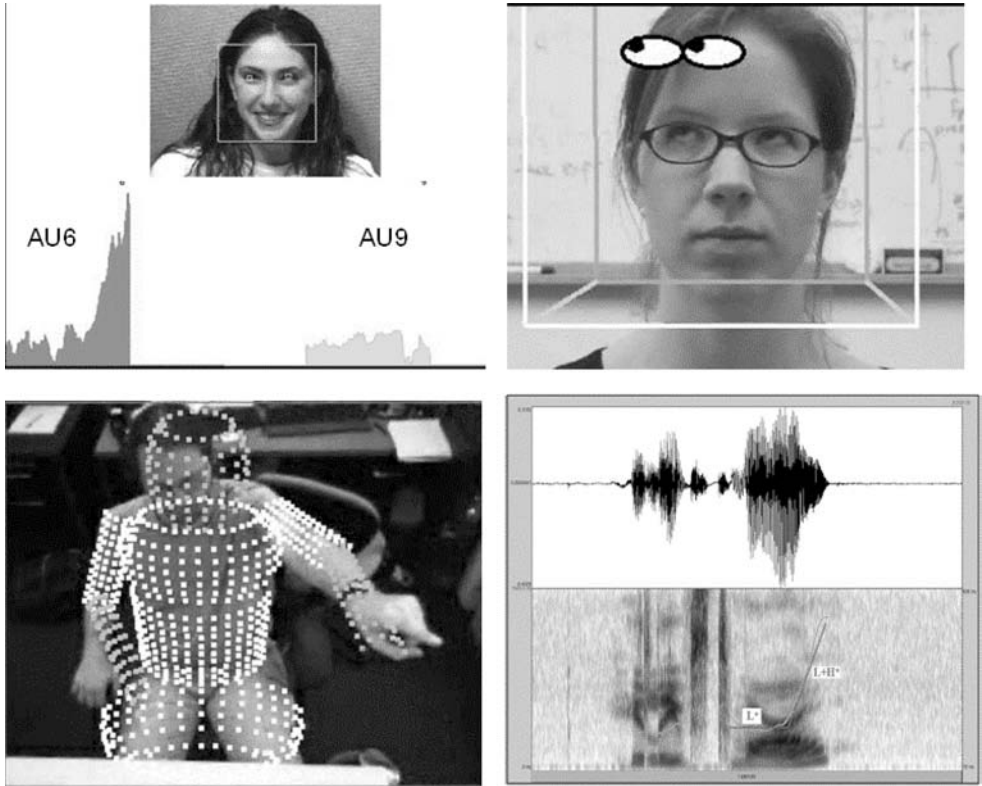


Figure 21.3 This figure illustrates some of the modalities emotionally resonant media must recognize and some of the current techniques for achieving this, including recognizing facial expressions (Bartlett et al. 2006), gaze (Morency et al. 2008), gestures (Demirdjian et al. 2005), and emotional speech (Busso et al. 2009).

low-level representations require further processing to extract semantically meaningful information – however, abstract representations can overlook important distinctions such as the fact that expressions may reflect a mixture of different emotions.

The face, of course, is merely one channel of emotional expressivity. The Watson system uses computer vision techniques to track the position and orientation of the head and eyes, from which one could recognize a bowed head or furtive gaze (Morency et al. 2008). Speech-processing techniques can extract a variety of features – such as tremors in the voice, as well as its pitch and loudness – that can be diagnostic of a variety of affective states.

Emotionally diagnostic cues are usually too ambiguous to infer a person’s emotional state – people smile for many reasons including pleasure, embarrassment, and adherence to social norms. Distinguishing between these states generally involves a deeper understanding of emotional processes and the social context, as will be discussed in the next section – however, it is often possible to build meaningful media

systems that respond to these purely surface behaviors. One approach is to respond to surface behaviors without any understanding of what they might mean. For example, simply mirroring emotional behaviors can produce useful social effects such as increased persuasion (Bailenson and Yee, 2005) and more fluent interaction (Gratch et al. 2007). Alternatively, some systems narrow the context of a social interaction to the extent that they can make reliable inferences about a user's mental state purely from surface behavior. For example, in the restricted domain of telephone calls to customer support centers, Narayanan et al. have shown good reliability in identifying angry customers based on features of the audio signal (Lee and Narayanan 2005); in the domain of intelligent tutoring systems, Whitehill et al. showed that recognized facial expressions predicted the difficulty a student had with understanding a lecture (Whitehill et al. 2008); and in the context of automobile driver behavior, Vural et al. demonstrated that certain facial movements could predict, with 90 percent accuracy, driver crash and sleep episodes within a driving simulator (Vural et al. 2007). In some cases, such automated techniques have even showed an ability to outperform human observers. For example, Littlewort et al. showed that computer techniques could discriminate true versus fake expressions of pain with an accuracy of 72 percent, whereas human observers were far less accurate (Littlewort et al. 2007). Together, these findings illustrate that media systems can, with increasing reliability, recognize aspects of human emotional behavior and mental life.

Progress in reasoning about human emotion

Perceiving emotional cues is only the first step in creating emotionally resonant media. Simply recognizing surface behaviors is usually insufficient to inform meaningful social exchange. A media system must understand what this cue reveals about the user's mental state and leverage this information to enhance the quality of interaction. For example, just because Nell is smiling does not mean she is happy, and if she is happy, the smile does not reveal the task or social factors that caused her happiness, nor does it suggest which system behaviors will maintain or alter this state. All of us have some common-sense notion of how people 'work' that we use when faced with similar challenges. When we see an ice cream scoop roll off a child's cone, we can easily imagine what she feels and her next likely actions. Referred to as 'theory of mind' (Whiten 1991), such a model of another's thoughts and feelings is a powerful construct that helps people understand, anticipate, and sometimes control the outcome of a social interaction. Here we discuss recent progress on developing a computational *theory of emotional mind*, with which interactive media can better recognize, understand, and shape emotional experiences (Gratch et al. 2009).³

A theory of emotional mind must explain the *antecedents of emotion* (i.e., the task, situational and bodily factors that contribute to the genesis of an emotion) and the *consequences of emotion* (i.e., the way emotion shapes our focus of attention, our perceptions, the nature of decision processes, and ultimately our decisions and observable behavior). The computational sciences have long studied how to simulate and reason about human thought, but the central focus of this research comes from a research tradition that disparages or simply ignores the role of emotion in decision-making. Methods such as logic, decision theory, and game theory emphasize the optimal method for arriving at solutions and are often held in opposition to heuristic or

emotional thought. As such, they neither represent nor consider the role of emotion and are of no immediate use in predicting the antecedents of an emotional experience. Nor do these methods capture the pervasive and systematic consequences of emotion on human perceptions and decisions. For example, angry people are more likely to blame others (Keltner et al. 1993), punish them more severely (Goldberg et al. 1999) and take on greater risks in the process (Lerner and Keltner 2000), whereas happy people tend to think more shallowly and are more influenced by their pre-conceived notions and stereotypes (Schwarz et al. 1991). Consequently, a theory of emotional mind must either augment or replace classical computational models of intelligence and, indeed, researchers draw on a variety of nonclassical theories in the social sciences in an attempt to model human emotional processes.

A diversity of computational theories of emotional mind now exist, reflecting the diversity of theoretical perspectives on emotion, though most contemporary computational models of emotion grow out of a single theoretical tradition. Appraisal theory, since its emergence in the 1960s (Arnold 1960; Frijda 1987; Lazarus 1991), has been one of the dominant theoretical perspectives on emotion and is especially congenial to a computational treatment, given its emphasis on symbolic reasoning processes that have already been extensively studied in nonemotional models of human cognitive processes. Appraisal theory argues that emotion arises from some cognitive *appraisal* of how events (external or mental) impact the individual's beliefs, desires, and intentions (cf. Barlett and Gentile this volume). These events are characterized along a number of specific dimensions referred to as appraisal dimensions. These include the desirability of the event (e.g., did the child want to eat the ice cream?), its expectedness (e.g., did the child know the ice cream would fall?), and perceptions of control (e.g., could the child have been more careful?). The specific pattern of appraisals elicited by an event will tend to determine the emotional response (e.g., an uncertain future undesirable event will provoke fear). The specific emotion elicited will then bias certain action and coping tendencies such as approach and avoidance.

