# THE HUMAN SIDE OF PROJECT MANAGEMENT: LEADERSHIP SKILLS

Qian Shi, PhD and
Jianguo Chen, PhD

PMI Publications welcomes corrections and comments on its books. Please feel free to send comments on typographical, formatting, or other errors. Simply make a copy of the relevant page of the book, mark the error, and send it to: Book Editor, PMI Publications, Four Campus Boulevard, Newtown Square, PA 19073-3299 USA.

PMI books are available at special quantity discounts to use as premiums and sales promotions, or for use in corporate training programs, as well as other educational programs. For more information, please write to Bookstore Administrator, PMI Publications, Four Campus Boulevard, Newtown Square, PA 19073-3299 USA, or e-mail: booksonline@pmi.org. Or contact your local bookstore.

The paper used in this book complies with the Permanent Paper Standard issued by the National Information Standards Organization (Z39.48—1984).

10  9  8  7  6  5  4  3  2  1

# Contents

# CHAPTER 1

# Introduction

Besides the traditional project management methodologies, tools, and techniques, leadership skills, which can be also called the human side or soft skills, have been widely accepted as a pivotal factor in the success of projects. There are usually two types of leaders in project management teams. One is the directive-managing, task-orientated leader, and the other is the non-directive, human-relation-orientated leader. Actually, especially in the latter situation, many project managers do not have real authority over their team members, which makes human side skills a key part of their work. Unfortunately, it is difficult for the project managers in such a situation to find an effective approach to successfully lead their project team.

Mullins (1996) defined leadership as a relationship through which one person influences the behavior of other people. A project leader must have the ability to learn, adapt, and overcome new problems through the sharing of experiences, questions, and solutions with other project members. Good leadership skills can help the project leader to liberate energies and capabilities of a project team greater than those of the sum of the individual members. With leadership skills, a project leader, who is responsible for group efficiency improvement, is able to understand how much the group efficiency arises and to capture it sequentially, immediately, and correctly.

The leadership skills of project leaders are different from those of enterprise leaders. The characteristics of a project—such as new colleagues, unclear framework, project context, etc.—usually adversely affect the group efficiency and the performance of the project leader. This leads to the fact that, although unacceptable, any research and experience of leadership skills for enterprise management cannot be directly employed for project management.

Therefore, building a body of knowledge of leadership skills for project leaders needs further study.

Nowadays, many projects no longer operate the business solely in the domestic markets. Consequently, the project leader has to deal with the individual situations of other countries, which makes the soft skills of the project leader extremely important for international projects. In the last 12 months we conducted research funded by PMI to identify the soft skills for project leaders in the Chinese context. The research plan is shown in the following chart:

| Stage | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Literature review | ▬ | ▬ | | | | | | | | | | |
| 2. Investigation and interview | | ▬ | ▬ | | | | | | | | | |
| 3. Theory analysis | | | | | ▬ | ▬ | | | | | | |
| 4. Experiment design and data collection | | | | | | | ▬ | ▬ | | | | |
| 5. Data processing | | | | | | | | | ▬ | | | |
| 6. Summary and writing report | | | | | | | | | | ▬ | ▬ | ▬ |

On the basis of previous studies, this research has drawn on a systematic study that is helpful in building the body of knowledge regarding leadership skills of project leaders with specific reference to the Chinese context. The stages of our research include literature review, investigation and interview, theory analysis, experiment design, data collection, data processing, etc. The findings of this research will be generally applicable to a wide variety of projects and industries, and will address leadership skills needed not only in projects that are in trouble, but also in those that are running smoothly. The main objectives of this research are as follows:

- To find out the main factors that cause unsuccessful leadership of project leaders
- To find out the main factors that cause successful leadership of project leaders
- To find out the main factors that influence project team performance
- To find out the necessary characteristics and traits for a project leader
- To find out the main leadership skills for the project leaders to successfully lead a project team
- To build an assessment framework for selecting project leaders.

# CHAPTER 2

# Related Research

We spent two months accomplishing the first stage of our research—literature review. Shown in Figure 2-1, the literature review about leadership skills includes four parts: the concept of leadership; the leadership characteristics, traits, and behaviors; the leadership-related organizational performance; and the literature directly related to the human skills of leadership.
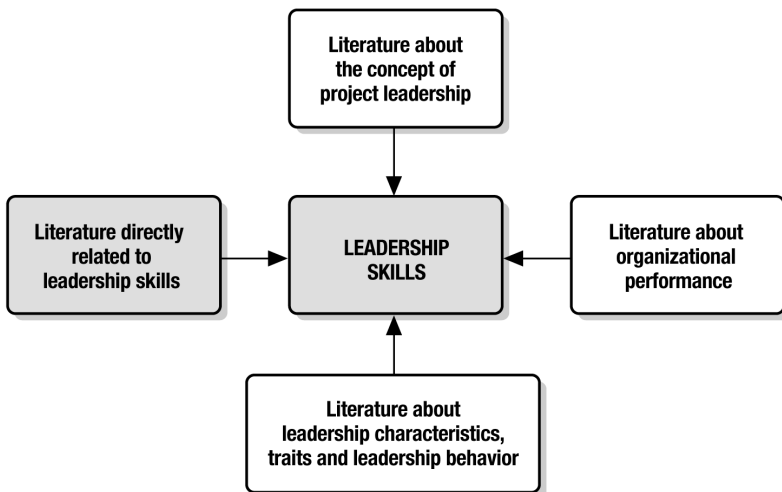
Figure 2-1   Literature review about leadership skills of project management

## 2.1 The Concept of Project Leadership

The concept of leadership can be traced back to the primitive age. The development of human civilization has always involved leadership, which is perhaps why there are so many definitions of it. Jago (1982) defined leadership as the use of non-coercive influence to direct the activities of the members of an organized group toward the accomplishment of group objectives. He described leadership in the context of a "set of qualities or characteristics attributed to those who are perceived to successfully employ such influence."

Leadership is not the equivalent to management. Davis (1967) distinguished between leadership and management by claiming that leadership is part of management, but is not all of it. Leadership is the ability to persuade others to seek defined objectives enthusiastically. It is the human factor that binds a group together and motivates it toward goals. Management activities such as planning, organizing, and decision-making are dormant cocoons until the leader triggers the power of motivation in people and guides them toward a goal. Pointed out by McGregor (1960), there are four major variables related to leadership: (1) characteristics of the leader; (2) the attitude, needs, and other personal characteristics of the followers; (3) characteristics of the organization, such as its purpose, its structure, and the nature of the tasks to be performed; and (4) the social, economical, and political milieu. Leadership is not a property of the individual, but a complex relationship among these variables.

Due to the special nature of project management, project leadership is not equal to enterprise leadership. Comparing it to enterprise management, Cleland (1995) pointed out that the leader of a project team has some additional challenges: (1) providing leadership throughout a cross-functional and cross-organizational environment as the multiple "stakeholders" become involved in the team effort; (2) operating without documented formal authority over the team members, who may report, in a traditional authority-responsibility relationship, to their function managers; and (3) working in a "matrix" organizational design, which, because of its 2D structure, raises question relating to "unity of command" and "parity of responsibility," which are two venerated principles in management theory.

According to these principles, Cleland (1995) suggested that project leadership is defined as a presence and a process carried out within an organizational role that assumes responsibility for the needs and rights of those people who choose to follow the leader in accomplishing project results.

## 2.2 Leadership Characteristics, Traits, and Leadership Behavior

Thousands of research studies have explored leadership characteristics and traits. In all these studies, there is a common conclusion that the desirable traits of leaders should include physical factors, abilities, personalities, intelligence, knowledge, dominance, and self-confidence, etc. The leadership characteristics and traits are reflected by leadership behavior.

In discussing leadership behavior, we can first turn to the famous "Vital Dozen Rules for Project Managers" concluded by Meredith and Mantel (2000). These rules include:

1. Understand the problems, opportunities, and expectations of a project manager;
2. Recognize that project teams will have conflicts, but that this is a natural part of group development;
3. Understand who the stakeholders are and what their agendas are;
4. Realize that organizations are very political, and use politics to your advantage;
5. Realize that project management is "leader-intensive," but that you must be flexible;
6. Understand that project success is defined by four components: budget, schedule, performance criteria, and customer satisfaction;
7. Realize that you must build a cohesive team by being a motivator, coach, cheerleader, peacemaker, and conflict resolver;
8. Notice that your team will develop attitudes based on the emotions that you exhibit—both positive and negative;
9. Always ask "what-if" questions, and avoid becoming comfortable with the status of the project;
10. Do not get bogged down in minutiae and lose sight of the purpose of the project;
11. Manage your time efficiently;
12. Above all, plan, plan, plan.

On the base of the "Vital Dozen Rules for Project Managers," we can classify leadership behavior into different types. Bass (1990) claimed that a transformational leader should possess characteristics including "charismatic," "inspirational," "intellectually stimulating," and "considerate." "Charismatic" leaders behave in such a way that they act as role models who are admired, respected, and trusted by their team members. "Inspirational" leaders motivate and inspire team members by providing meaning and challenge to their work. "Intellectually simulating" leaders stimulate their team mem-

bers to be innovative and creative by questioning assumptions, reframing problems, and approaching old situations in new ways. ''Considerate'' leaders pay special attention to each individual's needs for achievement and growth by acting as a coach and mentor. These research studies have classified leadership into different types and clarified the relationship between leadership style and project situation.

Cheung, Ng, Lam, and Yue (2001) classified leadership into five different types. In addition to the four types previously mentioned, ''participative'' has also been regarded as a leadership behavior. ''Participative'' leaders encourage participation from team members through appropriate delegation, value, and reward-constructive alternatives. In their satisfying leadership model, Cheung et al. details items about leadership behavior.

According to Cheung et al., the ''charismatic'' project leader should: (1) make the team members enthusiastic about the project; (2) act as a model for project members to follow; (3) make project members feel good to be working with him or her; (4) make project members feel proud to be associated with him or her; (5) make project members have complete faith in him or her; and (6) make project members readily trust his or her judgment to overcome any obstacle.

The ''considerate'' leader should: (1) give personal attention to members who seem to be neglected; (2) find out what members want and help them to get it; (3) express his or her appreciation when a member does a good job; (4) be satisfied when the agreed standard of work is achieved; (5) give credit when a job is performed well; and (6) trust project team members individually.

The ''intellectually stimulating'' leader should: (1) express ideas as a way of getting project members to rethink ideas of their own that they have never questioned before; (2) enable project members to rethink old problems in new ways; (3) provide project members with new ways of looking at things that used to be a puzzle for them; (4) accept project members for what they are as long as they do their job; (5) show project members how to attain targets decided by themselves; and (6) arouse their awareness about what is really important.

The ''participative'' leader should: (1) consult with project members and consider their suggestions before making a decision; (2) resolve problems related to the project with their participation; (3) delegate some responsibility and decision-making authority to project members; (4) give them sense of ownership for decisions; (5) encourage project members to express their opinions; and (6) welcome alternative proposals to problems and appreciate suggestions for improvement.

