SELF-PERCEIVED LEADERSHIP: A COMPARATIVE STUDY OF DOMESTIC AND INTERNATIONAL PROJECT MANAGERS IN A LARGE U.S. BASED ENGINEERING AND CONSTRUCTION FIRM

By
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A DISSERTATION

Submitted to the
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In partial fulfillment of the requirements
for the degree of

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Benjamin J. Cross

We hereby certify that this Dissertation submitted by Benjamin J. Cross conforms to acceptable standards, and as such is fully adequate in scope and quality. It is therefore approved as the fulfillment of the Dissertation requirements for the degree of Doctor of International Business Administration.

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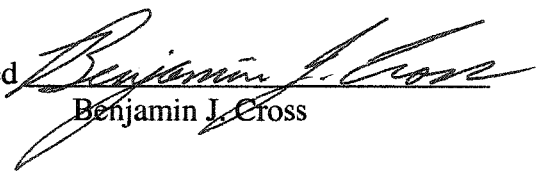
Signed 
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ABSTRACT

SELF-PERCEIVED LEADERSHIP: A COMPARATIVE STUDY OF DOMESTIC AND INTERNATIONAL PROJECT MANAGERS IN A LARGE U.S. BASED ENGINEERING AND CONSTRUCTION FIRM

by

Benjamin J. Cross

Leadership styles vary and these leadership styles may have a significant impact on the successful outcome of a project. Since more and more projects are done in an international setting, the international component places additional demands on leadership style. Therefore, we need to better understand how these leadership styles are both different and similar between project managers with domestic project manager experience and those with international project manager experience.

Within the context of a large U.S. based engineering and construction firm, this study compares the attributes of self-perceived leadership behaviors (styles) of project managers with only U.S. domestic project manager experience, only international project manager experience, and both U.S. domestic and international project manager experience. Additionally, this study investigates the relationships the attributes of self-perceived leadership behaviors (practices) and a project manager's cumulative international experience.

The Leader Behavior Analysis II®–Self (LBAII®–Self) was used to obtain the participant's leadership style, primary leadership style, leader behavior, style flexibility and style effectiveness scores. One hundred and eighty-five of four hundred and seventy-five identified project managers returned usable instruments. A demographic questionnaire was used to collect personal and institutional variables, as well as determine a project manager's cumulative international experience.

While there were some indications that there are differences in the attributes of leadership, as measured by the LBAII®-Self, between the different categories of project manager experiences, none were found to be statistically significant. Additionally, no linear relationship was found between any of the attributes of leadership, as measured by the LBAII®-Self, and a PM's cumulative international experience.

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Finally, I want to thank my family who I love deeply. I thank my wife, Laura, whose love and support has given me the motivation and confidence to persevere through every difficulty that arose during the doctoral process. I thank my now grown daughter, Lindsey, who went from being a teenager to a wife and mother during the time I worked on my doctorate, for her encouragement and belief that I would finish what I had started. Most of all I thank my son, Michael, who always prayed, 'help daddy with his schoolwork' and whose precious time with his daddy was "robbed" by my doctoral studies and this dissertation. Michael, you are very special to me and it is to you that I dedicate this dissertation.

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CHAPTER I

INTRODUCTION

Project, Project Management, and Project Manager Defined

Three principal terms warrant defining at the outset of this study: Project, Project Management and Project Managers. While one can find lengthy discussion and debate in the literature over the definitions of a project and project management, this study avoided such discussion by accepting the Project Management Institute's (PMI) definitions developed by recognized experts in the field of project management. The PMI definitions are:

> Project—a temporary endeavor undertaken to create a unique product or service. Temporary means that every project has a definite beginning and a definite end. Unique means that the product or service is different in some distinguishing way from all similar products or services (Duncan, 1996: p. 4).
>
> Project Management—the application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project. Meeting or exceeding stakeholder needs and expectations invariably involves balancing competing demands among:
>
> - Scope, time and quality
> - Stakeholders with differing needs and expectations
> - Identified requirements (needs) and unidentified requirements (expectations) (Duncan, 1996: p. 6)

For the term project manager (PM), this study utilized the following simple definition similar to that of Martini's (1999) study on PMs.

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Project Manager (PM)—an individual who is responsible for a project with a Total Installed Cost (TIC) of five hundred thousand U.S. dollars, where the TIC is the sum of all the costs associated with a project from start to finish.