Computer programs can simulate many of these reasoning processes that, according to appraisal theory, underlie human emotional actions. For example, EMA (Gratch and Marsella 2004a) is a computer program that forecasts how people may respond in emotional situations. The system must be given an initial *domain theory* that describes a person's goals (e.g., ice cream is good) and a set of actions they (or others) can use to act on the world (e.g., mommies can buy ice cream, they do this at most once a day, you can't eat ice cream that falls on the ground, etc.). With this domain model, the model can project the consequences of actions, calculate how these consequences should be appraised and suggest plausible emotional responses to specific actions within this domain. The model has even shown good results at predicting human emotional responses in a variety of emotional situations – for example, predicting both the type and the intensity of response, how these responses change as a situation evolves, and how these emotions shift an individual's beliefs and preferences (Gratch and Marsella 2004b; Mao and Gratch 2006).

Such computational models of emotional mind can be used in a variety of ways to improve human–computer interaction. One possibility is to use the model to help resolve the ambiguity inherent in many expressions of emotion. The fact that Nell is smiling gives us some indication that she is happy, but the added knowledge that the system just revealed a hidden treasure that Nell has long been seeking should considerably improve the reliability of this inference. One practical application of

this idea is in the area of intelligent tutoring systems. Emotion plays an important role in educational settings and expert tutors both make use of emotional cues to assess a student's motivational state and use emotional signals to influence student engagement and learning (Lepper 1988; Lester et al. 2000). Although it is quite difficult to automatically infer a student's emotional state from their surface behaviors, some researchers have had reasonable success in using a model of emotional mind to improve such inferences. For example, Conati et al. used a computational appraisal model to infer how events in a learning game might impact their emotions and thereby provide more informed tutorial feedback (Conati and MacLaren 2004).

Computational models of emotional mind can also significantly enhance the believability and engagingness of characters in interactive story worlds. Although traditional linear narratives (e.g., movies or books) allow the author to carefully script the emotional reactions of characters, authors of interactive narratives face the challenge that they cannot always anticipate the user's actions and the sequence of events that will confront a specific character. Ideally, the storytelling system would have some emotional calculus for calculating the emotional significance of user actions for individual story characters. A theory of emotional mind provides exactly this calculus and a number of research projects have successfully employed such models to create realistic expressions of emotion contingent on the user's actions (El Nasr et al. 2000; Elliott 1992; Swartout et al. 2006).

Progress in synthesizing emotional cues

A theory of emotional mind can determine how a system should emotionally respond, but this high-level guidance must be translated into a rich and emotionally evocative presentation. Much of effective media is about performance. Human actors and computer animators are extensively trained in creating carefully crafted performances designed both to convey a sense of emotional authenticity and to provoke empathy, sympathy or antipathy in the audience. How can interactive media, which must carefully craft and tailor a performance based on the user's moment-to-moment input, create this same sense of authenticity and evocativeness?

Emotion is conveyed in several ways through several modalities. Some behaviors are implicit and obtain their emotional meaning only through context. For example, if we see a person avoid an object, the emotional meaning is quite different depending on if the object is a rattlesnake or an enticing piece of chocolate cake and such interpretations can only be generated by a system that reasons about this context through some theory of emotional mind. On the other hand, some behaviors (e.g., facial expressions) seem unambiguously emotional and in this section I describe recent advances in synthetically conveying emotion through overt displays such as facial expressions, body posture, voice quality, and word choice.

Facial expressions are an obvious way to convey emotional meaning and technology has long been available to create graphical characters that change their expressions. For example, the simplest approach is to define a set of 'morph targets' (pre-defined posed facial expressions) and to interpolate between these poses based on the character's current calculated emotional state. Such simple approaches can reliably communicate the intended emotion when the character is quite simple (e.g., a smiley face) but becomes increasingly problematic as the visual fidelity of the character increases. Through a phenomenon known as the 'uncanny valley' (Mori 2005), people become

much more sensitive to, and disturbed by, stylized behavioral movements when they are applied to photorealistic representations of living organisms. Thus, using linear interpolation to move a face into a smile, rather than conveying happiness, is more likely to convey insanity. More recent work in synthesizing facial expressions has delved much more deeply into the psychology and physiology of natural facial expressions.

Computer animation has explored different approaches for capturing the subtlety of facial displays. *Data-driven approaches* seek to simply capture natural human facial movement and use it to control the movements of an animated face. An example of the approach is facial performance capture in which an actor is recorded, typically with the help of a large number of reference points physically affixed to the face. Work in this vein by Ma et al. is illustrated in Figure 21.4 (Ma et al. 2008). These local facial movements can then drive the motion of a computer-generated face, creating a realistic though inflexible display of emotion that faithfully replicate the nuances of the original actor. Current research attempts to expand the flexibility of this approach by splitting this natural motion into small segments that can be rearranged and reassembled in real time (Yong et al. 2005).

Theory-driven approaches build on psychological and physiological studies of how the human face moves and how these movements convey meaning. One aspect that has received a lot of attention is the fact that people rarely exhibit ‘pure’ expressions of emotion. Natural facial expressions are a mixture of movements and different mixtures of facial components that create quite different interpretations in the mind of the observer. For example, simply raising the corners of the mouth may be insufficient to convey true happiness. The so-called Duchenne smile also involves movement around the eyes and is more likely to be perceived as an authentic display of joy (Ekman et al. 1990). The way in which a face moves into a pose can also dramatically impact interpretation. For example, a facial expression can be dynamically described

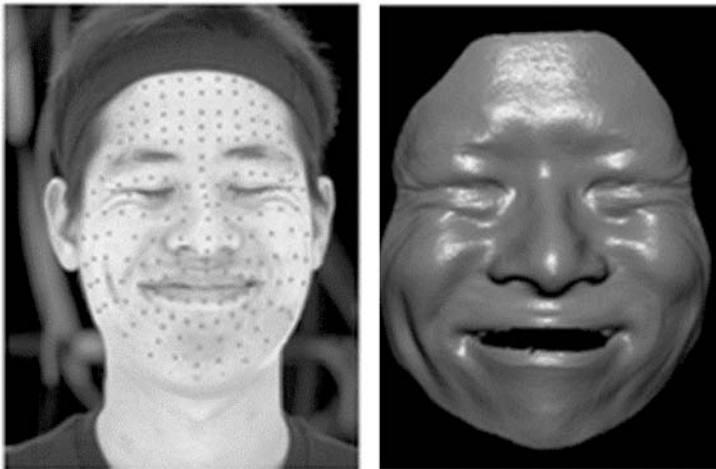


Figure 21.4 This illustrates the technique of performance capture, using the motion of a human actor to animate computer-generated media. In Stephenson’s *Diamond Age*, this was achieved by surgically embedding sensors in actors’ faces but contemporary methods use computer vision.

in terms of its onset time (the time it takes to move from a resting position to the apex of the expression), its apex time (the time it is held), and its offset time (the time it takes to return to rest position). Smiles with a short onset/offset time relative to the apex time are perceived as less authentic and these interpretations can even impact people's decisions, such as their willingness to cooperate (Krumhuber et al. 2007). Theory-driven animation approaches attempt to divide facial expressions into smaller components such as the facial actions units described above. For example, the Artificial Actor project at the Filmakademie Baden-Wuerttemberg provides a complete FACS-based animation system that allows rich and naturalistic emotional displays (see Figure 21.5). A difficulty faced by theory-driven methods is how to control a large set of individual facial components in realistic ways and researchers have begun to explore methods for composing these individual elements into naturalistic facial expressions that can convey a mixture of emotions (Martin et al. 2006).