The ''inspirational'' leader should: (1) communicate high expectations, using symbols to focus efforts, and express important messages in a simple way; (2) stimulate enthusiasm among project design team members for the work of the group; (3) say things to build confidence in their ability to successfully perform assignments and attain group objectives; (4) set an example with his or her own behavior of what is expected; (5) instill pride in individuals; and (6) make project members feel proud of the team.

## 2.3 Project Team Performance

We contend that successful leadership should be demonstrated by organizational effectiveness. To some extent, the speed of the project team reflects the speed of the leader. Therefore, it is necessary to study organizational effectiveness when conducting research about leadership. Jedo and Clements (1999) concluded that an effective project team should include the following things:

1. A clear understanding of the project objective
2. Clear expectations of each person's role and responsibility
3. A results orientation
4. A high degree of cooperation
5. Collaboration and a high level of trust, etc.

On the contrary, the barriers to team effectiveness include the following:

- Unclear goals
- Unclear definitions of roles and responsibilities
- Lack of project structure
- Lack of commitment
- Poor communication
- Poor leadership
- Turnover of project members
- Dysfunctional behavior, etc.

Veil and Turner (2002) pointed out that to liberate energies and capabilities of a group is a key factor for improving group efficiency. She claimed that the obstacles to liberate energy in project groups can be grouped into four sets:

- Energy loss through killing ideas
- Energy loss through the project group being pushed to the limit
- Energy loss through the static perception of team roles
- Energy loss through power play.

Through research on how to avoid energy loss, we can attain the leadership behavior for organizational effectiveness. For example, to avoid the energy loss through the project group being pushed to the limit, we should activate the silent resources of the group; use

both the written and illustrated to help get a better grasp of the subject, and stimulate all the senses, etc.

Todryk (1990) concluded that the model of Dave Francis and Don Young about the characteristics of an effective team includes the following:

- Appropriate leadership
- Suitable team membership
- Team commitment
- Team climate
- Team achievement
- Clear roles within corporation/agency
- Effective work methods and procedures
- Team organization
- Critiquing without rancor
- Individual development
- Creative capacity
- Inter-group relationships.

## 2.4 Leadership Skills

Having finished a literature review about leadership concept, leadership characteristics, leadership behavior, and organizational effectiveness, we shift to the literature directly describing leadership skills. Jedo (1999) gave us a clear concept of leadership skills. He concluded that in order to act as a successful leader, the project manager should possess a set of skills that will both inspire the project team to succeed and win the confidence of the customer. These skills, in general, include the following:

- Leadership ability
- Ability to develop people
- Communication skills
- Interpersonal skills
- Ability to handle stress
- Problem-solving skills
- Time-management skills.

In addition, EL-Sabaa (2001) concluded that Katz's research about leadership skills, which points out that an effective administrator must develop his or her own personal point of view toward human activity so that he or she can:

- Recognize the feelings and sentiments that he or she brings into a situation;
- Have an attitude about his or her own experience that allows for reevaluation and learning from them;
- Develop the ability to understand what others, by their actions and words, are trying to communicate;

- Develop the ability to successfully communicate his or her ideas and attitudes to others.

Pettersen (1991) proposed a set of predictors for selecting project managers. Based on previous research, he listed the predictors of project managers, including problem solving, administration, supervision, and project team management, interpersonal relations, and personal qualities.

In detail, problem solving includes problem analysis, judgment, practical sense, and decisiveness. Administration includes planning and organization, control, strategy, organizational know-how, and specialized knowledge. Supervision and project team management includes delegation of responsibilities, team structuring, consideration toward team members, development of team members, teamwork, flexibility, cooperation, and the resolution of conflicts. Interpersonal relations include oral communication, interpersonal influence, persuasion, negotiation, and ascendancy. Other personal qualities include the need to achieve, proactivity, self-confidence, maturity, emotional stability, loyalty, honesty, integrity, etc.

Thamhain (1991) concluded from the previous research that the project leader needs three types of skills: leadership skills, technical skills, and administrative skills. Leadership skills included the following:

1. Managing in an unstructured work environment
2. Maintaining clarity of management direction
3. Defining clear objectives
4. Understanding of the organization
5. Motivating people
6. Managing conflict
7. Understanding of professional needs
8. Creating personal involvement at all levels
9. Communicating, written and oral
10. Assisting in problem solving
11. Aiding group decision-making
12. Building multidisciplinary teams
13. Maintaining credibility
14. Maintaining visibility
15. Gaining upper management support and commitment
16. Being action-orientated, self-starter
17. Eliciting commitment
18. Building priority image.

In addition, administrative skills include the following:
- Planning and organizing multifunctional programs
- Attracting and holding quality people
- Estimating and negotiating resources

- Working with other organizations
- Measuring work status, progress, and performance
- Scheduling multidisciplinary activities
- Understanding policies and operating procedures
- Delegating effectively
- Communicating effectively, orally and written
- Minimizing change.

Posner (1987), in his paper about what it takes to be a good project manager, described project management skills as follows:

1. Communicating skills: listening and persuading
2. Organizing skills: planning, goal-setting, and analyzing
3. Team-building skills: empathy, motivation, and esprit de corps
4. Leadership skills: setting an example, remaining energetic, maintaining vision, delegating authority, and remaining positive
5. Coping skills: flexibility, creativity, patience, persistence
6. Technological skills: experience and project knowledge

As an Egyptian researcher, EL-Sabaa (2001), in his research about the skills and career path of an effective project manager, pointed out that the human skills of a project manager should include the following items:

- Mobilizing: project manager is able to mobilize the mental and emotional energy of his or her subordinates
- Communicating: project manager is able to listen, persuade, and understand what others mean by their behavior
- Coping with situations: project manager is flexible, patient, and persistent
- Delegating authority: project manager is able to give people the opportunity as group members to participate in making decisions
- Displaying political sensitivity
- Maintaining high self-esteem
- Demonstrating enthusiasm.

EL-Sabaa's research about the human skills of project managers has given us another facet of leadership skills in the Arab world.

In China, research about project management focuses mainly on technique and methodology. Little research has been conducted on leadership skills. Low and Christopher (2000), in his research into cross-cultural project management in China, concluded that the following skills are relatively important for project managers:

- Effective communication skills
- Effective leadership skills
- Good interpersonal skills

- Adaptability and flexibility
- Functional/technical strengths.

These skills are suitable for managers who manage international projects. Low and Christopher (2000) did not divide these skills into hard ones and soft ones. As of now, there is still no systematic research into soft leadership skills in the Chinese context.

## 2.5 Summary of Literature Review

From our point of view, the leadership skills and abilities that project leaders must possess should be developed on the basis of the literature about the organizational effectiveness, leadership characteristics, traits, and behaviors, as well as the literature directly about leadership. In Figure 2-2, we present what we have found in the literature review stage.

From the previous research, we have learned that, although many leadership skills have been proposed, there are still three things that should be pointed out:

- Previous research usually mixes a project leader's traits with project leadership skills. These two concepts should be studied separately.
- Previous research usually mixes soft skills with technical skills. However, soft skills are becoming more and more important, and should therefore be studied separately.
- There is still no research that systematically concentrates on leadership skills specifically in the Chinese background.
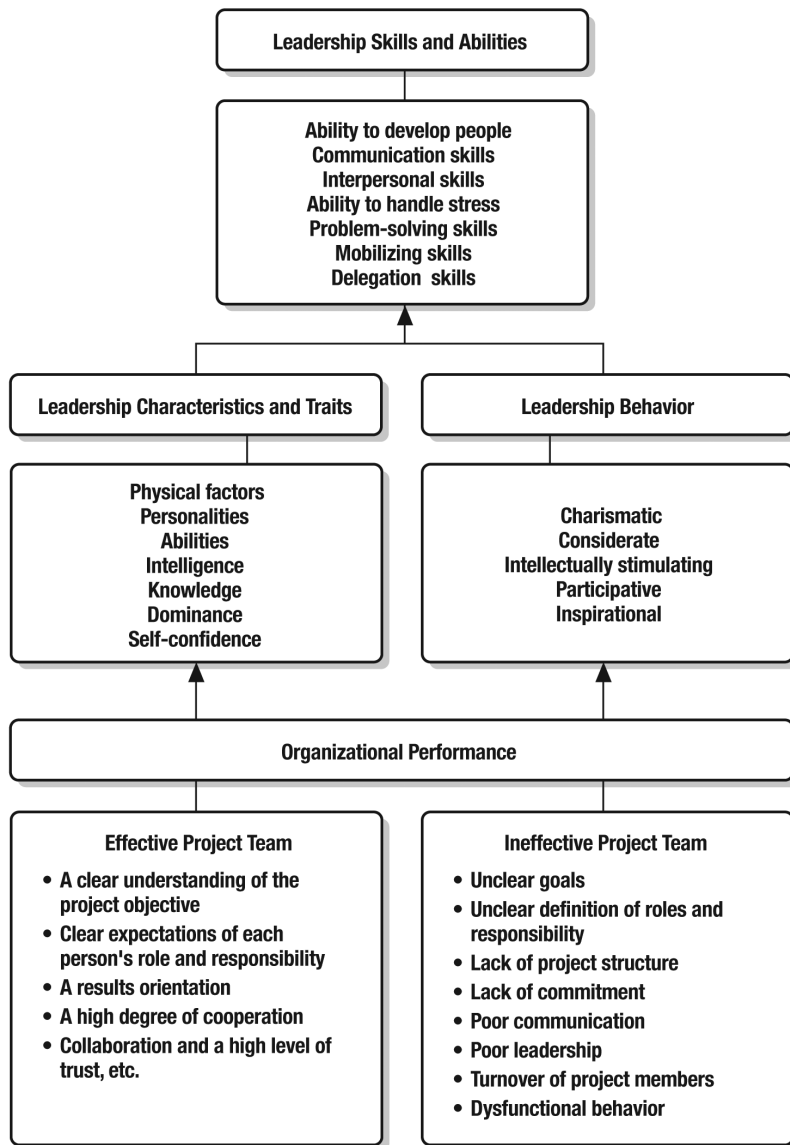
Figure 2-2    Summary of literature review about leadership

# CHAPTER 3

# Investigation and Interview

In this stage, we interviewed 20 participants, using a set of open-ended questions with regard to project leadership as well as project organization performance, including, ''What are the factors that lead to a successful project team? Or what are the factors that lead to an unsuccessful project team?''; ''What are the basic characteristics and traits of a project manager?''; ''What are the leadership skills that a project leader should have in order to make the project team effective and efficient?'' The participants represent different organizational levels: general manager, functional manager, project manager, assistant project manager, and project team member. The outcome of the interview is as follows:

1. **Outcome of interview regarding ''What are the factors that lead to a successful project team? Or what are the factors that lead to an unsuccessful project team?''**

To answer this question, we interviewed 10 participants. Among them were one general manager, two project managers, one assistant project manager, and six project members. The results are shown in Table 3-1.