Growing Importance and Advantages of Effective Project Management

In today's ever changing, complex, and highly competitive global economy, increasingly more and more organizations have found that in order be successful they must be horizontally structured (also referred to as matrix, cross-functional, or multi-functional structure) and utilize a project management approach. In a horizontally structured organization, management spans different functional areas (procurement, engineering, marketing, finance, etc.) and tasks are performed by teams that are customer and process focused. The horizontal structure contrasts with more traditional organizations that are managed down a hierarchical (vertical) structure where tasks are divided up between functional areas and the work is typically performed by several different functional areas independent of each other (Krajewski & Ritzman, 1998). According to Bohen, Lee, and Sweeney (1998), highly-competitive, horizontally-structured organizations recognize the advantages of the use of a project approach to carry out business activities.

Numerous reports exist on the advantages of using project management (Clark, 1999; Edum-Fotwe & McCaffer, 2000; Kerzner, 1987; Oakland, 1989; Peattie, 1993; Pettersen, 1991). One of the key reasons corporations strive for effective project management is its effect on the corporation's bottom line. Kerzner (1987) emphasized that the reason for the growth and acceptance of project management by corporations is simple. He states, "Project management, if implemented correctly, will allow

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corporations to perform more work in less time and with fewer resources, thus increasing the efficiency, effectiveness and productivity of the organization" (p. 30).

Pettersen (1991) suggests that as an organizational form, project management is both flexible and changing, and appears to provide a promising answer to the challenge of modern organizational complexity. Also referring to the need for an organization to be flexible and changing, Kerzner (1994) states that globalization has greatly increased the number of firms that use project management as a tool for change in a rapid, complex environment to drastically improve quality and shorten product development cycles. Likewise, Clark (1999) suggests that in a world where change is becoming increasingly important, tools such as project management, if used properly, can provide a useful way for organizations to manage that change effectively.

Supporting the use of project management as means to obtain a particular goal in an increasingly diverse and changing business environment, Adler (2000) states:

> More and more work in organizations is being carried out by adhocaries, temporary project teams that pull in required resources to achieve a particular goal. The management of project teams is increasingly a specialized field of knowledge, with a defined and growing set of principles, tools, metrics, and procedures. (p. 778)

For project-driven industries such as aerospace, construction and defense, where profitability occurs predominately from projects, the advantages of project management are numerous (Kerzner, 1994). For these industries, Kerzner states that the benefits of project management have been well known for years and have been demonstrated countless times over. Kerzner sums up these benefits as:

- Improved efficiency and increased profitability through better utilization of limited resources, and

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- Enhanced planning, estimating and cost control leading to more consistent achievement of milestones and objectives.

Importance of Studying the Leadership Behaviors of Project Managers

The literature is rich with articles describing the importance of PM leadership. Key reasons to study PM leadership behaviors (styles) include:

1. Leadership is behind every successful program involving a collective effort (Bubshait & Farooq, 1999).
2. Effective PMs are essential to project success (Brown & Eisenhardt, 1995; McDonough, 1993; Song, Souder, & Dyer, 1997).
3. Leadership on the part of the PM has been shown time and again to be one of the most important single characteristics in successfully implementing projects (Baker, Murphy, & Fisher, 1983; Posner, 1987; Slevin & Pinto, 1988).
4. Projects often fall short of achieving their anticipated results, not due to lack of project management, but rather from the lack of project leadership (Smith, 1999).
5. Leadership has a learnable set of practices (Kouzes & Posner, 1987) that are exhibited when leaders are doing their best (Kouzes & Posner, 1995). Thus, executive and senior management needs to ensure they hire PMs who are teachable and provide them with effective leadership training.
6. The selection and development of effective PMs can be improved (Hauschildt, Keim & Medcof, 2000; Kerzner, 1987). Recent research has shown that there is a noticeable difference between U. S. PMs and their international

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counterparts in their ability to be a leader (Yasin, Zimmerer, & Wafa, 1997). A better understanding of any identifiable leadership differences should provide valuable information to those responsible for the effective selection, development, and assignment of PMs.

7. The importance of the human factor (project leadership) increases when projects have greater complexity, risk, and innovativeness (Lechler, 1997).
8. Companies are increasingly becoming more international and horizontally-structured where project management is widely used (Bohlen, et al., 1998).
9. As management comes to depend more and more on project work, whether in-house or outsourced, the task of the PM grows in importance (Bartram, 1999).
10. In project-driven industries profitability occurs predominately from projects (Kerzner, 1994) and a single project failure can trigger failure of the whole company (Jannadi, 1997; Kangari, 1988). Therefore, it's important that the management of a project-driven organization, like an engineering and construction firm, has reliable information on the various factors, including those of PM leadership, that can influence an organization's success.