Of course, emotion can be conveyed through other modalities as well. How one turns one's gaze toward a stimulus can convey one's feeling about the object – someone looking at you from the corner of their eyes might seem shy or flirtatious whereas a face-on stare suggests anger or aggression. To simulate such behaviors, Lance developed a data-driven approach that controls relative velocities of a character's eye, neck, and spine to reliably convey different emotional impressions (Lance and Marsella 2007). Other researchers are exploring a variety of other modalities including how to convey emotion by tuning the intensity and prosody of a speech signal (Bulut et al. 2008), selecting specific words to convey emotional nuances – for example, 'my opponent' vs. 'that one' (Fleischman and Hovy 2002), and even physiological displays such as flushing, perspiration and tears (de Melo and Gratch 2009).

The behaviors we have described up to this point are individualistic and de-contextualized (they obtain their meaning solely through the movements of the individual); however, many displays obtain their meaning in relation to another individual. The example of emotional gaze hints at this social nature of some emotional displays and others more fundamentally depend on the coupling of behaviors between individuals to extract their meaning. For example, synchrony and coupling of movements often conveys a sense of liking and rapport (Tickle-Degnen



Figure 21.5 The 'Artificial Actors' project (Helzle 2003–6) has created an animation system that allows dynamic facial expressions to be created using the facial action coding system (Ekman and Friesen 1978).

and Rosenthal 1990). Complementary movements can convey discord or power asymmetries between individuals (Tiedens and Fragale 2003). Increasingly, computational researchers are exploring ways to create the social sense of emotion that emerges through the coordination of movements between virtual characters and, more ambitiously, attempts to evoke them in interactions between the machine and the human.

The Rapport Agent (see Figure 21.6) is an example of one such system that tries to evoke a sense of emergent social emotion through synchronizing agent behaviors to the emotional movement and expressions of the human user (Gratch et al. 2007). The rapport agent uses many of the behavior recognition techniques described above to perceive characteristics of the person’s verbal and nonverbal behavior. For example, it uses a stereo camera system to recognize the position and orientation of a person’s gaze and basic gestures such as head nods and shakes, as well as posture shifts. It also uses audio processing techniques to extract a wide variety of acoustic features, such as pitch and energy shifts. These features then automatically trigger reciprocal body movements in a virtual character the user is speaking with. These subtle movements induce feelings of rapport between the person and the character, but also have behavioral effects such as enhancing engagement (people speak longer when these contingent behaviors are present) and enhancing speech fluency (people stutter less and use fewer ‘filler words’ such as ‘um’).

Whether individualistic or relational, synthetic emotional behaviors are becoming increasingly compelling and a growing body of research has documented the social impact they can have on people. We next turn to a variety of systems that attempt to translate these potential effects into practical working applications.

Applications

Techniques for sensing, reasoning about, and responding to human emotion have been used in a number of applications. Of course, emotionally resonant media have received a great deal of interest from the entertainment industry, but the techniques are also beginning to shape how we communicate, how we care for our bodies and

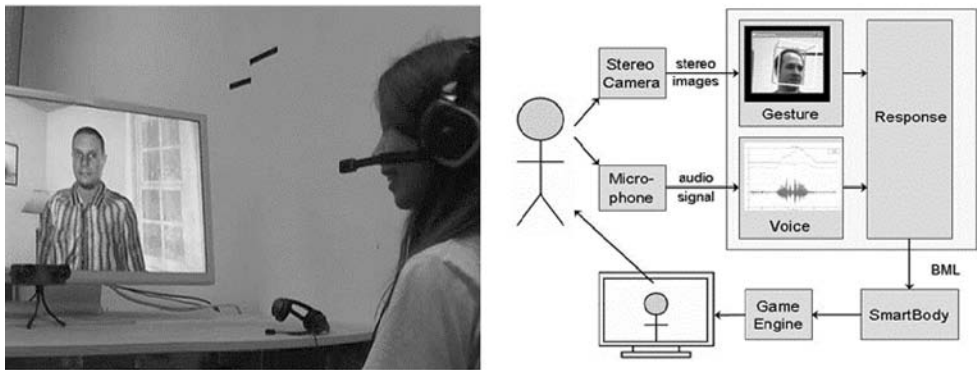


Figure 21.6 The Rapport Agent is an emotionally resonant system that detects subtle face and voice signals and reflects them back on a user in order to promote a sense of rapport (Gratch et al. 2007).

minds, and, more fundamentally, how we learn about ourselves. Educational systems incorporate emotional techniques to teach social competencies. Other systems are used for medical assessment and treatment and can infer certain socio-emotional disorders by examining how an emotionally resonant interaction unfolds. Some systems apply emotion methods to persuade, for instance, using emotional communication in health communications or advertising. Finally, this technology has become an increasingly important methodological tool for communications research.

Emotion is used in a variety of different ways to support learning. Some systems use emotional signals to motivate or alter student behavior. For example, Lester's COSMO system employed a virtual character that praised students when they gave correct answers and gave sympathetic emotional displays when they failed so as to reinforce task feedback and increase student motivation (Lester et al. 2000). Other systems are designed to allow people to practice high-stakes emotional encounters through the relative safety of virtual reality. For example, the SASO-EN system (Figure 21.1) allows people to practice conflict resolution by speaking to life-sized virtual people with opposing viewpoints (Traum et al. 2008). In this system, the student's actions influence the emotional state of simulated characters, which is reflected in their physical behaviors (e.g., gestures and facial expressions) and also in their choice of negotiation tactics. Another example in this vein is the Virtual Patient Project, which allows psychiatry patients to practice diagnostic skills by interviewing a virtual rape victim (Kenny et al. 2008). Finally, other approaches use sensing technology to infer student emotions and adjust system behavior accordingly. For example, some experimental versions of the AutoTutor tutoring system detect student boredom or frustration through their posture and facial expressions (D'Mello et al. 2007; Graesser et al. 2008).

Emotion plays an important role in many psychosocial disorders, and systems that can automatically detect and respond to human emotional displays can play a factor in assessing or even treating these ailments. For instance, people suffering anxiety disorders experience emotional arousal in certain situations or even media portrayals of those situations – for example, a soldier suffering post-traumatic stress disorder (PTSD), an anxiety disorder that can develop after exposure to a terrifying event or ordeal, might experience physiological arousal when watching combat footage on the news. Emotionally resonant media can facilitate diagnosis of such conditions by simulating the anxiety-invoking situations associated with specific conditions and measuring any emotional reactions in the patient. An example of this approach is the virtual reality cognitive performance assessment test (VRCPAT) which makes use of emotionally evocative virtual environments and a battery of neuropsychological measures to help diagnose socio-emotional disorders such as PTSD (Parsons and Rizzo 2008). Similar techniques can further be used to treat such disorders. In what is known as virtual reality exposure therapy (VRET), therapists use computer-generated media to evoke anxiety in a patient and then use techniques such as cognitive behavioral therapy to help patients help regulate their emotions (Jarrell et al. 2006; Rothbaum et al. 2006). Other applications have used a theory of emotional mind to simulate how stress impacts people's reasoning to allow patients to better reflect on their own emotional reactions to situations. For example, Carmen's Bright Ideas is a system designed to teach emotion regulation techniques to mothers of pediatric cancer patients (Marsella et al. 2003). The system allows patients to develop meta-cognitive skills by observing and also shaping a simulated therapy session (see Figure 21.1).

Several applications have explored the use of emotional techniques to create persuasive communication. For example, Timothy Bickmore's Relational Agents Group has created a series of healthcare applications that employ empathetic dialogues and emotional nonverbal cues to promote adherence to medical recommendations (e.g., see Bickmore et al. 2009). Other research suggests a variety of ways to use emotionally resonant media to improve the persuasiveness of messages. For instance, Bailenson demonstrated that Stanford undergraduates were more convinced to accept new security policy when the agent that presented it mimicked their body movements (Bailenson and Yee 2005) and Moon showed that an agent using empathy and reciprocity could induce more self-disclosure during an interview (Moon 2000). Negative emotions can also be persuasive. For example, van Kleef et al. showed that displays of anger would elicit greater concessions in a multi-issue bargaining task (van Kleef et al. 2004).