2. **Outcome of interview regarding ''What are the basic characteristics and traits of a project manager?''**

To answer this question, we interviewed 15 participants. Among them were two general managers, two functional managers, three project managers, one assistant project manager, and seven project members. The results are shown in Table 3-2.

| No. | Position | Factors |
|-----|----------|---------|
| 1 | General manager | Integrity |
| 2 | Project member | Union; Solidification |
| 3 | Project manager | Trust |
| 4 | Assistant project manager | Clear role and responsibility; Clear objectives; Team spirit |
| 5 | Project member | Clear role and responsibility; Clear organizational structure |
| 6 | Project manager | Clear responsibility |
| 7 | Project member | Clear responsibility |
| 8 | Site engineer | Mutual respect and understanding |
| 9 | Project member | Competition mechanism among team members |
| 10 | Project member | Clear objectives; Mutual trust; Effective communication and cooperation |

Table 3-1      Factors of project team performance

**3. Outcome of interview regarding "What are the leadership skills that a project leader should have in order to make the project team effective and efficient?"**

To answer this question, we interviewed 20 participants. Among them were two general managers, two functional managers, five project managers, one assistant project manager, and 10 project members. The results are shown in Table 3-3.

**4. Conclusion**

To summarize: based on the interviews, the factors that lead to a successful project team are shown as follows:
- Integrity
- Union and solidification
- Mutual trust
- Mutual respect and understanding
- Clear role and responsibility / Clear organizational structure
- Clear objective
- Effective communication and cooperation
- Competition mechanism.

| No. | Position | Characteristics and Traits |
|---|---|---|
| 1 | Assistant project manager | Endurance; Patience; A strong sense of responsibility; A healthy body; Justice; Innovation; Honesty |
| 2 | General manager | Foresight; A spirit of dedication; A healthy body; A sense of responsibility; Honesty; Enterprise |
| 3 | Project member | Resolute; Self-confident; Intelligent; Dominant; Attractive; A healthy body; A sense of responsibility |
| 4 | Project member | A healthy body; A smart head; Be energetic; Be kind; Be honest; Be resolute |
| 5 | Project member | Be able to learn from others; Respect other members' feelings; Be comprehensive |
| 6 | Project member | Be knowledgeable; Be decisive |
| 7 | Project member | A clear mind; Be flexible and adaptable |
| 8 | Functional manager | Be honesty; Be impartial; Be warmhearted; Be enterprising |
| 9 | Project manager | Be scrupulous; Be dispassionate |
| 10 | Project manager | Be warmhearted; Be friendly |
| 11 | Project manager | Be sensitive; Be adaptable |
| 12 | Project member | Be honest; Be patient |
| 13 | Project member | Intelligence |
| 14 | General manager | Self-confidence and dominance |
| 15 | Functional manager | Be energetic and creative |

Table 3-2    Characteristics and traits of a project leader


Based on the interviews, the basic characteristics and traits of a project manager are shown as follows:

➢ Endurance:
The project leader should be able to endure any serious problems coming from outside.

➢ Patience:
The project leader should be patient, especially when dealing with complicated problems.

| No. | Position | Skills |
|---|---|---|
| 1 | Project manager | Ability to influence others; Communication skills; Interpersonal skills |
| 2 | General manager | Communication skills; Integration skills; Decision-making skills; Delegation skills; Ability to develop people |
| 3 | Assistant project manager | Specialized knowledge and skills; Communication skills; Interpersonal skills; Organizational skills, Negotiation skills; Coordination skills; Problem-solving skills; Skills to deal with emergencies |
| 4 | Project member | Delegation skills; Communication skills; Interpersonal skills; Organizational skills; Coordination skills |
| 5 | Project manager | Interpersonal skills; Communication skills |
| 6 | Project member | Delegation skills; Interpersonal skills; Organizational skills; Coordination skills; Learning skills; Understanding skills |
| 7 | Project member | Skills to reduce and shift project risk |
| 8 | Project member | Skills to reduce and shift project risk |
| 9 | Project member | Coordination skills; Mobilizing skills; Ability to encourage people to do their work actively |
| 10 | Project member | Interpersonal skills; Incentive skills |
| 11 | Functional manager | Understanding skills |
| 12 | General manager | Organizational skills; Controlling skills |
| 13 | Project member | Coordination skills |
| 14 | Project member | Cohesion skills |
| 15 | Project leader | Coordination skills; Interpersonal skills |
| 16 | Project manager | Interpersonal skills; Communication skills; Problem-solving skills; Mobilizing skills |
| 17 | Project member | Coordination skills; Interpersonal skills |
| 18 | Project member | Communication skills |
| 19 | Functional manager | Mobilizing skills; Communication skills |
| 20 | Project manager | Mobilizing skills |

Table 3-3    Leadership skills of a project leader

➢ A strong sense of responsibility:
The project leader should remain aware at all times that he or she is responsible for the project result.

➢ A healthy body:
With complicated and onerous work, the project leader should have a strong and healthy body, which ensures a high energy level.

➢ Justice:
The project leader should remain impartial when dealing with any project involving internal or external disputes.

➢ Innovation / Be creative:
Because projects have unique characteristics, there are no two projects that are totally the same. The project leader cannot always rely on a regular way to carry out a project. Therefore, innovation and creativity are important traits in the project leader, especially on a totally new project.

➢ Spirit of dedication :
The project leadership should have a spirit of dedication to the work.

➢ Foresight:
The project leader should have foresight when making decisions in the project context.

➢ Honesty:
Honesty is a necessary trait in anyone; but for the project leader, it seems even more important.

➢ Enterprise:
An enterprising project leader can motivate a project team to be positive in their work, which is very important for the success of a project.

➢ Be resolute:
The project leader should be resolute when a decision has been made. Irresolution may not be useful in executing the project plan.

➢ Self-confidence:
Self-confidence is a basic characteristic of a project leader. Without confidence, the project leader cannot lead team members to success.

➢ Intelligence:
The project leader should be intelligent. It is difficult for a foolish project leader to make wise decisions during the project-planning and project-execution stages.

➢ Dominance:
The project leader should be dominant, which is a basic trait in a team leader.

➢ Be attractive:
The project leader should be attractive not just in his or her appearance, but also his or her inherent personality.

➢ Be able to learn from others:
No one can be an expert in all fields. It is not necessary to choose a project leader who has specific knowledge. However, because the project may deal with issues regarding a wide range of specific fields, the project leader should be able to learn from others. It is also a useful way for the project leader to improve himself or herself.

➢ Be comprehensive:
To create a harmonious environment for the project team, the project leader should be comprehensive.

➢ Be warmhearted and friendly, and respect others' feelings:
The project leader should be warmhearted, and should always act kindly to project members, as well as to others. He or she should respect other team members' feelings, so that everyone feels comfortable and is willing to contribute to the project.

➢ Be flexible and adaptable:
The project leader comes in contact with different kinds of people in order to deal with different issues. Therefore, the project leader should be flexible and adaptable. In other words, the project leader should adapt to the project background, but not let the project background adapt him or her.

➢ Be sensitive and scrupulous:
The project leader should be sensitive and scrupulous, especially when carrying out a project with a complex background.

➢ Be dispassionate:
The project leader should be dispassionate. Any decision coming from an emotional impulse may lead to project failure.

Based on the interview, the leadership skills that a project leader should have in order to make the project team effective and efficient are shown as follows:
- Communication skills
- Interpersonal skills
- Ability to influence others
- Integration skills
- Decision-making skills

- Delegation skills
- Ability to develop people
- Organizational skills
- Coordination skills
- Learning skills
- Understanding skills
- Controlling skills
- Cohesion skills
- Mobilizing skills / Incentive skills
- Problem-solving skills.

# CHAPTER 4

# Theory Analysis

Based on the findings from the last two stages, we have analyzed the basic principle of project leadership, and, in the end, built up the main indicator system regarding the soft skills of project leadership.

## 4.1 Basic Principles of Building the System

According to the authors, and shown in Figure 4-1, the success of a project is influenced by the performance of the project team as well as the project environment. The performance of a project team is the result of project leadership. In other words, the performance of a project team, to some degree, reflects the performance of a project leader. In the meantime, project leadership is affected by the characteristics and traits, as well as the leadership skills, of a project leader.
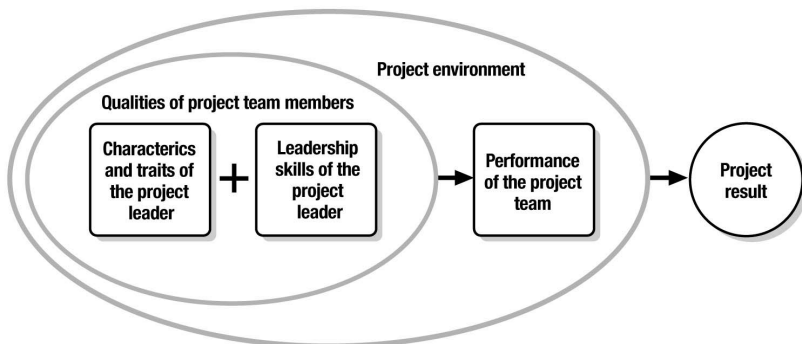


Figure 4-1    The relationship among project leadership, project team performance, and the project result

Following this principle, therefore, we first focused our research on the performance of a project team. According to a review of the literature and the result of interviews, we discovered the main factors that lead to a successful project team. This will be described in the next section, and will support the analytical process of project leadership.

In addition, previous studies have shown many indicator systems for selecting project leaders. However, those systems usually mix leadership skills with leadership characteristics and traits. Characteristics and traits, which are the necessary qualities of a project leader, are usually inherent or formed over a long period of time; therefore, they cannot be easily changed. Different from characteristics and traits, project leadership skills can, with training, be acquired in a reasonable and relatively short time. In this research, we have analyzed these separately. Leadership characteristics and traits will be analyzed in section 4.3; subsequently, the human side of leadership skills will be analyzed in section 4.4.

## 4.2 Factors that Affect the Performance of a Project Team

The factors that affect the performance of a project team can be classified into two categories. One category includes the outside factors, such as project environment, project complexity, etc. These factors are unchangeable, things that we cannot control. The other category includes the inside factors, the inherent characteristics of a project team, such as project team cooperation, team working spirit, etc. These factors, which have a strong relationship with project leadership, are what our research concentrates on. We have grouped the factors that affect the performance of a project team into four sets, which is shown in Table 4-1.