Leadership vs. Management

Much of the leadership and management literature comes from organizational psychology, which grew out of industrial psychology, also referred to as industrial organizational psychology (Katzell & Austin, 1992). Throughout this literature, the meaning of leadership and the distinction between leadership and management are often disputed. Even now, there still is not a universally accepted definition for leadership.

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In an article in the Harvard Business Review, Abraham Zaleznik (1977) argues that there is a difference between leadership and management. He postulates that leaders and managers are different types of people and identifies their dissimilarities in terms of personality, attitudes towards goals, perceptions of work, interpersonal relationships, and sense of self.

Others have stated the differences in much simpler terms. For example, Bennis and Nanus (1985) drew the distinction between managers and leaders with a simple statement "Managers do things right. Leaders do the right things" (Bennis & Nanus, 1985: on cover).

Bubshait and Farooq (1999) try to clear up the confusion between management and leadership by proposing new definitions. They define management as an operational function used to guide projects and organizations; management functions provide organizational stability. Leadership is defined as a people-oriented concept that operates outside of and beyond the boundaries of rules and policies. Leadership is the art and skill that cement everything together and make things happen. In short, management deals with processes and systems, and leadership deals with actual people (Bubshait & Farooq, 1999). Also stressing how leadership should focus on people, Bichard (2000) simply states, "Leaders need to understand more about why people work, what matters to them, how they can support them more effectively and what might motivate them to perform better" (p. 45). In the same article Bichard reminds us that it is leadership and not good management that transforms organizations.

House (1996) has argued that distinctions between management, general or strategic leadership, and supervisory leadership are important because they help to

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illustrate why the academic literature entitled "leadership" has been criticized as irrelevant to the solution of practical problems, and has so infrequently been consulted by practicing managers and applied to the problems of leading organizations or societies.

In 1997, House and Aditya provide their definitions for strategic leadership, supervisory leadership, and management. Strategic leadership is directed toward giving purpose, meaning, and guidance to organizations. This is accomplished by providing a vision of the organization that has inspirational appeal to members of the organization and to external constituencies on which it is dependent. Strategic leadership includes: making strategic decisions concerning the products and services of organizations and markets; selecting key executives; allocating resources to major organizational components; formulating organizational goals and strategy; providing direction for the organization with respect to the organization's domain; conceptualizing and installing organizational designs and major infrastructures, such as compensation, information, and control systems; representing the organization to critical constituencies such as financial institutions, government agencies, customer interest groups, and labor; and negotiating with such constituencies for legitimacy and resources (House & Aditya, 1997).

House and Aditya (1997) define supervisory leadership as behavior intended to provide guidance, support, and corrective feedback for the day-to-day activities of work-unit members. Supervisory leadership consists essentially of the task- and person-oriented leader behaviors specified in the leader behavior paradigm studied by Robert Bales and his associates at Harvard (Bales, 1954), members of the Ohio State Leadership Center (Stogdill & Coons, 1957), and members of the Institute of Social Research at the University of Michigan (Kahn & Katz, 1953; Likert, 1961; Mann, 1965).

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In contrast to leadership, House and Aditya (1997) define management as the behavior of a person in a position of formal authority, intended to obtain compliance of organizational members with their normal role or position requirements. Management consists of implementing the vision and strategy provided by leaders, coordinating and staffing the components of organizations, administering the infra-structures of organizations, and handling the day-to-day problems that inevitably emerge in the process of strategy and policy implementation and ongoing organizational functioning.

House and Aditya (1997) avow that it is possible for managers to be leaders and leaders to be managers. Managers become leaders by providing vision, direction, strategy, and inspiration to their organizational units, and behaving in a manner that reinforces the vision and its inherent values. Leaders often must perform many of the management functions described above.

Yukl (1994) notes that leadership and management involve separate processes, but need not involve separate people. Yukl notes that "...the essence of the argument seems to be that managers are oriented toward stability and leaders are oriented toward innovation; managers get people to do things more efficiently, whereas leaders get people to agree about what things should be done" (p. 4).

Bubshait and Farooq (1999) contend that it is important to realize that although leadership and management are not synonymous, neither are they mutually exclusive; they both complement and contribute to organizational success. Kotter (1990), Peters and Austin (1985), and Price (1993) view leaders and managers as more similar than not, and frequently as the same individual. Kotter noted that although leadership and management are distinct vocations, they complement each other, and leaders and

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managers could be different people or the same person. He purposed that the identification and development of a potential, combination leader-manager should be an organization goal. Kotter professed that each has its own characteristics and responsibilities, and that both are necessary for organizational success.