An interesting and growing application of emotionally resonant technology is as a methodological tool for communication research. Past research on how emotional cues impact communication has been hampered by the difficulty in obtaining reliable measures of human emotional behavior. Typically this information is obtained at great cost by manual annotation. Techniques for automatically recognizing emotional behaviors provide one method for rapidly coding large quantities of behavioral data and providing a more objective and reproducible measure than these more traditional methods. A separate issue is how to systematically manipulate emotional cues within the context of a controlled experiment. Confederates are often used to manipulate these factors in order to explore the impact of low-level behaviors on communication processes – for example, a confederate might be told to copy the posture and facial expressions of a subject during their communication. A persistent concern with the use of confederates is that the act of performing these unnatural behaviors might alter communication in ways that makes study results difficult to interpret. Techniques for automatically synthesizing emotional behaviors can address these methodological concerns. Emotionally expressive characters can be programmed to systematically manipulate one channel of information (e.g., gesture, facial expression, race or gender) while leaving other channels identical. Indeed, a large body of work has replicated, and in some cases extended, prior research findings through use of virtual interactions (Bailenson et al. 2004; Baylor and Kim 2008; Bente et al. 2001; Hoyt et al. 2003; Kang et al. 2008; Kraemer 2008; Slater and Steed 2002; Van Vugt 2008; Van Vugt et al. 2006).

Techniques for recognizing, understanding, and synthesizing emotion have only recently begun to transition from the laboratory and we can expect rapid transformation and innovation in how these tools impact applications. Methods are still brittle, their effectiveness inconsistent, and the appropriateness of their use still a matter of debate. What is clear, however, is that future computers will become increasingly competent in navigating human emotional life.

Conclusion

I began this chapter with a science fiction story about emotionally resonant media. For good or ill, such media will soon be science fact. Already, there are cameras that will only take our picture when we smile (Thangham 2007), games that 'read our emotions' (Radd 2007) and digital nurses that persuade us to take our medication

(Bickmore and Pfeifer 2008). Interactive media in the twenty-first century will certainly be more emotionally sophisticated, more evocative and more persuasive.

Many research challenges remain in realizing this potential. The last fifteen years have seen an explosion in the range and scope of computational models of emotional processes but the field is far from mature, and competing methods contain a host of incompatible and sometimes poorly articulated processing assumptions. Underlying this is a more fundamental lack of consensus in theoretical perspectives on human emotion that inform these computational methods: emotion theories differ in which components are intrinsic to an emotion (e.g., cognitions, somatic processes, behavioral tendencies and responses), the relationships between components (e.g., do cognitions precede or follow somatic processes), and representational distinctions (e.g., is anger a prototype or a natural kind). This lack of theoretical clarity remains a key challenge for model development.

Interestingly, emotionally resonant media may hold the seeds of a solution to this conundrum. The exercise of translating an emotion theory into a concrete working model can highlight inconsistencies and unarticulated assumptions of a given theoretical perspective on emotion. Further, the behavior of such working systems, as they interact with dynamic environments and human users can highlight implications of a theory that were difficult to foresee with pen and paper. This can lead to a continual cycle of theory inspiring model and model inspiring theory. Already, this has begun to spark an interdisciplinary partnership between theoreticians and modelers that may transform the science of emotion and, ultimately, our understanding of human emotions (see Scherer et al. in press).

Whether or not they change the way scientists theorize about emotion, emotional resonance will certainly change how we conceive ourselves. Humans have long defined their identity in contrast to 'less capable' others. Throughout history we have valued rational intellect as something that elevates us from emotional, brutish animals. Current fashion has us valuing emotion as something that elevates us from soulless, rational machines – perhaps in response to recent successes in machines defeating our intellectual champions in chess, backgammon, and the like. How will we choose to bolster our egos when our machines become our emotional equals?

Notes

- 1 This work was sponsored by the U.S. Army Research, Development and Engineering Command, and the National Science Foundation, under grants 0713603 and 0729287. The content does not necessarily reflect the position or the policy of the government, and no official endorsement should be inferred.
- 2 Those interested in a more detailed discussion of current methods can consult these excellent recent survey articles on the topic: Cowie et al. 2001; Zeng et al. 2009.
- 3 Research on theory of mind often emphasizes emotions, although this is less true for computational systems that represent and reason about the mental state of other agents (human or synthetic). I use the term 'theory of emotional mind' to emphasize the specific attention to modeling emotional processes.

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22 Virtual interface agents that adapt to user emotion and interest

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Introduction

While lifelike characters or animated interface agents (Figure 22.1) with affective behavior are becoming ever more popular as virtual interaction partners (Cassell et al. 2000; Prendinger and Ishizuka 2004), little is known about how they impact on the emotional state of human interaction partners. This situation is quite surprising given the large body of literature asserting the key importance and positive effect of



Figure 22.1 Example of lifelike characters: our two original agents which were designed by a Japanese artist (Nischt et al. 2006a).

virtual agents with emotions on users' interaction experience (Bates 1994; André et al. 1999; Paiva 2000; Prendinger et al. 2002; Ortony 2003; Pelachaud and Bilvi 2003). Existing studies that systematically investigate and compare the impact of various types of lifelike agents, report on often inconsistent results (Lester et al. 1997; Dehn and van Mulken 2000; Berry et al. 2005).

Only recently some researchers started to question whether the classical method of questionnaires is adequate to evaluate affective human–computer interactions (Picard and Daily 2005; Prendinger et al. 2005; cf. Ahn et al., this volume; Gratch, this volume). The main argument is that post-experiment 'self-report' methods are deficient in estimating the moment-by-moment experience of a subject (Nisbett and Wilson 1977) and hence unreliable in assessing how the user felt at a particular moment during the interaction.

As a promising alternative, we will describe a physiology-based approach to evaluating affective interactions with lifelike agents. There is evidence that human physiology provides rich information regarding a person's emotional experience (Andreassi 2000). The key advantages of using human physiological response for evaluating affective human-computer interaction are:

- Ability to estimate the dynamic moment-to-moment nature of users' interaction experience.
- Immunity to 'fake' attitudes or body expressions (e.g., simulated facial expressions) because physiological response is usually not within the conscious control of users.
- No dependency on users' deliberate judgments or their ability to memorize past emotion.
- No interference with the primary interaction task.

Eye gaze, on the other hand, is certainly within deliberate human control – that is, humans may decide to look into a particular direction or attend to a particular object. However, the activity of the eye and its pupil have been shown to manifest rich information about a person's interpretation of (and attitude to) its environment beyond what is intentionally attended to (Duchowski 2003).

Physiological signals and eye signals both are novel input modalities for agent-based interfaces, which offer new opportunities for highly personalized human–computer interaction. If computers could react sensibly to users, they would provide a more positive or often less frustrating interaction experience to the user. This chapter is dedicated to investigating the potential of physiological and eye signals by describing implemented systems and studies conducted with those systems.

The remainder of this chapter is organized as follows. The section 'Emotional interfaces' first reviews previous attempts to evaluate the impact of emotional agent behavior on users. Then, examples of influential emotion theories are presented – one cognitive appraisal theory and a two-dimensional emotion model. As an example, we will describe an implemented system of an emotional gaming agent and the results of an empirical study. The section 'Attentive interfaces' first explains a simple method to determine a user's visual interest. Then, an example scenario with visually perceptive presentation agents is described and evaluated. Concluding remarks round off the chapter.

Emotional interfaces

Investigations on the impact of affective agent behavior on users did not exist until very recently. In a study by Brave et al. (2005), a user plays the Blackjack game against a disembodied dealer. The casino-style interaction scenario also features another player that is represented by a photograph depicting a human face. The photographic agent displays four types of emotional responses: (1) self-oriented emotional (happy for having won, sad for having lost); (2) empathic (happy for the winning user, sorry for the losing user); (3) both self-oriented emotional and empathic; (4) neither. Each response is accompanied by a text box adjacent to the agent that contains a related message – for example, an empathic comment such as ‘That’s great! I’m really happy that you won.’ Using a questionnaire method, the authors found that subjects rated the empathic photographic agent as more likeable and trustworthy, and perceived it as more caring. Those opinions were not seen by subjects in the self-oriented emotional condition.