The first set is about the basic qualities of a project team, including the quality of the project leader, the quality of project members, and the stability of the project team. The second set includes clear objectives, clear organizational structure, clear task delegation, clear responsibility, and an incentive mechanism. The third set includes sufficient communication, as well as efficient coordination and collaboration. The fourth set, named project team spirit, includes a harmonious relationship between the project leader and project member, mutual respect, understanding, trust and union, as well as the positive attitude of the project team.

| No. | Factors |
|---|---|
| 1 | **The first set—basic qualities** |
| | 1.1 The quality of the project leader |
| | 1.2 The quality of project members |
| | 1.3 The stability of the project team |
| 2 | **The second set—task allocation** |
| | 2.1 Clear objectives |
| | 2.2 Clear organizational structure |
| | 2.3 Clear task delegation |
| | 2.4 Clear responsibility |
| | 2.5 Incentive mechanism |
| 3 | **The third set—team cooperation** |
| | 3.1 Sufficient communication |
| | 3.2 Efficient coordination and collaboration |
| 4 | **The fourth set—team spirit** |
| | 4.1 Harmonious relationship between project leader and project member |
| | 4.2 Mutual respect, understanding, trust and union |
| | 4.3 Positive attitude of project team |

Table 4-1    Factors that affect the performance of a project team

## 4.3 Leadership Characteristics and Traits

Leadership characteristics and traits, fundamental in selecting a project leader, are very important for the successful leadership of a project. These characteristics and traits, grouped into six different sets, are shown in Table 4-2.

The first set includes the basic personal traits, including honesty, loyalty, justice, and a sense of responsibility. The second set reflects the personal background, including working experience, being knowledgeable, intelligence, being energetic, and being able to learn from others. The third set includes the necessary traits for developing interpersonal skills, such as being attractive, respecting others' feelings, kindness, and being warmhearted. The fourth set includes maturity, endurance, and patience, as well as being scrupulous, flexible, and adaptable. The fifth set includes self-confidence and being decisive. The sixth set includes being proactive, creative, progressive, and dominant.

| No. | Characteristics/traits |
|-----|------------------------|
| 1 | **The first set** |
| | 1.1 Honesty |
| | 1.2 Loyalty |
| | 1.3 Justice |
| | 1.4 A sense of responsibility |
| 2 | **The second set** |
| | 2.1 Intelligence |
| | 2.2 Be able to learn from others |
| | 2.3 Working experience |
| | 2.4 Be knowledgeable |
| | 2.5 Be energetic |
| 3 | **The third set** |
| | 3.1 Be attractive |
| | 3.2 Respect others' feeling |
| | 3.3 Kindness |
| | 3.4 Be warmhearted |
| 4 | **The fourth set** |
| | 4.1 Maturity |
| | 4.2 Endurance |
| | 4.3 Patience |
| | 4.4 Be scrupulous |
| | 4.5 Be flexible and adaptable |
| 5 | **The fifth set** |
| | 5.1 Self-confidence |
| | 5.2 Be decisive/resolute |
| 6 | **The sixth set** |
| | 6.1 Proactive |
| | 6.2 Innovation / be creative |
| | 6.3 Be progressive |
| | 6.4 Dominance |

Table 4-2     Characteristics and traits of a project leader

## 4.4 Soft Skills of Project Leadership

In addition to technical skills, the human side of leadership skills are also extremely important for successful project leadership. We grouped these soft skills into five sets, shown in Table 4-3.

### 1. Communication skills

The first set is communication skills, including oral communication, written communication, and comprehensive skills. Oral communication skills are the ability to communicate efficiently with others orally, and the ability to make effective presentations. Written communication skills mean the ability to communicate efficiently by writing documents, letters, and reports. Comprehensive skills are the ability to understand both the stated and implied meaning of others.

### 2. Interpersonal skills

The second set is interpersonal skills. These skills include being able to deal with people of different backgrounds, which means the skill of developing relationships with different kinds of people when needed. Interpersonal skills also involve persuading, motivating, and incentive skills. Persuading skills refer to persuading and influencing others to support you in realizing the objectives of the project. Motivating and incentive skills refer to carrying out special strategies to motivate team members to work hard by identifying their feelings, needs, and expectations.

### 3. Coordination skills

The third set, coordination skills, includes being able to build harmonious relationships in order to achieve project goals, and dealing with conflicts from both inside and outside. In addition, controlling skills are also very important in the coordination process. The project leader must know how to control the problem and move it in an objective-oriented direction.

### 4. Team-building and delegation skills

The fourth set, team-building and delegation skills, includes important skills for a project leader. These skills include team structure design skills, identifying the ability of different project team members, delegation skills, and integration skills.

### 5. Problem-finding, analyzing, and solving skills

The fifth set is problem-finding, analyzing, and solving skills, which includes being able to discover problems in a timely manner, problem-analyzing skills, judging and decision-making skills, as well as problem-solving and controlling skills.

| No. | Indicators |
|---|---|
| 1 | **The first set—communication skills** |
|  | 1.1  Oral communication skills |
|  | 1.2  Written communication skills |
|  | 1.3  Comprehensive skills |
| 2 | **The second set—interpersonal skills** |
|  | 2.1  Being able to deal with people of different backgrounds |
|  | 2.2  Persuading skills |
|  | 2.3  Motivating and incentive skills |
| 3 | **The third set—coordination skills** |
|  | 3.1  Building harmonious relationships in order to achieve project goals |
|  | 3.2  Being able to deal with conflict |
|  | 3.3  Controlling skills |
| 4 | **The fourth set—team-building and delegation skills** |
|  | 4.1  Team-structuring skills |
|  | 4.2  Identifying the ability of project team member |
|  | 4.3  Delegation skills |
|  | 4.4  Integration skills |
| 5 | **The fifth set—problem-finding, analyzing, and solving skills** |
|  | 5.1  Being able to find problems in a timely manner |
|  | 5.2  Problem-analyzing skills |
|  | 5.3  Judging and decision-making skills |
|  | 5.4  Problem-solving and controlling skills |

Table 4-3      Indicator system of soft skills for a project leader

# CHAPTER 5

# Questionnaire

Based on the theory analysis of the last stage, we designed a set of questionnaires for the experiment consisting of two parts. The first part is about project team performance and the second part is about project leadership.

## 5.1 Questionnaire About Project Team Performance

Project team performance is a key factor in the success of a project. It also, to a large degree, reflects the performance of a project leader. Therefore, first, we designed a questionnaire to investigate the project team performance, as follows:

**Questionnaire 1.0**

**1. Personal information**
   **Gender:**  □ Male  □ Female
   **Age:**      □ 20–25  □ 26–30  □ 31–40  □ 41–50  □ >50

**2. Project information**
   **Project scale:**  □ >30 million RMB  □ 30-10 million RMB
                        □ 10-1 million RMB  □ <1 million RMB
   **Project complexity:**  □ Complicated  □ Normal
                            □ Not complicated
   **Project team scale:**  □ >100  □ 50–100  □ 10–50  □ <10

**3. Investigation form 1.1**
Please assess the relative importance of the following indicators for project team performance:

| Indicator | Weight | Sub-indicator | Weight |
|---|---|---|---|
| 1. Basic qualities | | 1.1 The quality of the project leader | |
| | | 1.2 The quality of project members | |
| | | 1.3 The stability of the project team | |
| 2. Task allocation | | 2.1 Clear objectives | |
| | | 2.2 Clear organizational structure | |
| | | 2.3 Clear task delegation | |
| | | 2.4 Clear responsibility | |
| | | 2.5 Incentive mechanism | |
| 3. Team cooperation | | 3.1 Sufficient communication | |
| | | 3.2 Efficient coordination and collaboration | |
| 4. Team spirit | | 4.1 Harmonious relationship between project leader and project member | |
| | | 4.2 Mutual respect, understanding, trust, and union | |
| | | 4.3 Positive attitude of project team | |

The questionnaire consists of three parts. The first part is about personal information, including gender and age. The second part is about the project information being investigated, including project scale, project complexity, and project team scale. Project scale is classified according to the investment of the whole project. Project complexity is classified according to the relative difficulty in finishing the project. Project team scale is classified by the number of people on the project team. For this investigation, we sent out 200 questionnaires, including 10% to general managers, 40% to project managers, and 50% to project members.

## 5.2 Questionnaire About Project Leadership

The questionnaire on project leadership has two parts. The first part is about project leadership traits and characteristics. The second part is about leadership skills.

The first part, questionnaire 2.1, is shown as follows:

### Questionnaire 2.1 (characteristics and traits of a project leader)

**1. Personal information**

**Gender:**  □ Male □ Female
**Age:**  □ 20–25  □ 26–30  □ 31–40  □ 41–50  □ >50

## 2. Project information

**Project scale:**  □ >30 million RMB  □ 30–10 million RMB  □ 10-1 million RMB  □ <1 million RMB

**Project complexity:**  □ Complicated  □ Normal  □ Not complicated

**Project team scale:**  □ >100  □ 50–100  □ 10–50  □ <10

## 3.  Investigation form

Please assess the relative importance of the following traits and characteristics for a project leader:

| No. | Traits and Characteristics | Assessment | | | | |
|---|---|---|---|---|---|---|
| | | Very impor-tant | Impor-tant | Normal | Not impor-tant | Absolutely not impor-tant |
| 1 | Proactive | | | | | |
| 2 | Self-confidence | | | | | |
| 3 | Maturity | | | | | |
| 4 | Stable emotion | | | | | |
| 5 | Loyalty | | | | | |
| 6 | Honesty | | | | | |
| 7 | Affinity | | | | | |
| 8 | Endurance | | | | | |
| 9 | Ability to deal with pressure | | | | | |
| 10 | Optimism | | | | | |
| 11 | Innovation / be creative | | | | | |
| 12 | Sensitivity | | | | | |
| 13 | Foresight | | | | | |
| 14 | Justice | | | | | |
| 15 | Decisiveness/Resoluteness | | | | | |
| 16 | Sense of responsibility | | | | | |
| 17 | Respectfulness of others' feelings | | | | | |
| 18 | Kindness | | | | | |
| 19 | Attractiveness | | | | | |
| 20 | Energy | | | | | |

The second part, including questionnaire 2.2.1 and questionnaire 2.2.2, is follows:

- In questionnaire 2.2.1, we asked participants to choose the relative importance of each leadership skill. Based on questionnaire 2.2.1, we can directly get the average weights of these indicators.
- In addition, we designed another questionnaire, questionnaire 2.2.2. Participants were asked to answer a set of questions regarding the leadership skills. Based on this questionnaire, a regression model can be used to find the relationship between leadership skills and a project leader's performance.

For this investigation, we sent out 500 questionnaires, including 10% to general managers, 40% to project managers, and 50% to project members.