Likewise, Peters and Austin (1985) asserted that both leaders and managers pay attention to detail, coach subordinates, and get out of their offices into the grass roots of the enterprise to effectively lead the organization and manage their subordinates. They suggest that management is specific knowledge, skills, and abilities and leadership is an overall attitude and orientation. In this scenario, an individual may serve as both leader and/or manager depending on the organization requirements, status, or position.

Speaking from a practitioner's perspective, Hutchins (2000) states:

> The difference between a leader and a manager can be understood around the issue of control. A "control" freak or project micromanager has managed us at one time or another. This person focuses on work minutiae. He or she must bless every decision. Micromanagers control by policies, procedures, rules, ratios, matrices, formulas, models, and straightjacket budgets. Innovation and risk taking suffocate in these atmospheres. Leadership inspires, engages, dares, dialogues, and challenges. ... leaders are seen as people who can guide themselves or a group to do what needs to be done as well as reach ever-higher goals. In general, these are normal folks who possess high energy, are committed to a cause, can share responsibility, have high values, and are highly credible. (p. 22)

From another perspective, Nahavandi (1997) stated that "the distinctions that are drawn between leadership and management may be more related to effectiveness than to the difference between the two concepts." This underscores the idea that there is no "best way" to lead in every situation, or that one leadership style will work on one project but not the next. It is difficult to identify any individual as a good leader, or even an effective leader, in all seasons and under all situations (Luthans, 1998).

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According to Price (1993), the "project manager" is an occupation that is particularly interesting with respect to the leadership-management dichotomy. He states that PMs hold positions uniquely suited to any discussion of the leadership-management dichotomy because they must function as both. There are three elements that distinguish PMs from traditional managers. They are: 1) PMs are the single point of management responsibility; 2) PMs demonstrate leadership in centralized planning and control; and 3) PMs accomplish objectives with workers who concurrently work for someone else (Chapman, Pontious & Barnes, 1973: p. 3).

Although Zaleznik (1977) does not cast his argument in terms of an attack on leadership research and theory, the implication is clear: leadership researchers have been almost exclusively studying management and supervision and not leadership. So for this study, one could argue that it is really a study of management or supervision and not of leadership as stated in the title.

In support of this study, interestingly, Price (1993) points out that a PM must perform both leadership and management functions. He suggests that in the study of PMs, it doesn't really matter if one is arguably studying leadership or management.

Additionally, since this study's primary focus is to compare the behavior (leadership style, style flexibility, and style effectiveness) of PMs with varying levels of U.S. domestic experience to those of PMs with varying levels of international experience, it is this researcher's contention that it doesn't matter whether or not the PM's role is defined as leadership or management. Therefore, for this study a strict definition of leadership and management is not crucial and the terms leadership and management are interchangeable. As Yukl (1989) states on the subject of leadership versus management:

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> It is neither feasible nor desirable at this point in the development of the discipline to attempt to resolve the controversy over the appropriate definition of leadership. For the time being, it is better to use the various conceptions of leadership as a source of different perspectives on a complex, multifaceted phenomenon. In research, the operational definition of leadership will depend to a great extent on the purpose of the researcher. (p. 5)

In summary, some theorists view leadership and management as divergent and separate; others see them as distinct but overlapping. This study builds on the latter position by suggesting that PMs hold positions uniquely suited to any discussion of the leadership-management dichotomy because they must function as both (Price, 1993).

Statement of the Problem

Leadership styles vary and these leadership styles may have a significant impact on the successful outcome of a project. Since more and more projects are done in an international setting, the international component places additional demands on leadership style. We therefore need to better understand how these leadership styles are both different and similar between PMs with domestic PM experience and those with international PM experience. Existing data are inadequate to provide management with the information needed to select, develop, and assign effective PMs.

This study compares the self-perceived leadership behaviors (styles) of PMs with varying levels of U.S. domestic experience to those with varying levels of international experience. Additionally, this study investigates the relationships between PMs self-perceived leadership behaviors (practices) and their "degree of internationality" (explained in Chapter III) along with selected demographic characteristics.

Within the context of a large, U.S.-based engineering and construction firm, this study compares the self-perceived leadership behaviors (styles) of PMs with varying

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levels of U.S. domestic PM experience to those of PMs with varying levels of international PM experience. The implications of this study should be useful to the management of any organization that depends on projects for carrying out their business activities. For the company being researched, this study should provide its management a greater understanding of the self-perceived leadership behaviors (styles) of their diverse cadre of PMs. The study should not only be beneficial to the executives and senior management in their decisions concerning the assimilation and assignment of existing PMs, but also in the selection, development and assignment of PMs.