While the results of Brave et al. (2005) offer valuable support for the utility of empathic agents, the study has some limitations. Most importantly, situations where users (actively) interact with an agent seem to be more common than those where a user and an agent assume the same view as co-players (against some opponent, such as a dealer). Second, animated agents provide a richer set of communicative modalities than photographic agents. Third, as argued above, questionnaires may be useful for estimating users’ opinions on dimensions such as likeability, trustworthiness, or intelligence, but they fall short in assessing users’ emotional moment-to-moment experience.

Berry et al. (2005) investigated the impact of a three-dimensional (3-D) facial agent on various dimensions (likeability, helpfulness, recall, etc.) in the setting of an advice-giving task. They found that only if the emotional expression of the agent is consistent with the presented message (a particular advice), then memory performance was comparable to the other conditions (a human actor, voice only, text only). One key result of this work thus is to highlight the importance of an agent’s consistency in behavior.

In our own previous work (Prendinger et al. 2005), we demonstrated that empathic (‘apologizing’) agent behavior in a quiz game with deliberately induced frustration may significantly reduce user arousal or stress measured by skin conductance. The study described in this chapter extends this work by a wider variety of induced and displayed emotions in the context of interactive gaming rather than a simple quiz.

Emotion theories

In this section, we will describe two influential approaches to modeling and recognizing human emotions. Most emotion-oriented human–computer interfaces are based on either of those two approaches. The first one is the cognition-oriented appraisal theory developed by Ortony et al. (1988), commonly known as the OCC model. Here an agent’s appraisal refers to the process that qualitatively evaluates (external and internal) events according to their emotional significance for the agent. Other cognitive appraisal theories include the ones from Roseman (1979), Scherer (1988), Frijda (1986), and Lazarus (1991).

The second approach identifies named emotions as coordinate points in the arousal–valence space (Lang 1995). One important way to assess arousal and valence is by measuring a human’s autonomic nervous system (ANS) activity, and map physiological signals to arousal and valence (Picard 1997).

The appraisal theory of Ortony et al.

In the OCC appraisal theory, emotions are seen as valenced (i.e., positive or negative) reactions to events including other agents’ actions (or the agent’s own actions) and the perception of objects, qualified by the agent’s goals, standards, and preferences. In Ortony’s words ‘People only get into emotional states when they care about something ... when they view something as somehow good or bad’ (Ortony 2003: 193).

The significance of an event in this appraisal theory is determined by so-called ‘emotion-eliciting conditions,’ which comprise an agent’s relation to four types of abstract mental concepts:

- *Beliefs*: states of affairs where the agent has evidence that they hold.
- *Goals*: states of affairs that are (un)desirable for the agent – that is, what the agent wants (does not want) to obtain.
- *Standards*: the agent’s beliefs about what ought (not) to be the case – that is, events that the agent considers as praiseworthy (blameworthy).
- *Attitudes*: the agent’s disposition to (dis)like other agents or objects – that is, what the agent considers (not) appealing.

According to the emotion model of Ortony et al. (1988), emotion types are simply classes of eliciting conditions, whereby each is labeled with an emotion word or phrase. In total, twenty-two classes of eliciting conditions are identified, including ‘joy,’ ‘distress,’ ‘happy for,’ ‘gloat,’ ‘resent,’ ‘sorry for,’ ‘reproach,’ and ‘angry at.’ The identified emotions are not intended to be exhaustive – for example, Elliott (1992) in his work on pedagogical agents had to include additional emotions for his application domain.

Among the emotions with the simplest specification is the well-being emotion ‘joy’: an agent experiences joy if the agent wants something (i.e., has some goal), and gets it. Depending on how desirable the goal is, the intensity of the emotion varies. If someone is responsible for achieving the goal, the agent feels ‘gratitude’; if it is the agent itself, the agent feels ‘pride.’ An emotion with a more complex specification is ‘angry’: an agent *A* is angry at agent *B*, if (1) *B* did an action *a*, which causes a situation that is contrary to *A*’s goals, and (2) *A* considers action *a* as blameworthy.

The design of affective user interfaces requires modeling the emotions of the user. In the OCC model, those emotions are called ‘fortunes-of-others emotions.’ It assumes that the agent is able to attribute emotions to other agents (Elliott and Ortony 1992). Let us consider the specification of the fortunes-of-others emotion type ‘happy for’: an agent *A* is happy for agent *B* if (1) *A* likes (has a positive attitude toward) *B*, and (2) *B* is joyful.

The fortunes-of-others emotion types (‘happy for,’ ‘gloating,’ ‘resent,’ and ‘sorry for’) pose the difficult problem of assessing the emotional states of other agents. There are at least two ways to approach the problem:

- *Stereotypes*: assuming that computer users are correctly classified, stereotypes (Rich 1979) can be employed to derive their features – for example, a typical player of a computer game can be assumed to have the goal of winning, and thus be joyful if he or she wins.
- *Emotion recognition*: based on the user's emotional expression, the emotional state can be inferred from communicative modalities, such as facial displays, prosody, linguistic style, posture, etc. (Picard 1997).

In our work, we take a rather novel approach, and analyze physiological signals of users for recognizing their emotions.

Lang's two-dimensional (2-D) model of emotion

The 2-D emotion model advocated by Lang (1995), and also by Feldman-Barrett and Russell (1999), claims that all emotions can be characterized by two bipolar, but independent, dimensions:

- *Judged valence*: pleasant or unpleasant (or: positive or negative).
- *Arousal*: calm or aroused.

Here, named emotions are seen as coordinate points in the arousal–valence space. For example, the emotions 'sadness,' 'anger,' and 'happiness' can be characterized as follows:

- *Sadness*: low arousal and negative valence.
- *Anger*: high arousal and negative valence.
- *Happiness*: low medium arousal and positive valence.

The relation between the autonomic nervous system (ANS) and the dimensions of arousal and valence we used is based on work in psychophysiology (Andreassi 2000; see also Cacioppo et al. 2007). By way of example, we will describe the functioning, recognition, and impact of three important physiological signals: galvanic skin response (GSR), electromyography (EMG), and blood volume pulse (BVP) (see also Picard 1997).

- *Galvanic skin response*: the GSR signal is an indicator of skin conductance. Under certain circumstances, the glands in the skin produce ionic sweat, which changes its electrical resistance. By passing small voltage across two electrodes, the conductance between them can be measured. The electrodes can be attached to two fingers. Skin conductance increases linearly with a person's level of overall arousal.
- *Electromyography*: the EMG signal measures muscle activity by detecting surface voltage that occurs when the tiny muscle fibers are contracted by means of electrical impulses (lower arm or masseter muscle). Mean muscle activity has been shown to correlate with negatively valenced emotions.
- *Blood volume pulse*: the BVP signal is processed by a method known as photoplethysmography that shines infrared light onto the skin and measures how much is reflected, which is an indicator of blood flow. Since each heartbeat

(or pulse) presses blood through the vessels, BVP can also be used to calculate heart rate and inter-beat intervals. Higher heart rate increases with negatively valenced emotions, such as anxiety or fear.

The possibility of emotion recognition from ANS activity assumes ‘autonomic specificity’ of individual emotions (Levenson 1988). Research in autonomic specificity investigates how (some) emotions can be distinguished by their associated pattern of ANS activity, or, in more popular terms, whether (some) emotions have ‘autonomic signatures.’

From a practical perspective, emotion recognition using physiological signals is a nontrivial endeavor. For instance, the BVP signal is very sensitive to movement, which poses certain restrictions on the user, and EMG sensors cannot be applied to the face (masseter muscle) if the user will speak during the human–computer interaction.

Interactive gaming

In collaborative work with Christian Becker, we have implemented the classical cards game *Skip-Bo* as a face-to-face affective, interactive gaming scenario for a human player and a virtual agent as opponent (Prendinger et al. 2006). In this game, players pursue the goal of getting rid of the eight cards on the pay-off piles to the right side of the table by playing them to the shared white center stacks. As on these center stacks the order of cards (from one to twelve) is relevant, the hand and stock cards must be used strategically by the players to achieve this overall goal and to win the game (see Figure 22.2).