**Questionnaire 2.2.1 (Leadership skills of a project leader-1)**

**1. Personal information**
  **Gender:** □ Male  □ Female
  **Age:**     □ 20–25  □ 26–30  □ 31–40  □ 41–50  □ >50

**2. Project information**
  **Project scale:**  □ >30 million RMB  □ 30-10 million RMB
                     □ 10-1 million RMB  □ <1 million RMB
  **Project complexity:**  □ Complicated  □ Normal
                          □ Not complicated
  **Project team scale:**  □ >100  □ 50–100  □ 10–50  □ <10

**3. Investigation form 2.2.1**
Please assess the relative importance of the following skills for a project leader:

| Indicator | Sub-indicator | Assessment | | | | |
|---|---|---|---|---|---|---|
| | | Very impor-tant | Impor-tant | Normal | Not impor-tant | Abso-lutely not impor-tant |
| **1. Communication skills** | 1.1 Oral communication skills | | | | | |
| | 1.2 Written communication skills | | | | | |
| | 1.3 Comprehensive skills | | | | | |
| **2. Interpersonal skills** | 2.1 Ability to deal with people of different backgrounds | | | | | |
| | 2.2 Persuasion skills | | | | | |
| | 2.3 Motivating and incentive skills | | | | | |
| **3. Coordination skills** | 3.1 Ability to deal with conflict | | | | | |
| | 3.2 Ability to build harmonious relationships in order to achieve project goals | | | | | |
| | 3.3 Controlling skills | | | | | |
| **4. Team-building and delegation skills** | 4.1 Team-structuring skills | | | | | |
| | 4.2 Ability to identify the abilities of project team members | | | | | |
| | 4.3 Delegation skills | | | | | |
| | 4.4 Integration skills | | | | | |
| **5. Problem-finding, analyzing, and solving skills** | 5.1 Ability to identify problems in a timely manner | | | | | |
| | 5.2 Problem-analyzing skills | | | | | |
| | 5.3 Judging and decision-making skills | | | | | |
| | 5.4 Problem-solving skills | | | | | |

## Questionnaire 2.2.2 (Leadership skills of a project leader 2)

### 1. Personal information

**Gender:** ☐ Male ☐ Female
**Age:** ☐ 20–25 ☐ 26–30 ☐ 31–40 ☐ 41–50 ☐ >50

### 2. Project information

**Project scale:** ☐ >30 million RMB ☐ 30-10 million RMB
☐ 10-1 million RMB ☐ <1 million RMB
**Project complexity:** ☐ Complicated ☐ Normal
☐ Not complicated
**Project team scale:** ☐ >100 ☐ 50–100 ☐ 10–50 ☐ <10

### 3. Investigation form 2.2.2

Please assess the leadership skills of the project manager on your project:

| No. | Question | Assessment | | | | |
|-----|----------|-----------|------|--------|-----|----------|
| | | Very good | Good | Normal | Bad | Very bad |
| **1. Communication skills** | How are the oral communication skills of your project leader | | | | | |
| | How are the written communication skills of your project leader | | | | | |
| | How are the comprehensive skills of your project leader | | | | | |
| **2. Interpersonal skills** | How are the skills of your project leader in dealing with people of different backgrounds | | | | | |
| | How are the persuasion skills of your project leader | | | | | |
| | How are the motivating and incentive skills of your project leader | | | | | |
| **3. Coordination skills** | How are the skills of your project leader in dealing with conflict | | | | | |
| | How are the skills of your project leader in building harmonious relationships in order to achieve project goals | | | | | |
| | How are the controlling skills of your project leader | | | | | |

*(continued next page)*

| No. | Question | Assessment | | | | |
|---|---|---|---|---|---|---|
| | | Very good | Good | Normal | Bad | Very bad |
| 4. Team-building and delegation skills | How are the team-structuring skills of your project leader | | | | | |
| | How are the skills of your project leader in identifying the abilities of project team members | | | | | |
| | How are the delegation skills of your project leader | | | | | |
| | How are the integration skills of your project leader | | | | | |
| 5. Problem finding, analyzing, and solving skills | How are the skills of your project leader in identifying problems in a timely manner | | | | | |
| | How are the problem-analyzing skills of your project leader | | | | | |
| | How are the judging and decision-making skills of your project leader | | | | | |
| | How are the problem-solving skills of your project leader | | | | | |
| Please make a general assessment of the leadership skills of your project leader. | | | | | | |

# CHAPTER 6

# Data Analysis and Study Findings

## 6.1 Study Findings About Organizational Performance

In this investigation, participants were asked to directly give the weight based on their views of the relative importance of each indicator, including basic quality, task allocation, team cooperation, and team spirit. We sent 200 questionnaires, including 10% to general managers, 40% to project managers, and 50% to project members. Among 80 responses, five were not fully finished. According to the 75 useful questionnaires, we drew the following conclusions:

### 1. Weight of the four indicators

From the corresponding questionnaires, the average weight of the four indicators is shown in Figure 6-1. We find that the basic quality is the most important factor in the success of a project team. Team cooperation seems to be the second most important. Task allocation is third. Team spirit is the least important. From this result, we can see that, in the eastern culture, people put more emphasis on the personal ability of the project team. It is the foundation of success. As to team spirit, its importance only takes effect when special difficulty is met. In a smooth project, when everything is in order, team spirit is not so important compared with the other three indicators.
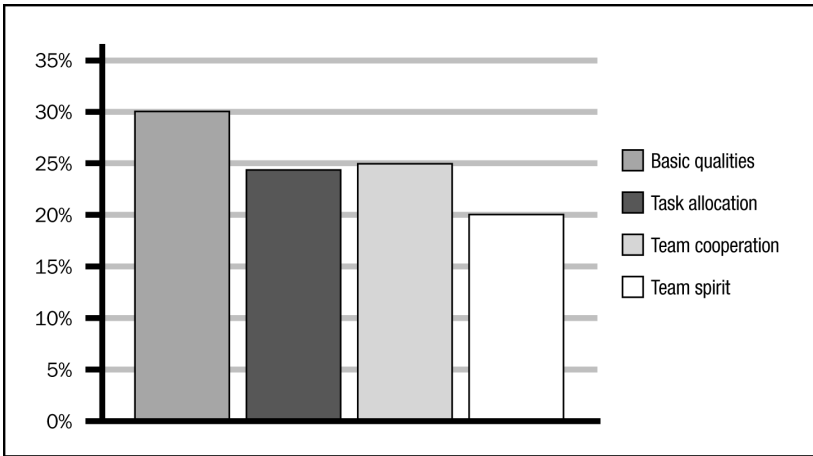
Figure 6-1　　　Weight of the four indicators

## 2. Weight of the sub-indicators

In addition, based on the corresponding questionnaires, we analyzed the relative importance of each sub-indicator.

Shown in Figure 6-2*(1)*, there are three sub-indicators for the basic quality of a project team:

    1.1　The quality of the project leader
    1.2　The quality of the project member
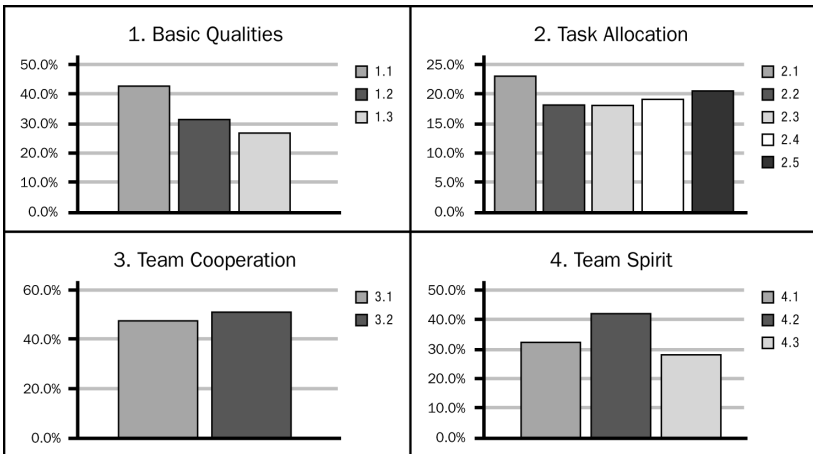    1.3　The stability of the project team



Figure 6-2　　　Weight of each sub-indicator

Among these three sub-indictors, the quality of the project leader is the most important. In the eastern culture, nearly everyone believes that the ability of the project leader is the most important factor for the success of a project. Without a good project leader, the project will definitely be unsuccessful. This finding demonstrates the necessity of identifying the project leadership skills in the following research.

Shown in Figure 6-2(2), there are five sub-indicators for the task allocation of a project team:

2.1   Clear objective
2.2   Clear organizational structure
2.3   Clear task delegation
2.4   Clear responsibility
2.5   Incentive mechanism

Our investigation shows that a clear objective is the most important factor in the success of the project team. Actually, contradiction is the main enemy of the project's success. Therefore, it is necessary to solve the problems as soon as possible. When dealing with this contradiction, we need to bear in mind what our objective is and know how to trade off the situation. In addition, letting every team member know the project objectives is also very important. Clear organizational structure is the second most important factor. It is the foundation of putting the project work in order. The other three indictors—task delegation, responsibility, and incentive mechanism—seem less important in comparison with the other two.

Shown in Figure 6-2(3), there are two sub-indicators for team cooperation of a project team:

3.1   Sufficient communication
3.2   Efficient coordination and collaboration

These two sub-indicators seem to have nearly the same importance. Actually, in daily work, communication and collaboration are very important.

Shown in Figure 6-2(4), there are three sub-indicators for team spirit of a project team:

4.1   Harmonious relationship between project leader and project member
4.2   Mutual respect, understanding, trust, and union
4.3   Positive attitude of project team

Among these three sub-indicators of team spirit, mutual respect, understanding, trust, and union is much more important than the other two. This result shows that, in eastern culture, people yearn in the extreme for mutual respect, understanding, and union. This sub-indicator can be regarded as the foundation of project success. For example, in most of the cases, project members do not want to

make any renovations or offer any useful suggestions to the project manager because they are afraid of misunderstanding. They would rather leave the present situation as is. To some degree, the project member's reluctance is an obstacle to project success.

### 3. Weight change related to project complexity

The investigation also shows that the weight of each indicator will be changed with project complexity. From Figure 6-3, we find the following:

- When a project becomes more and more complicated, team spirit becomes more and more important, because a project, when it is more complicated, will face more risk and uncertainty. Therefore, team spirit is absolutely necessary to overcome the difficulty.
- When a project becomes more and more complicated, team cooperation becomes more important. The reason is that contradiction is unavoidable when a project becomes complicated. Therefore, cooperation and collaboration are very important in order to deal with contradiction in a complicated project.
- As to task allocation, it becomes less important for a complicated project than for an uncomplicated project because, in a complicated project, task allocation is usually changed from time to time in order to adapt to an uncertain situation.. To some degree, no definite task allocation can be used throughout the entire life cycle of a complicated project.