For engineering and construction organizations, further study on PM leadership is needed. Kirk (2000) states that even though the construction industry occupies a large sector of the United States economy, there is little leadership or management research conducted on the industry. According to Kirk, literature specifically addressing engineering and construction leadership is for the most part non-existent. The literature that does exist on engineering and construction leadership is limited to specific topics in management and places little emphasis on overall leadership qualities, rather focusing on management tools and their implementation, such as scheduling, estimating, time management and profit analysis.

Purpose of the Study

In the literature, several researchers have pointed out there is a noticeable difference between U.S. PMs and their international counterparts in the area of leadership—specifically the ability to be a leader. The purpose of this study is to determine if there are any differences in the self-perceived leadership styles between PMs with U.S. domestic experience and those with international experience.

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Figure 1. Model for Comparing Self-Perceived Leadership Behaviors (Styles) of PMs with Various Combinations of U.S. Domestic and International PM Experience

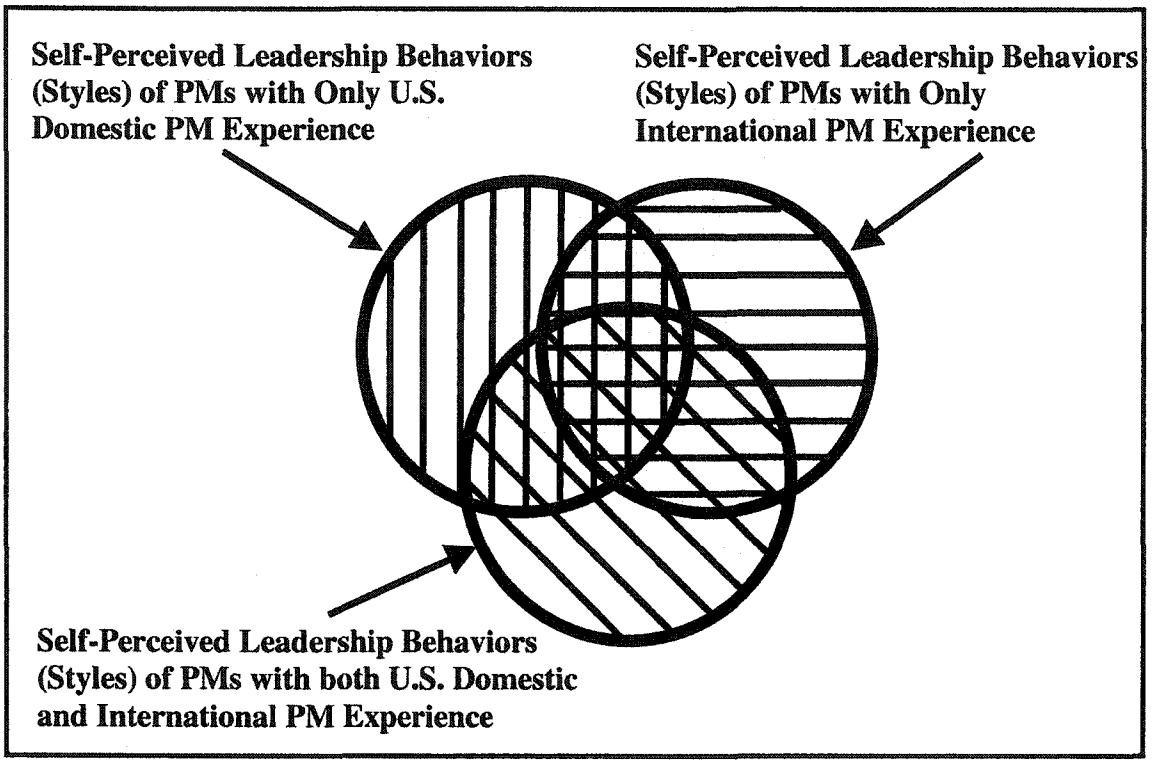

Figure 1 provides a graphical model for this study. While this study emphasizes the differences between PMs with U.S. domestic experience and those with international experience, it also identifies some of the commonalties.

Significance of the Study

It is anticipated that the findings of the study will further the understanding of PMs assigned to U.S. domestic projects and/or international projects. More specifically, the study should provide additional insights as to the differences, if any, in self-perceived leadership behaviors (styles) of PMs with varying levels of U.S. domestic experience and those with varying levels of international experience.

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This study is based on the Situational Leadership® II Model developed by Blanchard, Zigarmi and Nelson that suggests there is no one best leadership style. The model suggests that the level of employee task-relevant development, together with other situational variables, determine which leadership style will be most effective in a particular situation.