A 3-D agent called *Max* was selected as the virtual agent opponent. Max has been developed by the Artificial Intelligence Group at the University of Bielefeld (Kopp et al. 2003; Kopp and Wachsmuth 2004). The Max agent has basic abilities for multi-modal interaction such as synchronized auditory speech, facial and bodily gestures – for example, the agent can display different types of facial emotion within the pleasure–arousal–dominance (PAD) space that reflect its current emotional state (Becker et al. 2004). Note that the (extra) dimension of ‘dominance’ is considered only for the output channel. Since it refers to a cognitive construal rather than an expression, it cannot be captured by physiological signals on the input side. Max also utters various types of ‘affective sounds’ such as grunts and moans and continuously simulates breathing and eye-blinking.

The game interface supports intuitive point-and-click interaction via a mouse pointer by the human player, and natural gestural interaction by the agent (e.g., moving cards on the table). Visual and auditory feedback was also given whenever the human player was selecting or moving cards. Moreover, the agent gave natural visual feedback to the user by looking at the objects (cards) selected by itself or the user for a short period of time, and then looking straight ahead again in the direction of the user. Max also performed a simple type of turn-taking by nodding whenever completing its move. The purpose of implementing these behaviors was to increase the user’s perception of interacting with an agent that is aware of its environment and the actual state of the game.

Empathy has been found as an important aspect in human–computer interaction (Klein et al. 2002; Paiva et al 2004; Brave et al. 2005). Daniel Batson, for instance, characterizes empathy as ‘an other-oriented emotional response congruent with



Figure 22.2 Virtual *Skip-Bo* cards environment with *Max* agent as virtual opponent (Prendinger et al. 2006).

another's perceived welfare' (cited in Brave et al. 2005: 162). Other definitions see empathy as the cognitive act of taking another person's perspective, without making assumptions on felt sympathy (Klein et al. 2002; Brave et al. 2005). In the gaming scenario, empathy refers to the agent's response to the user's assumed (or hypothesized) emotion and covers both positive (emotional) response (e.g., sorry for the user's distress) and negative response (e.g., happy about the user's distress).

Since *Skip-Bo* is a competitive game, we expected that users would perceive the agent as an opponent. Hence, our primary hypothesis was:

If the virtual game opponent behaves 'naturally' in that it follows its own goals and expresses associated positively or negatively valenced affective behaviors, users will be less aroused or stressed than when the agent does not do so.

Our secondary hypothesis is:

If the virtual game opponent is oriented only toward its own goals and displays associated behaviors, users will be less aroused or stressed than when the agent does not express any emotion at all.

In order to assess the effect of simulated emotions and empathic feedback in the context of affective human–computer interaction, we designed the following four conditions within the proposed gaming scenario:

- *Non-emotional* condition: the agent does not display any emotional behavior.
- *Self-centered emotional* condition: the agent only appraises its own game play – for example, by displaying (facial) joy when it is able to move cards.
- *Negative empathic* condition: the agent shows (a) self-centered emotional behavior, and (b) responds to the user in a ‘negative’ way. The agent will display distress or fear when the user performs a good move, and will express joy when the user is recognizably distressed about a bad move.
- *Positive empathic* condition: here, the agent is (a) self-centered emotional, and (b) user actions are appraised ‘positively’ so that the agent will be happy for the user’s game progress. If the user is detected to be distressed, the agent will be sorry for the user and will display sadness.

In our study with thirty-two subjects, we measured the user’s affective state from skin conductance and EMG (Prendinger et al. 2006). In one type of analysis, we focused on game situations (segments of ten seconds) where emotional reactions in the human player were likely to occur – for example, whenever *either* of the players (user or agent) was able to play at least two pay-off pile cards in a row (which are moves toward winning the game).

The results for skin conductance (agent-winning move) showed that human players were most aroused (or stressed) in the *nonemotional* and *positive empathic* condition. At first sight, this result sounds counter-intuitive for the *positive empathic* response. However, showing positive emphatic behavior (or no emotion) in a competitive cards game can be considered as quite unnatural behavior. A similar result was observed when looking at the results of skin conductance for the user-winning move situation. The *positive empathic* condition was experienced significantly more arousing (or stressful) than the *negative empathic* condition.

The results for electromyography (both agent- and user-winning moves) show a significant difference between the *negative empathic* condition and the *positive empathic* condition. The results for electromyography indicate that users seemingly ‘reflect’ the valence of the agent’s emotion on a physiological level – for example, negative emotion expression on the agent side induces a negative emotion expression on the user side, and positive expression is characterized by the absence of negative user response. Hence, with regard to EMG, we can speculate about a form of ‘reciprocity’ in user responses to agent behavior.

In summary, our primary hypothesis – within a competitive game scenario displaying positive affect is conceived as significantly more arousing or stressful than displaying negative effect – was confirmed. Our secondary hypothesis was not supported in the study. If the agent does not care about the users’ emotions (the nonempathic conditions), users do not care either – that is, their physiological responses do not differ significantly.

From a methodological point of view, we conclude that the assessment of physiological signals from the user during game play could provide us with valuable information about the moment-to-moment affective state of the user. From the perspective of affective agent research, we note the key importance of interactive

agent behavior that is appropriate to the situation. For instance, an agent in the role of a competitive game opponent should behave as expected for an opponent – that is, trying to win the game rather than showing positive empathy to the user. If the game were set up as an educational interface, with the agent in the role of a teacher of the *Skip-Bo* game, we can speculate that users would be less stressed if an agent showed positive empathic feedback to the user, as a real teacher would do.

Attentive interfaces

Attentive User Interfaces (AUIs) (Zhai 2003) or ‘visual attentive interfaces’ (Selker 2004) envision interaction styles where a user’s gaze provides information about the context of the user’s action, such that the system can actively adapt its own state. Vertegaal (2002: 23) defines an attentive user interface as follows:

An Attentive Interface is a user interface that dynamically prioritizes information it presents to its users, such that information processing resources of both user and system are optimally distributed across tasks. The interface does this on the basis of knowledge – consisting of a combination of measures and models – of the past, present and future of the user’s attention, given the availability of system resources.

(Vertegaal 2002: 23)

The ‘gaze-responsive self-disclosing display’ described in Starker and Bolt (1990) is an early system to monitor a user’s gaze behavior and respond to eye gaze patterns in real-time. In this application – which is inspired by Antoine de Saint-Exupéry’s book *The Little Prince* – a two-dimensional virtual narrator would comment on visualizations of everyday items on a virtual planet. If the user demonstrates interest in a staircase, for instance, the narrator tells a story about it. If the user is looking alternately at multiple staircases, the system infers that the user is interested in the staircases as a group, and responds with an appropriate comment.

Eye gaze can also play a central role in automatically adapting multimedia systems to the user’s interest, and thus contribute to the realization of so-called ‘interest and emotion sensitive media’ (IES) (Hansen et al. 1995). In an IES media system, eye gaze is used to determine the subsequent branch of a multiplex script board that a user is likely interested in.

Interest estimation from eye gaze

In this section, we briefly describe the algorithm by Qvarfordt and Zhai (2005), which allows determining a user’s interest from gaze behavior. In particular, two interest metrics have been introduced:

- The *Interest Score (IScore)* captures an object’s ‘arousal’ level – that is, the likelihood that the user is interested in that (visual) object. When the *IScore* metric passes a certain threshold, the object is said to become ‘active.’
- The *Focus of Interest Score (FIScore)* calculates the amount of interest in an active object over time. If the *FIScore* for some object falls below a certain threshold,

the object becomes deactivated. Then it is assumed that the user lost interest in the currently active object.