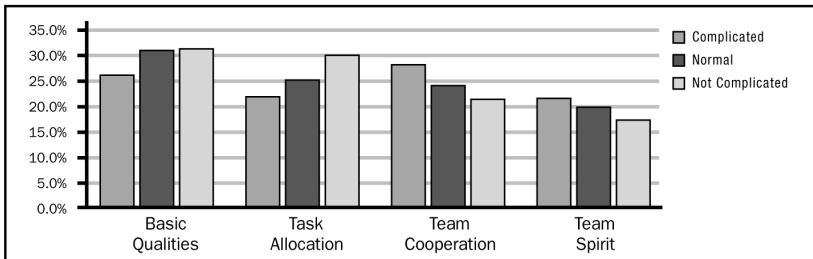| Complexity | | Indicators | | | |
|---|---|---|---|---|---|
| No. | Degree | 1. Basic Qualities | 2. Task Allocation | 3. Team Cooperation | 4. Team Spirit |
| 1 | Complicated | 26.8% | 23.2% | 28.2% | 21.8% |
| 2 | Normal | 30.6% | 25.5% | 24.4% | 19.7% |
| 3 | Not Complicated | 31.0% | 30.0% | 21.0% | 18.0% |



Figure 6-3     Weight change related to project complexity

- As to basic quality, it too becomes less important for a complicated project because, in a complicated project, no one can be an expert to deal with an uncertain situation. Therefore, cooperation between project members seems to be more important than personal ability.

### 4. Weight change related to project team scale

Another finding of the investigation is that the weight of each indicator is related to project team scale, as shown in Figure 6-4. From this figure, we can draw the following conclusions:

- Compared with that of a large team, the basic quality of the project team, such as the personal skills of project managers and project members, seems much more important for a small team.
- By contrast, on a large team, team spirit seems to be much more important than on a small team.
- Task allocation and team cooperation seem to have little relationship with project team size. This indicates that, whether the project team is large or small, task allocation and team cooperation have nearly the same importance.

| Project Team Scale | | Indicators | | | |
|---|---|---|---|---|---|
| No. | Person | 1. Basic Qualities | 2. Task Allocation | 3. Team Cooperation | 4. Team Spirit |
| 1, 2 | > 50 | 28.3% | 25.4% | 25.4% | 21.7% |
| 3 | 10~50 | 27.9% | 24.9% | 26.0% | 21.3% |
| 4 | < 10 | 33.0% | 24.3% | 24.3% | 18.3% |
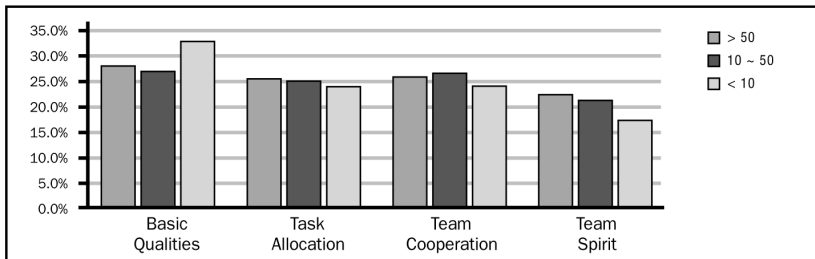


Figure 6-4          Weight change related to project team scale

## 6.2 Study Findings About Characteristics and Traits of a Project Leader

To investigate the leadership skills of the project leader, we first conducted the investigation about leadership traits and characteristics. For this investigation, we sent out 500 questionnaires, including 10% to general managers, 40% to project managers, and 50% to project members. We received 180 responses, eight not fully finished,

and 14 filled out incorrectly. There were 158 valid questionnaires for data processing. The result of this investigation about leadership traits and characteristics is shown in Table 6-1 and Figure 6-5. The main findings are as follows:

- The top five traits and characteristics needed for project leaders are the sense of responsibility, being proactive, self-confidence, being able to deal with pressure, and being resolute.
- The most important trait of a project leader is the sense of responsibility. In a project, the leader should bear in mind that he or she is responsible for the entire project. This is the most important foundation for project success.
- The second most important trait of a project leader is being proactive. In eastern culture, many project leaders lack this trait. They just want to obey the rules of the general manager. However, project management work is not like general management. The unique characteristics of a project need the project leader to be more proactive, to deal with the specific situation, and to motivate other project members to be more active.
- The third most important trait is self-confidence. As the leader of the project, the project manager should be self-confident.
- The fourth most important trait is that the project leader should be able to deal with pressure. Especially in certain complicated projects, the project leader faces various kinds of pressure. He or she must know how to deal with it.
- The fifth most important trait is being resolute. To realize the project goals, the project leader needs to be resolute. Hesitation is not helpful when executing a project plan. It can only make the problem more complicated and make things even worse.

| No. | Traits and Characteristics | Weight |
|---|---|---|
| 1 | Sense of responsibility | 5.59% |
| 2 | Being proactive | 5.44% |
| 3 | Self-confidence | 5.42% |
| 4 | Being able to deal with pressure | 5.37% |
| 5 | Being decisive/resolute | 5.30% |
| 6 | Being energetic | 5.06% |
| 7 | Endurance | 5.02% |
| 8 | Justice | 5.02% |
| 9 | Loyalty | 5.00% |
| 10 | Foresight | 5.00% |
| 11 | Honesty | 4.97% |
| 12 | Maturity | 4.96% |
| 13 | Affinity | 4.92% |
| 14 | Respect for others' feelings | 4.89% |
| 15 | Being sensitive | 4.82% |
| 16 | Being attractive | 4.73% |
| 17 | Optimism | 4.71% |
| 18 | Stable emotion | 4.63% |
| 19 | Kindness | 4.58% |
| 20 | Innovation / being creative | 4.57% |

Table 6-1    Weight of leadership traits and characteristics (for all projects)

The investigation shows that, compared with the top five traits, stable emotion, kindness, and innovation are less important.
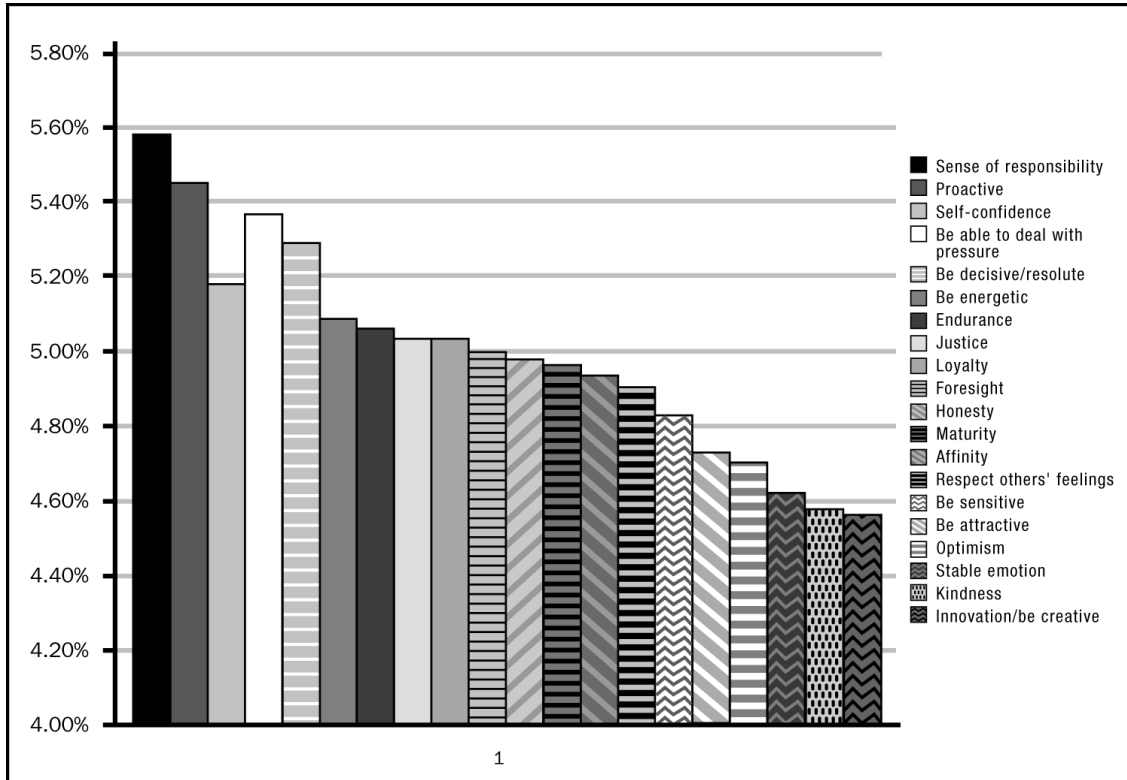
Figure 6-5     Weight of leadership traits and characteristics

In order to find out if there is a different need of characteristics and traits for the project leader on a complicated project, we classified the data according to the complexity of the project. The results are shown in Tables 6-2 and 6-3.

| No. | Traits and Characteristics | Weight |
|---|---|---|
| 1 | Sense of responsibility | 5.56% |
| 2 | Be able to deal with pressure | 5.50% |
| 3 | Self-confidence | 5.47% |
| 4 | Be decisive/resolute | 5.44% |
| 5 | Proactive | 5.33% |
| 6 | Loyalty | 5.06% |
| 7 | Be energetic | 5.06% |
| 8 | Foresight | 5.03% |
| 9 | Honesty | 4.98% |
| 10 | Endurance | 4.98% |
| 11 | Justice | 4.97% |
| 12 | Respect others' feelings | 4.94% |
| 13 | Maturity | 4.92% |
| 14 | Affinity | 4.89% |
| 15 | Be sensitive | 4.82% |
| 16 | Optimism | 4.65% |
| 17 | Kindness | 4.64% |
| 18 | Stable emotion | 4.62% |
| 19 | Be attractive | 4.61% |
| 20 | Innovation / be creative | 4.56% |

Table 6-2    Weight of leadership traits and characteristics (for normal projects)

| No. | Traits and Characteristics | Weight |
|:---:|---|:---:|
| 1 | Sense of responsibility | 5.63% |
| 2 | Proactive | 5.63% |
| 3 | Self-confidence | 5.36% |
| 4 | Be able to deal with pressure | 5.20% |
| 5 | Be decisive/resolute | 5.16% |
| 6 | Endurance | 5.10% |
| 7 | Justice | 5.10% |
| 8 | Affinity | 4.99% |
| 9 | Be energetic | 4.99% |
| 10 | Maturity | 4.97% |
| 11 | Honesty | 4.95% |
| 12 | Foresight | 4.93% |
| 13 | Respect others' feelings | 4.93% |
| 14 | Loyalty | 4.89% |
| 15 | Be attractive | 4.81% |
| 16 | Optimism | 4.79% |
| 17 | Be sensitive | 4.77% |
| 18 | Stable emotion | 4.68% |
| 19 | Innovation / be creative | 4.62% |
| 20 | Kindness | 4.52% |

Table 6-3　　Weight of leadership traits and characteristics (for complicated projects)

From Tables 6-2 and 6-3, we find that, although there exists a slight difference between the weight sequences, the top five important traits and characteristics are the same for complicated projects and normal projects.