Since the research on the Situational Leadership® II Model and PMs is very limited, this study should provide support for the application of the Situational Leadership® II Model in identifying effective PMs. This study should be of particular interest to large, U.S.-based engineering and construction firms with domestic and international projects.

Additionally, this study should provide insights for the following people:

1. Anyone in the project management process, especially those concerned with the factors that affect project success

   This study provides additional insights concerning the effective selection of PMs, project management training, and project management leadership style, style flexibility, and style effectiveness. Those interested in this study would be PMs at all levels, managers who select PMs and instructors and researchers in the field of project management. The identification of effective PMs is a critical task facing all project-oriented organizations and any tools that can be identified to facilitate this process should help all such organization to be more effective.

2. Managers in engineering and construction firms

   Engineering and construction firms are highly oriented towards project management, and any leading firm should be interested in the results, as they could point to improved competitiveness.

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3. Project managers

   PMs can use the collected data to examine their leadership style, style flexibility and style effectiveness.

Description of Research Questions and Hypotheses

Two research questions underpin this study. The first research question examines the differences in measures of self-perceived leadership behaviors (styles) between PMs with only U.S. domestic PM experience, only international PM experience, and with both U.S. domestic and international PM experience. The second research question examines whether there is a linear relationship between measures self-perceived leadership behaviors (styles) and a PM's cumulative international experiences. Each of the two research questions was tested by 5 hypotheses.

Scope and General Methodology of the Study

The study compares and contrasts the self-perceived leadership behaviors (styles) of PMs by collecting data and drawing conclusions. The population for this study is the PMs working for a large, U.S.-based international engineering and construction firm.

The study utilizes the Situational Leadership® II Model developed by Blanchard Training and Development, Incorporated. The model suggests that effective leaders are those who can accurately diagnose the essential variables in each leadership situation and adjust their leadership style to fit the existing conditions. Additionally, the model suggests that as the diversity of leadership situations encountered increases, like those often found in international projects, the leader must possess more sophisticated diagnostic skills and a broader range of styles.

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Data for this study will be obtained through the use of the Leadership Behavior Analysis II®-Self (LBAII®-Self) instrument which has been employed in only one research study involving PMs, U.S. Department of Defense information system PMs (Price, 1993).

Demographic data were also requested from participants similar to those of other studies involving PMs and other professions (Kirk, 2000, Martini, 1999; Price, 1993, Zigarmi, Edeburn & Blanchard, 1997). Statistical computations and analysis will be performed using commercially available statistical analysis software.

Limitations of the Study

The LBAII®-Self is designed to measure an individual's self-perception of leadership behavior. Self-perception represents only what the leader consciously knows about his or her leadership style. The instrument does not identify differences between how a leader perceives his/her own leadership style and how the follower perceives his/her style. The study does not measure nor compare the leadership styles against project outcomes. The demographics questions are selective and do not attempt to identify all the potential variables that may influence leadership behavior.

Research Environment

The PMs surveyed in this study will be of the same large, U.S.-based engineering and construction firm. The firm has approximately 38,000 employees working in more than 43 states and more than 35 countries around the world. The company provides engineering, construction, and program-management services to the following markets: energy, environmental, government, heavy-civil, industrial, mining, nuclear-services,

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operations and maintenance, petroleum and chemical processes, pulp and paper, telecommunications, transportation, and water-resources.

Definition of Key Terms

The following definitions will be used in this study.

Leadership—a person's influence on the behavior of an individual or group for the purpose of achieving goals. Per Hersey, Blanchard and Johnson (2001: p. 9), leadership occurs whenever one person attempts to influence the behavior of an individual or group, regardless of the reason.

Situational Leadership Model—a leadership model, developed by Hersey and Blanchard (1982), that suggests there is no one best leadership style. The level of employee task-relevant development, together with other situational variables, determines which leadership style will be most effective in a particular situation.

Leader Effectiveness—Hersey and Blanchard's (1982) approach is used to determine leader effectiveness. That is, effective leadership is present when there is an appropriate match between leadership style and a given situation as proposed in Situational Leadership II® Model. Thus, when a style is inappropriate, it is deemed ineffective.

Leadership Style—in situational leadership, leadership style is generally defined as the behavior patterns used in attempting to influence the activities of others. It is described in terms of a primary style, which is used most often, and a secondary style or styles, which are used occasionally. The elements of leadership style are task behavior and relationship behavior.