The basic component for *IScore* is $p = T_{Ison}/T_{IS}$, where T_{Ison} refers to the accumulated gaze duration within a time window of size T_{IS} (set to 1000 milliseconds). To account for factors that may enhance or inhibit interest, Qvarfordt and Zhai (2005) characterize the *IScore* as:

$$p_{is} = p(1 + \alpha(1 - p))$$

Here, α encodes a set of parameters that increase the accuracy of interest estimation. In our work on attentive presentation agents (described below), a simplified version of the algorithm was applied, which uses two (out of four) parameters suggested by Qvarfordt and Zhai (2005):

$$\alpha = c_f \alpha_f + c_s \alpha_s / c_f + c_s$$

- α_f denotes the number of times eye gaze ‘enters’ and ‘leaves’ the object, which indicates interest in that object; c_f is a constant set to 0.9. A higher number indicates higher interest because the user ‘returns’ to the object more often.
- α_s represents the average size of possible interest objects compared to the size (on the computer screen) of the currently computed object, which is intended to compensate for differences in the size of potential interest objects, and the related difference of being ‘hit’ by chance. c_s is a constant set to 1.0.

The *FIScore* measures the continued interest of the user in the active object. Similar to the *IScore*, the basic component is the intensity of the user’s gaze on the object. In addition, the *FIScore* considers gaze intensity on other objects during a preset time window (set to 2000 milliseconds).

On the practical side, attentive interfaces have to deal with the problem of calibration. Even the software for high-quality eye trackers will occasionally fail to detect the user’s gaze point. Sometimes, repeating the calibration procedure leads to a successful calibration. Occasionally, calibration does not work, and the exact reason remains unclear.

Visual attentive presentation agents

Visual attentive presentation agents are lifelike interface agents in the role of virtual presenters with a new type of functionality – the capability to process and respond to visual attention of users communicated by their eye movements. As explained, eye gaze is an excellent clue to users’ attention, visual interest, and visual preference. Using state-of-the-art non-contact eye tracking technology, eye movements can be assessed in an unobtrusive way. By analyzing and interpreting eye behavior in real-time, visual attentive agents can adapt to the current (visual) interest state of the user, and thus provide a more personalized, context-aware, and ‘attentive’ experience of the presentation.

In collaboration with Tobias Eichner, we have implemented a virtual sales scenario where a team of two animated agents presents MP3 players of a fictitious

company (Eichner et al. 2007). Each agent can perform body and facial gestures (emotional expression), speak with synchronized lip movements and direct its gaze at any specified scene entity as well as the user seated in front of the computer display screen.

Based on our award-winning agent system, the agents are animated in real-time following the techniques by Nischt et al. (2006a). In order to control and interrupt the presentation of the agents, our Multi-modal Presentation Markup Language (MPML) (Ishizuka and Prendinger 2006) was re-designed to be capable of anytime user interaction. This feature is important when the presentation should be interrupted upon detection of a particular gaze behavior of the user. The resulting reactive framework (MPML3D) is described by Nischt et al. (2006b).

The course of the presentation can be summarized as follows:

- 1 The female agent (*Yuuki*) introduces the company and her (male) colleague *Ken*.
- 2 *Ken* promotes the first MP3 player, MP3Pod-Advance, by providing a description of its features, which includes an example of navigating the menu of the player to select a particular song.
- 3 *Yuuki* presents the other MP3 player, EasyMP3Pod.
- 4 Both agents argue over the benefits and drawbacks of each player.
- 5 During that discussion they realize that the gadget presented by the other character would fulfill their particular needs better than what they have presented themselves.
- 6 Startled by that, the agents address the user directly, and ask him or her to choose either MP3 player.
- 7 Finally, the two presentation agents say goodbye.

Figure 22.3 shows a user watching the presentation. Video clips are available at <http://research.nii.ac.jp/~prendinger/MP3eyestudy/index.htm>.

The core aim of the application is that the user experiences the presentation as ‘attentive’ – that is, mindful of his or her interest state. Users should be made aware that their attentiveness or inattentiveness as audience matters to the presentation. For that purpose, the eye-based system monitors user interest in predefined screen objects and analyzes whether the user attends to the dynamics of the presentation, which is based on alternately speaking agents and changing slides. If the user’s gaze behavior deviates from the expected path (as derived from the course of the presentation), the agents can interrupt their presentation at any time during the presentation, and respond accordingly.

While the user may attend to any area of the computer screen, the agents will only react to a set of predefined, ‘gaze-sensitive’ areas, depicting so-called ‘interest objects.’ The gaze-sensitive areas are the bounding boxes around: (1) ‘Side Ads’ (to the left), a total of four slides that advertise the MP3 players and are updated every five seconds; (2) the male agent (*Ken*); (3) the 3-D model of MP3PodAdvance (in front of *Ken*); (4) the virtual slide; (5) the 3-D model of the EasyMP3Pod (in front of female agent); (6) the female agent (*Yuuki*); (7) the view out of the window to the right.

In the following, we will discuss agent reactions to two types of user gaze behaviors:

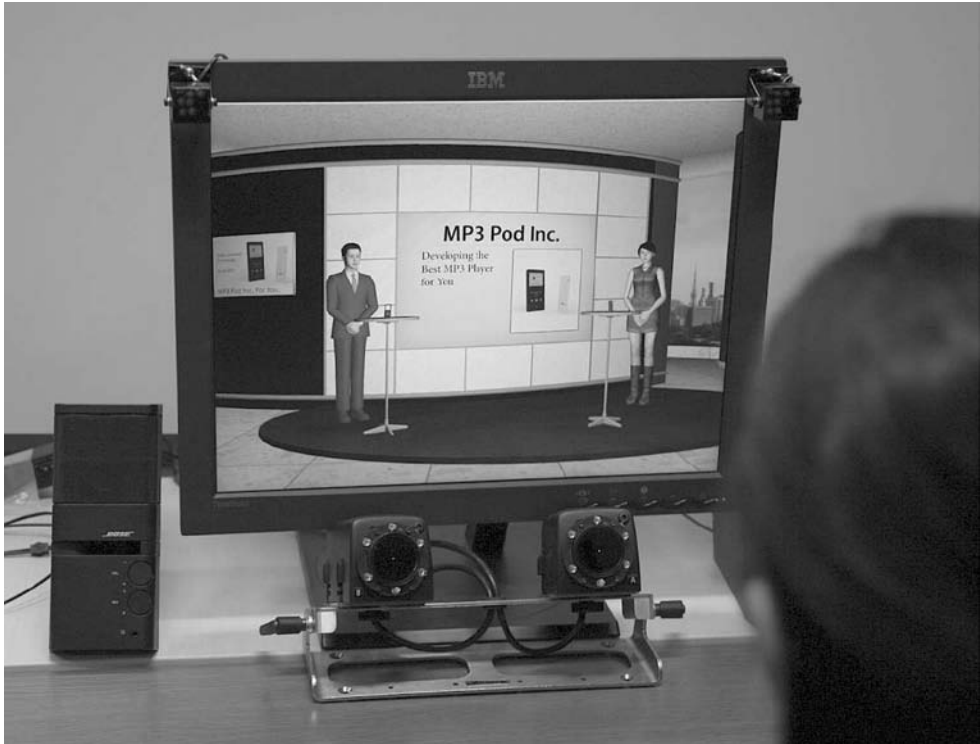


Figure 22.3 Setup of visual attentive presentation agents with stereo cameras of the eye tracker, two infrared pods attached at the top of the screen, and user (Brandherm et al. 2008).

- Context-independent agent reaction upon overt interest or noninterest in pre-defined screen objects.
- Context-dependent agent reaction upon failed grounding situations (see below).

Note that we did not intend to provide the most sensitive or polite response to the user. Quite on the contrary, some of the agent responses are quite direct and sometimes accidentally amusing.

For the *context-independent* case, we prepared agent reactions for the following four interest objects, as well as the situation where a user's gaze leaves the screen area.

- *Yuuki* and *Ken*: if the user is not looking at the currently speaking agent but at the other (not speaking) agent, the latter will comment – for example, *Ken* says 'Is there something wrong with my necktie? I think you are looking at me, even though *Yuuki* is explaining something.' Similarly, *Yuuki* will say 'I have the impression that you look at me all the time, even if *Ken* is talking.' Thereafter, the presentation is continued.