## 6.3 Study Findings About Project Leadership Skills

### 1. The findings from questionnaire 2.2.1

For this investigation, we sent out 500 questionnaires, including 10% to general managers, 40% to project managers, and 50% to project members. We received 173 useful responses, which we used

for data processing, according to the relative importance indicated in the questionnaire. We used 1 to 5 to represent *absolutely not important, not important, normal, important,* and *very important,* respectively. Table 6-4 shows the results after the data processing.

| Indicator | Sub-indicator | Weight |
|---|---|---|
| **1. Communication skills** | 1.1  Oral communication skills | 6.24% |
| | 1.2  Written communication skills | 5.43% |
| | 1.3  Comprehensive skills | 6.09% |
| **2. Interpersonal skills** | 2.1  Be able to deal with people of different background | 5.72% |
| | 2.2  Persuading skills | 5.82% |
| | 2.3  Motivating and incentive skills | 6.19% |
| **3. Coordination skills** | 3.1  Be able to deal with conflict | 5.74% |
| | 3.2  Build harmonious relationship in order to achieve project goals | 6.19% |
| | 3.3  Controlling skills | 5.93% |
| **4. Team-building and delegation skills** | 4.1  Team-structuring skills | 5.46% |
| | 4.2  Identify the ability of project team member | 5.77% |
| | 4.3  Delegation skills | 5.63% |
| | 4.4  Integration skills | 5.85% |
| **5. Problem finding, analyzing, and solving skills** | 5.1  Be able to find problem timely | 5.99% |
| | 5.2  Problem-analyzing skills | 5.87% |
| | 5.3  Judging and decision-making skills | 6.17% |
| | 5.4  Problem-solving skills | 5.90% |

Table 6-4      Weight of each leadership skills

Put in order, the weight sequence of each sub-indicator is shown in Table 6-5 and Figure 6-6. We can draw the following conclusions:
- The top three most important skills are oral communication skills, being able to build harmonious relationships, and motivating and incentive skills.
- Oral communication skills are the most important skills for a project leader. It includes the skills of communicating efficiently in exchanges with others and making efficient verbal presentations. These skills can be regarded as the foundation

for developing other skills, such as persuading skills, being able to build harmonious relationships, etc. In Chinese culture, oral communication skills are, to some degree, more important than written communication skills because many problems are solved by oral coordination. People sometimes are reluctant to put everything on paper.

- The second important skill is the skill to build harmonious relationships in order to achieve project goals. The personal relationship is very important in Chinese cultures. In China, people expect friendship with one another. Chinese people usually want to develop a personal relationship first before they can have full cooperation with each other. If a project manager can build a good relationship with other people, project problems can be solved more quickly and easily.

| Leadership skills | Weight |
|---|---|
| 1.1 Oral communication skills | 6.24% |
| 3.2 Build harmonious relationships in order to achieve project goals | 6.19% |
| 2.3 Motivating and incentive skills | 6.19% |
| 5.3 Judging and decision-making skills | 6.17% |
| 1.3 Comprehensive skills | 6.09% |
| 5.1 Be able to identify problems in a timely manner | 5.99% |
| 3.3 Controlling skills | 5.93% |
| 5.4 Problem-solving skills | 5.90% |
| 5.2 Problem-analyzing skills | 5.87% |
| 4.4 Integration skills | 5.85% |
| 2.2 Persuading skills | 5.82% |
| 4.2 Identify the ability of project team member | 5.77% |
| 3.1 Be able to deal with conflict | 5.74% |
| 2.1 Be able to deal with people of different backgrounds | 5.72% |
| 4.3 Delegation skills | 5.63% |
| 4.1 Team-structuring skills | 5.46% |
| 1.2 Written communication skills | 5.43% |

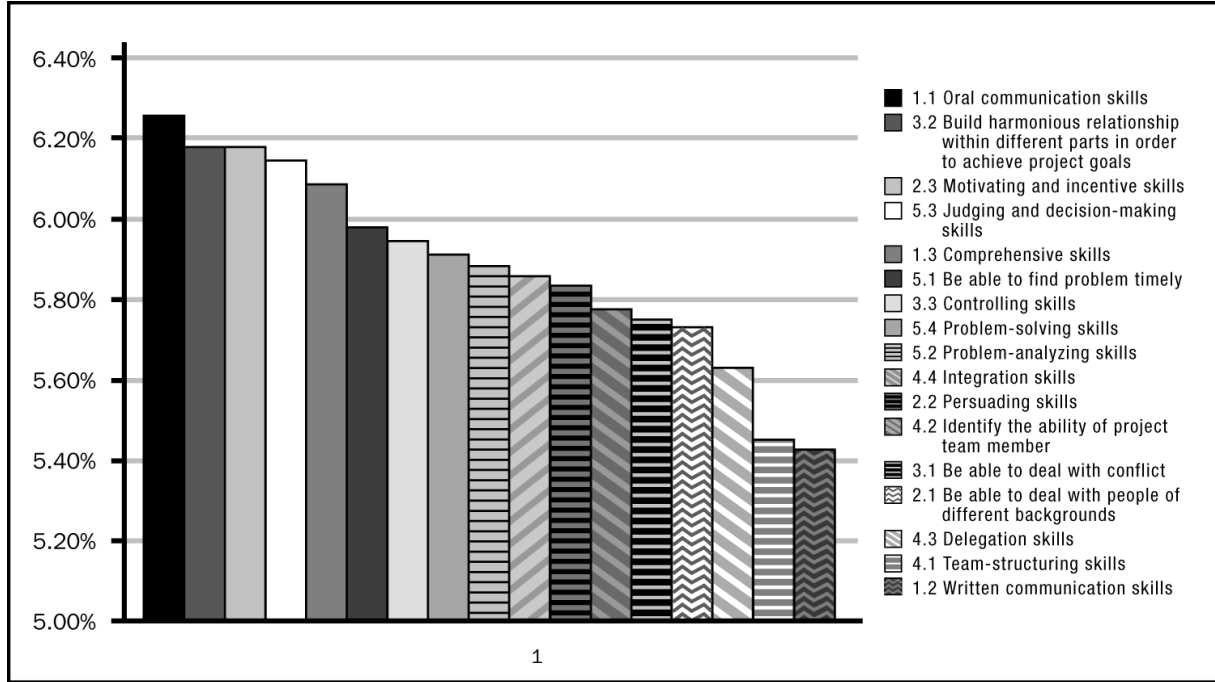Table 6-5    Weight of each leadership skills (by sequence)

Figure 6-6     Weight of each leadership skills (by sequence)

- The third important skills are motivation and incentive skills. A project leader cannot finish the project by himself or herself. He or she must depend on the project members to execute the project plan and complete necessary tasks one by one. Therefore, the project leader must know how to motivate people to be active and creative in the work and contribute more to the project. But ways of motivating differ from person to person. Especially on certain international projects, the project leader must understand the value of people from different cultures and backgrounds, and must deal with them separately.

### 2. The findings from questionnaire 2.2.2

For this investigation, we sent out 500 questionnaires. We received 162 useful responses. According to investigation form 2.2.2, the regression model has been used to find the relationship between each leadership skill and the project leader's performance.

Shown in the following equation,

$$Y = A + B_1 X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + B_5 X_5$$

$Y$ is the dependent variable representing the project leader's general performance. $X_1$ represents the communication skills. $X_2$ represents the interpersonal skills. $X_3$ represents the coordination skills. $X_4$ represents the team-building and delegation skills. $X_5$ represents the problem-finding, analyzing, and solving skills.

According to the investigation data, the regression result is as follows:

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .877(a) | .770 | .762 | .34021 |

(a) Predictors: (Constant), VAR00005, VAR00001, VAR00003, VAR00002, VAR00004

**ANOVA(b)**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 60.388 | 5 | 12.078 | 104.348 | .000(a) |
| | Residual | 18.056 | 156 | .116 | | |
| | Total | 78.444 | 161 | | | |

(a) Predictors: (Constant), VAR00005, VAR00001, VAR00003, VAR00002, VAR00004
(b) Dependent Variable: VAR00006

## Coefficients(a)

| Model | Unstandardized Coefficients B | Std. Error | Standardized Coefficients Beta | t | Sig. | 95% Confidence Interval for B Lower Bound | Upper Bound |
|---|---|---|---|---|---|---|---|
| 1 (Constant) | .043 | .181 | | .235 | .815 | −.316 | .401 |
| VAR00001 | .060 | .021 | .158 | 2.810 | .006 | .018 | .103 |
| VAR00002 | .054 | .022 | .165 | 2.485 | .014 | .011 | .097 |
| VAR00003 | .037 | .022 | .114 | 1.652 | .101 | −.007 | .081 |
| VAR00004 | .061 | .015 | .263 | 3.949 | .000 | .030 | .091 |
| VAR00005 | .075 | .017 | .300 | 4.462 | .000 | .042 | .108 |

(a) Dependent Variable: VAR00006

Without a constant in the equation, the result is as follows:

## Model Summary

| Model | R | R Square(a) | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .996(b) | .993 | .992 | .33919 |

(a) For regression through the origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. This *cannot* be compared to R Square for models that include an intercept.
(b) Predictors: VAR00005, VAR00004, VAR00001, VAR00002, VAR00003

## ANOVA(c,d)

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 2463.937 | 5 | 492.787 | 4283.323 | .000(a) |
| | Residual | 18.063 | 157 | .115 | | |
| | Total | 2482.000(b) | 162 | | | |

(a) Predictors: VAR00005, VAR00004, VAR00001, VAR00002, VAR00003
(b) This total sum of squares is not corrected for the constant because the constant is zero for regression through the origin.
(c) Dependent Variable: VAR00006
(d) Linear Regression through the Origin

## Coefficients(a,b)

| Model | Unstandardized Coefficients B | Std. Error | Standardized Coefficients Beta | t | Sig. | 95% Confidence Interval for B Lower Bound | Upper Bound |
|---|---|---|---|---|---|---|---|
| 1 VAR00001 | .063 | .019 | .188 | 3.262 | .001 | .025 | .101 |
| VAR00002 | .054 | .022 | .159 | 2.500 | .013 | .011 | .097 |
| VAR00003 | .038 | .022 | .112 | 1.703 | .091 | −.006 | .081 |
| VAR00004 | .061 | .015 | .236 | 3.955 | .000 | .030 | .091 |
| VAR00005 | .075 | .017 | .305 | 4.546 | .000 | .043 | .108 |

(a) Dependent Variable: VAR00006
(b) Linear Regression through the Origin

# A System for Selecting and Assessing Project Leaders

Based on the research findings, we designed a selecting and assessing system for the project leader. Shown in Figure 7-1, in order to ensure project success, two things with regard to project leadership should be carefully paid attention to. First, before the project starts, a good project leader must be selected. Second, as the project progresses, the performance of the project leader must be assessed periodically in order to find out if he or she lacks any important leadership skills. Then, a corresponding improvement plan for the project leader can be constructed.