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Leadership Style Flexibility (Adaptability)—in situational leadership, leadership style flexibility (adaptability) is the extent to which a leader is capable of varying his/her style in a manner appropriate to a specific situation (Hersey & Blanchard, 1982). It is the ability of a leader to match his/her style to the follower's developmental level. For the purpose of this study, adaptability and flexibility have the same meaning and therefore are interchangeable.

Employee-Relevant Development Level—the ability and willingness of followers to assume responsibility for directing their own behavior in relation to a specific task.

High Relationship Leadership Styles—in situational leadership, high relationship leadership styles are called coaching and supporting (Blanchard, Zigarmi & Nelson, 1993). Within these two leadership styles there is significant interaction between the leader and the follower. The follower generally has minimal autonomy in making decisions related to his or her behavior in leader/follower situations.

Low Relationship Leadership Styles—in situational leadership, low relationship leadership styles are called directing and delegating (Blanchard, et al., 1993). Within these two leadership styles there is minimum interaction between the leader and the follower. The follower generally has maximum autonomy in making decisions related to his or her behavior in leader/follower situations.

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Relationship Behavior—in situational leadership, relationship behavior is the extent to which the leader engages in two-way or multi-way communication. The behaviors include listening, facilitating, and supportive behaviors (Hersey, Blanchard, & Johnson, 2001: p. 173).

Task Behavior—in situational leadership, task behavior is the extent to which the leader engages in spelling out the duties and responsibilities of an individual or group. These behaviors include telling people what to do, how to do it, when to do it, where to do it, and who is to do it (Hersey, et al., 2001: p. 173).

Educational Background—the level and type of formal education background.

Educational Level—no High School Diploma, High School Diploma, Bachelors, Masters, or Doctorate.

Educational Type—a technical, management or other degree.

Technical Degree—a degree in engineering, engineering technology, math, physics, biology, chemistry, management science, operations research, computer science, or information systems.

Management Degree—a degree in project management, construction management, business administration, management, engineering management, or technical management.

Other Degree—a degree that is neither a technical degree nor a management degree (e.g. accounting, English, political science, history, humanities, psychology, sociology, behavioral science, etc.).

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Summary of Introduction

As an introduction, this first chapter at the outset defines three principal terms (project, project management, and project manager) that are rudimentary to the study. Next, the chapter discusses three topics that are relevant as to why it is important to study project management and leadership and for this study, puts in context the debate on leadership versus management. The chapter then goes on to present the: 1) statement of the problem, 2) purpose of the study, 3) significance of the study, 4) description of the research questions and hypotheses, 5) scope and methodology of the study, 6) limitations of the study, 10) the research environment, and 11) definitions of key terms.

Consequently, the materials presented in this introductory chapter have established the importance of, and the need for, additional research on the relationship between leadership behaviors (practices) of PMs and their level of U.S. domestic and/or international PM experience.

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CHAPTER II

REVIEW OF LITERATURE

Introduction

The literature review is intended to serve three major functions. First, it serves as a broad review of the literature on project management and leadership. Second, it establishes the significance for the study through a comparative examination of leadership among PMs with U.S. domestic PM experience and PMs with international PM experience. Third, it examines the foundations and theoretical findings of the Situational Leadership II® Model. The literature review is organized in the following manner:

1. Brief background of project management
2. A contrast of project work versus operations work
3. Discussion on PMs and leadership
4. Discussion on PMs working in U.S. domestic versus international contexts
5. Discussion on leadership theories and models
6. Applications of Hersey and Blanchard's Situational Leadership Model
7. Summary of literature review

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Background of Project Management

The term "project management" originated in the construction industry; however, its broadened popularity grew from the efforts of Colonel Bernard A. Schriever of the United State Air Force. In 1954, Colonel Schriever developed a team of individuals to manage the development of a missile program. Only a few years later, the United States Navy developed PERT, Program Evaluation and Review Technique, and the term "project management' became common (Martini, 1999).

Project Work vs. Operations Work

Belack (1998) contends that there are essentially two types of work that an organization performs—operations work and project work. Operations work is characterized by similar activities repeatedly performed by the same resource or group of resources. This work occurs continuously (in many cases cyclically), day after day, month after month, year after year, without a specified beginning or end. Operations work is also typified by its single-function focus. That means it is work normally performed within the confines of a functional unit.

Project work is different from operations work in that projects are temporary endeavors—they have a beginning and a planned end. Project work is also unique—unlike operations work, it produces a unique product or service in differing environments. Additionally, most projects have an integrative, cross-functional nature, combining the efforts of different people in multiple departments (Belack, 1998; Dunn, 1996).