- *Side Ads*: the changing nature of the side advertisement naturally attracts the user's attention – that is, distracts him or her from the presentation (Faraday and Sutcliffe 1996). The side ads are a 'distraction by design' feature in order to enhance the interactivity of the system. If the user shows interest in the side ads for a second time, the current non-speaking agent interrupts the presentation by stating that the user appears to be distracted. Subsequently, the side add is turned off.
- *View*: another stimulus not directly related to the presentation of the MP3 players is the view of the skyline of Tokyo. If the user demonstrates interest in the view, the camera of the 3-D environment will refocus and *Yuuki* will explain some landmarks.
- *Off-screen*: if the user does not attend to the computer screen area, the agents will interrupt their presentation, and after holding an interchange about what to do, they will continue with the presentation.

All of the interruptions described above can in principle occur at any time during the presentation – that is, they are not context-dependent.

Next, we describe a *context-dependent* type of interruption. An important indicator of a user's attentiveness to the presentation is successful grounding. In human face-to-face communication, grounding relates to the process of ensuring that what has been said is understood by the conversational partners – that is, there is 'common ground' (Clark and Brennan 1991). During the presentation, agents repeatedly apply indicative (deictic) gestures in order to establish referential identity between the content of their speech and some screen object corresponding to an interest object. Grounding objects (or referents) in our scenario include the slides, the two virtual MP3 players, and the presenters themselves.

The presentation system monitors whether grounding is successful or not. We distinguish between two types of grounding situations, depending on their length:

- *Short grounding situation* (less than 2000 milliseconds): the agent performs a deictic gesture at the referent or utters a relevant sentence (or both). This situation occurs when the agent explains changing regions within the (virtual) slide or one of the virtual MP3 player models.
- *Long grounding situation*: the agent speaks and points to some referent for a period longer than two seconds. This situation occurs frequently, such as when the agent refers to the content of a slide and its content is not replaced during the explanation.

Grounding in 'short situations' is considered successful if one of the following conditions is met:

- 1 The user's gaze shows a transition from the bounding area of the speaking agent to the bounding area of the grounding object during the performance of an utterance, or gesture, (i) for at least 150 milliseconds, or (ii) within one second after the utterance (or gesture) terminated.
- 2 The user already attends to the referent.

If neither condition (1) nor (2) is satisfied, grounding is assumed to have failed. Since the agents also look at the referent when performing a deictic gesture, we

might call successful grounding a state of ‘joint attention’ (Velichkovsky and Hansen 1996) of user and agent. When no negative evidence in grounding is observed, the presentation will continue. Otherwise, the agents will interrupt their performance and provide feedback to the user. Here are some examples:

- *Self-introduction Yuuki*: when *Yuuki* introduces herself at the beginning of the presentation, the user is assumed to look at her. If the user does not attend to *Yuuki* (the referent), *Ken* interrupts and asks the user to look at her.
- *Introduction of Ken*: *Yuuki* introduces *Ken* by mentioning his name and performing a deictic gesture toward him. If user does not look at the grounding object (*Ken*), he will wave and alert the user to look at him.
- *Slides*: the majority of grounding situations is related to the slides. Here the agent explains the slide content, often accompanied by a deictic gesture. If the user does not attend to the slide, an agent will prompt the user.
- *MP3 Players*: occasionally, the agents refer to an MP3 player by using deictic gestures. The agents monitor whether the user attends to the players as grounding target, and react if the user is not looking there.

In total, fifteen grounding situations have been defined. *Yuuki* and *Ken* are grounding objects once each, the slides are the referent of grounding nine times, and each of the MP3 players is the grounding object twice. Since pre-tests with the system showed that users hardly look at the arguably small 3-D models of the players, failed grounding leads to an interruption at most once.

In our study (Eichner et al. 2007), two hypotheses were tested:

- *Grounding Hypothesis*: attentive agents support successful grounding.
- *Mindfulness Hypothesis*: users’ experience attentive with interface agents has a higher degree of involvement, co-presence, and engagement.

In order to test the hypotheses, two versions were implemented:

- *Interactive version*: the agents respond according to the actual user gaze behavior.
- *Pseudo-interactive version*: the agents interrupt the presentation at pre-defined points, independent of user gaze.

The second version is called *pseudo-interactive* since the agents *do* react, even if in a seemingly random way. It is important to note that all interruptions that could possibly occur in the interactive version, in fact do occur in the pseudo-interactive version. From a methodological point of view, this design is necessary in order to be able to compare the two versions.

The results of the twenty-one-person study were promising. Grounding was more successful in the interactive version than in the pseudo-interactive version, although to a lesser extent than expected. Among the fifteen questions related to mindfulness, only direct questions showed significant differences – for example, when asked whether the agents were aware of them (*interactive*), or whether the agents reacted in a strange way (*pseudo-interactive*). In a follow-up study (Brandherm et al. 2008), we replaced the *IScore* of Qvarfordt and Zhai (2005) by a novel method based on dynamic Bayesian networks, an advanced reasoning method for uncertain environments. This

led to more precise and appropriate agent reactions to the gaze behavior of users, and better results (see Brandherm et al. 2008 for details).

Conclusions

We have described emotional interfaces based on physiological signals, and attentive interfaces based on eye movements. Attentive interface agents complement emotional interface agents as a less intrusive (i.e., non-touch) method to assess users' interaction state on a moment-by-moment basis. While ANS recordings are effective means to recognize users' negative state, eye patterns are directed to attention and interest, which can be seen as a positive emotional state. The study on the emotional game agent highlighted the importance of designing virtual agent behavior in a way that is appropriate to the game scenario (e.g., competitive). While interest recognition from eye movement remains a hard problem, our studies on attentive interfaces could confirm that users do recognize and, judging from informal comments, do appreciate the attentive nature of lifelike agents.

However, important issues with physiological interfaces remain. Because the human ANS can be affected by many influences besides emotion, signals are ambiguous or may lead to misinterpretations. For instance, an increased level of galvanic skin response can also be the result of a person's movement or room temperature. The accuracy of emotion recognition can be increased by combining multiple kinds of physiological signals, context, and goals and preferences of the user (Picard 1997).

Physiological interfaces, such as our interactive gaming scenario, typically assume the recording of a global baseline preceding the interaction, where the subject is assumed to be in a state of (relative) relaxation or has a moderate level of autonomic nervous system activity. Although taking a global baseline is the preferred method to compensate for individual differences in signal levels and situational parameters (e.g., room temperature), Levenson (1988) pointed out the possibility of methodological problems with global baselines and motivated the recording of local baseline as an alternative approach. The main rationale for assuming a local baseline is that although biometric signals are 'center-seeking' (homeostatic), there might be slight shifts in the center point over time.

In the near future, we expect emotional and attentive agents to become more commonplace with the increasing miniaturization of devices. The studies reported in this chapter still required expensive equipment and complex setups. Besides device-oriented emotion recognition, we therefore also started to investigate the capability of text-based emotion recognition (Neviarouskaya et al. 2007). The emotion recognition and expression function is implemented for avatars in the 3-D networked environment of *Second Life* (www.secondlife.com).

Will our emotional and attentive agents be considered intelligent companions? If 'intelligent' refers to everyday competency for some field, such as healthy lifestyle, or even a variety of fields, the answer will be negative. The type of intelligence we are aiming for relates to interactional competency rather than to content knowledge. The agent will be able to detect whether some interface gadget or response annoys you, or whether you are interested in your current task or not, but except giving a humanlike emphatic response or alert, the agent will not be able to infer the cognitive preconditions of your frustration or inattentiveness. Nevertheless,

emotional attentive agents can affect the user positively, as we tried to demonstrate in this chapter.

Finally, we would like to re-emphasize the importance of autonomous nervous activity and eye movement for evaluating user interfaces and virtual interface agents. No other method can provide a more direct insight into the dynamics of the user's non-conscious appraisal of the interaction experience.

Acknowledgements

The research was supported by an Encouragement of Young Scientists Grant (FY2005–FY2007) from the Japan Society for the Promotion of Science (JSPS), and an NII Joint Research Grant with the University of Tokyo.

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