## 1. Project Starting Stage

When starting a new project, a suitable project leader must be selected. The selection of project leader should follow the following steps:

### (1) First step of selection—by characteristics and traits

The first standard is the basic characteristics and traits of a project leader. This is the first step in personal evaluation, to determine, in advance, whether he or she is suitable to become a project leader. These characteristics and traits, which comprise the inherent nature of the person, cannot be learned quickly. In other words, if his or her personal traits do not satisfy the requirements, then he or she should not be taken into consideration as a potential project leader. The selection standard is shown in Table 7-1.

The 20 indicators are scored one by one. Then, the score is multiplied by the weight of each indicator, getting the value of the last column. When the value of the last column is figured, the result
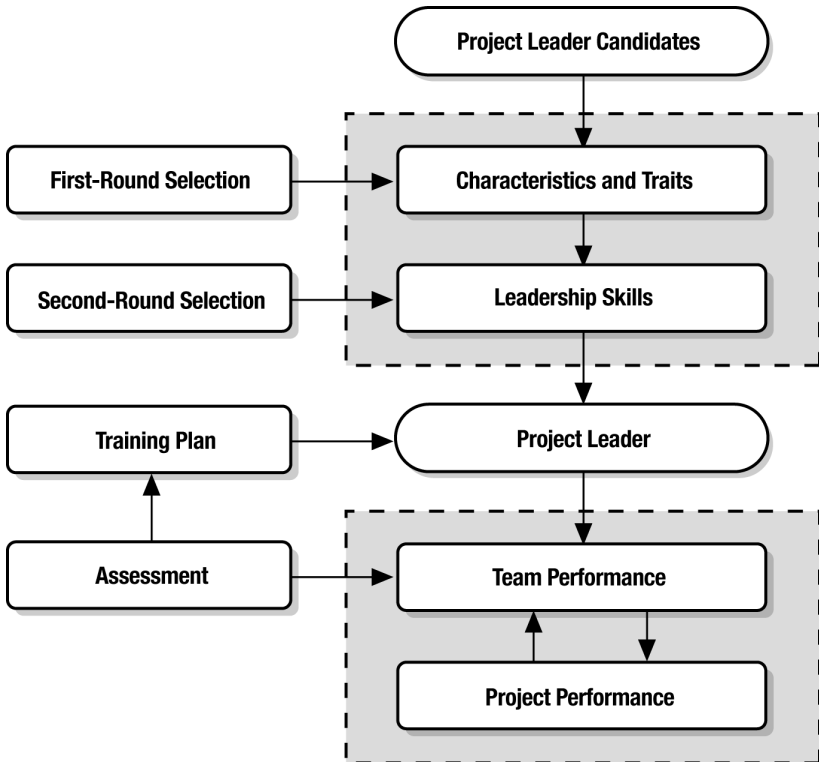
Figure 7-1    A system for selecting and assessing project leaders

is the final score of the traits and characteristics of the project leader. If the total score is low, then he or she should not be nominated to become the project leader. In addition, because the top five indicators—sense of responsibility, being proactive, self-confidence, being able to deal with pressure, and being resolute—are very important, if the candidate has a very low score in this group of indicators, he or she should not become the project leader.

**(2) Second step of selection—by leadership skills**

If a person gets a high grade in the first stage, he or she can move to the next stage to discover whether he or she possesses the skills, especially the soft skills, of a project leader. The selection standard is shown in Table 7-2.

The process of evaluating leadership skills is as follows:

- First, the sub-indicators are scored one by one
- Then, the score of each indicator is calculated by summing up their sub-indicators

| No. | Traits and Characteristics | Score ($S_i$) | Weight ($W_i$) | $S_i \times W_i$ |
|---|---|---|---|---|
| 1 | Sense of responsibility | | 5.59% | |
| 2 | Be proactive | | 5.44% | |
| 3 | Self-confidence | | 5.42% | |
| 4 | Be able to deal with pressure | | 5.37% | |
| 5 | Be decisive/resolute | | 5.30% | |
| 6 | Be energetic | | 5.06% | |
| 7 | Endurance | | 5.02% | |
| 8 | Justice | | 5.02% | |
| 9 | Loyalty | | 5.00% | |
| 10 | Foresight | | 5.00% | |
| 11 | Honesty | | 4.97% | |
| 12 | Maturity | | 4.96% | |
| 13 | Affinity | | 4.92% | |
| 14 | Respect others' feelings | | 4.89% | |
| 15 | Be sensitive | | 4.82% | |
| 16 | Be attractive | | 4.73% | |
| 17 | Optimism | | 4.71% | |
| 18 | Stable emotion | | 4.63% | |
| 19 | Kindness | | 4.58% | |
| 20 | Innovation / be creative | | 4.57% | |
| | Total score | | | |

Table 7-1    Selection of project leader—by characteristics and traits

- When the score is put into the regression equation, the assessment results of a person's leadership skills are shown.

## 2. Project Executing Stage

As the project is carried out, the performance of the project leader is assessed periodically to ensure that his or her leadership skills are strong enough to successfully finish the project.

There are two ways to assess a project leader's performance. One way is to assess the project leader's performance directly, by making

| Indicator | Sum up $X_i = \Sigma S_{ij}$ | Sub-indicator | Score $(S_{ij})$ |
|---|---|---|---|
| **1. Communi-cation skills** | | 1.1 Oral communication skills | |
| | | 1.2 Written communication skills | |
| | | 1.3 Comprehensive skills | |
| **2. Interpersonal skills** | | 2.1 Be able to deal with people of different background | |
| | | 2.2 Persuading skills | |
| | | 2.3 Motivating and incentive skills | |
| **3. Coordination skills** | | 3.1 Be able to deal with conflict | |
| | | 3.2 Build harmonious relationships in order to achieve project goals | |
| | | 3.3 Controlling skills | |
| **4. Team-building and delegation skills** | | 4.1 Team-structuring skills | |
| | | 4.2 Identify the ability of project team member | |
| | | 4.3 Delegation skills | |
| | | 4.4 Integration skills | |
| **5. Problem-finding, analyzing, and solving skills** | | 5.1 Be able to identify problems in a timely manner | |
| | | 5.2 Problem-analyzing skills | |
| | | 5.3 Judging and decision-making skills | |
| | | 5.4 Problem-solving skills | |
| **Final score (Y)** | | $Y = A + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5$ | |

Table 7-2    Selection of project leader—by leadership skills

a checklist based on investigation form 2.2.2. However, sometimes it is difficult to directly assess the performance of the project leader. So, because the project team performance reflects the project leadership skills, the second way is to assess the project team performance

to identify the project leadership performance. The assessment of project team performance is shown in Table 7-3.

When a poor performance of a project team is discovered, the project leader's skills should improve correspondingly. For example, if the project team does not have a clear organizational structure, the project leader's team structure skills need to be improved. If the team members are not positive, the project leader's motivating and incentive skills should be improved. If the relationship between project leader and project members is not harmonious, the project leader's interpersonal skills should be improved.

| Project team performance | Assessment remark |
|---|---|
| 1. Is the project team stable? | |
| 2. Does the project team have clear objectives? | |
| 3. Does the project team have clear organizational structure? | |
| 4. Does the project team have clear task delegation? | |
| 5. Does the project team have clear responsibility? | |
| 6. Does the project team have a good incentive mechanism? | |
| 7. Does the project team have sufficient communication? | |
| 8. Does the project team have efficient coordination and collaboration? | |
| 9. Is the relationship between project leader and project members harmonious? | |
| 10. Does mutual respect, understanding, trust, and union exist in the project team? | |
| 11. Do the project team members seem positive? | |

Table 7-3     Project team performance checklist

# CHAPTER 8

# Conclusions

Nowadays, no one doubts that leadership skills are very important for project success. Research about leadership skills has had fruitful results in the last a few years. However, two things should be pointed out about the previous research. First, it has usually mixed project leader's traits with project leadership skills, even though these two concepts should be studied separately. Second, previous research has usually mixed soft skills with technical skills. However, soft skills are becoming more and more important these days, a trend that should be studied separately.

This research has concentrated on the topic of the human side of project leadership skills, as well as a project leader's traits and characteristics separately in a Chinese context. But project team performance has a strong relationship with project leadership skills. Therefore, we continued the investigation about project team performance.

First, we classified the factors that impact project team performance into four sets: basic quality, task allocation, team cooperation, and team spirit. Investigation shows that the sequence of relative importance from high to low is basic quality, team cooperation, task allocation, and team spirit.

Second, through literature reviews and interviews, we summarized 20 traits and characteristics of project leaders. Investigation shows that the top five important characteristics are the sense of responsibility, being proactive, self-confidence, being able to deal with pressure, and being decisive.

Third, we summarized 17 soft skills of project leaders. Investigation shows that the top three important skills are oral communica-

tion skills, being able to build harmonious relationships, and motivating and incentive skills.

The findings will contribute to the knowledge of leadership skills in the project management field. We hope that more research will follow our initial journey in this field.

# CHAPTER 9

# References

Bass, B.M. (1990). From transactional to transformational leadership: Learning to share the vision. *Organizational Dynamics,* Winter.

Cheung, S.O., Ng, Thomas, Lam, K.C., & Yue, W.M. (2001). A satisfied leadership behavior model for design consultants. *International Journal of Project Management*, *19*(7), 421–429.

Cleland, D.I. (1995). Leadership and the project management body of knowledge. *International Journal of Project Management*, *13*(2), 83–88.

Davis K. (1967) *Human relations at work* (3rd ed.). New York: McGraw-Hill.

EL-Sabaa, S. (2001). The skills and career path of an effective project manager. *International Journal of Project Management*, *19*, 1–7.

Jago, A.G. (1982). Leadership: Perspectives in theory and research. *Management Science, 28*(3), 19–23.

Jedo, J., & Clements, James P. (1999). *Successful project management*. South-Western College Publishing.

Low, S.P., & Leong, Christopher H.Y. (2000). Cross-cultural project management for international construction in China. *International Journal of Project Management, 18*(5), 307–316.

McGregor, D. (1960). *The human side of enterprise.* New York: McGraw-Hill.

Meredith, Jack R., & Mantel S.J. (2000). *Project management: A managerial approach* (4th ed.). New York: John Wiley & Sons.

Mullins, L.J. (1996). *Management and organizational behavior*. London: Pitman.

Normand Pettersen (1991), *Selecting Project Managers: An Integrated List of Predictors*, Project Management Journal, *22*(2), 21–26.

Posner, B.Z. (1987). What it takes to be a good project manager. *Project Management Journal*, *18*(1), 19–24.

Thamhain, H.J. (1991). Developing project management skills. *Project Management Journal*, *22*(3), 39–45.

Todryk, L. (1990). The project manager as team builder: Creating an effective team. *Project Management Journal*, *21*(4).

Veil, C., & Turner, J.R. (2002). Group efficiency improvement: How to liberate energy in project groups. *International Journal of Project Management*, 20, 137–142.