According to Einsiedel (1984), projects are relatively unique solutions to extraordinary organizational problems for which the traditional bureaucratic responses are considered too slow or inflexible to be effective. In lieu of the traditional operations

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orientation, many organizations use projects or form temporary work groups in order to effectively perform their work activities (Einsiedel, 1987).

Because of the different nature of work involved in projects, the processes and techniques used to manage operations work do not translate very well for use in a project environment.

A specific body of knowledge—The Guide to the Project Management Body of Knowledge (PMBOK Guide)—exists with respect to the processes, methods, and techniques for maximizing the management of projects. The PMBOK Guide provides guidelines for PMs in areas comprising project management including time (schedule), scope, cost, quality, human resources, communications, risk, integration, and contract and procurement (Belack, 1998).

When and to what extent one should apply the processes, methods, and techniques as outlined in the PMBOK is a critical question. The management of a large project involves the planning, organization and control of a large number of complex factors, activities and their interrelations (Lock, 1996). Krajewski and Ritzman (1998) recommend that while a formal project management approach can be applied to some degree in any project, there are certain project characteristics, when present, that make use of the project management approach most appropriate. Specifically, they recommend that a project management approach should be used when (p. 798):

1. the magnitude of the effort requires substantially more resources than are available in a particular functional area or department;

2. the need for coordination among functional areas or other organizations is overwhelming;

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3. there is unfamiliarity with respect to certain tasks in the project and employees with the appropriate expertise need to be brought together to carry out the project;

4. the environment is rapidly changing and the firm needs to be flexible to adapt to changing needs;

5. functional areas working independently focus on their own situations rather than the organization's goals; and

6. project success is crucial to the organization.

Project Managers and Leadership

There is significant amount of literature that discusses the importance of a PM's leadership, the varied roles and functions PMs must perform, the selection and assignment of qualified PMs, the importance of leadership style, and the uniqueness of construction PMs. Table 1 provides an overview of the primary issues discussed by each author in this section.

Slevin and Pinto (1991) state that leadership is crucial to successful project management and that the wide variety of demands that PMs routinely face in running their projects is often daunting. They state further that PMs must rely on a variety of skills to successfully manage their projects, including ability to motivate, inspire, and lead the project team.

A sizeable amount of literature on project leadership suggests that effective PMs must function as visionaries, technical experts, motivators, team builders, negotiators, sales people, and so forth (Einsiedel, 1987; Pinto & Kharbanda, 1995; Posner, 1987).

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Table 1

Authors vs. Primary Issues Discussed Concerning Project Managers and Leadership

Author(s)	Primary Issues Discussed						
	Importance of PM's Leadership	Importance of PM's Leadership Style	Variety of Skills / Demands Required of PMs	Technical vs. Management Skills	Selection Criteria for PMs	Assignment of PMs	Uniqueness of Construction PMs
Badaway				X			
Bohlen & et al.	X		X				
Botwitch & Buono							X
Brown & Eisenhart	X						
Edum-Fotwe & McCaffer							X
Einsiedel			X				
Hauschildt & et al.					X		
Jannadi	X						X
Kangari	X						X
Kerzner		X	X		X		
Kirk	X		X				X
Lechler	X	X		X			
Martin	X				X		
McDonough	X						
Pettersen			X				
Pinto & Kharbanda			X				
Posner	X		X		X	X	
Rowans					X	X	
Selvin & Pinto	X		X				
Shenhar		X					
Song & et al.	X						
Thite				X			
Thomas & Pinto	X		X				
Zimmerer & Yasin	X			X			

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To be an effective leader and manager in the construction industry, Bowitch and Buono (1997) state that one must "see the big picture"—that is one must possess intuitive and visionary reasoning which can be applied to linear and sequential situations. They also state that effective leaders must be able to "lead others to lead themselves" (p. 218).

The most common theme running through the majority of the research on project management and leadership suggests quite clearly that successful PMs are those individuals who are able to master the various, sometimes competing, demands their jobs make on them (Thomas & Pinto, 1999).

Since several studies have shown that effective PMs are essential to project success (Brown & Eisenhardt, 1995; McDonough, 1993; Song, Souder, & Dyer, 1997), a critical question for firms increasely dependent upon project work is how to staff with effective PMs (Hauschildt, Keim & Medcof, 2000).

The importance of selecting PMs with strong leadership qualities is prevalent throughout the literature on project management. Martin (1976) discusses at length the qualifications of PMs, and divides these into two categories, personal characteristics and skills. Out of a list of personal characteristics, Martin places leadership, honesty and integrity at the top. A little over a decade later, Posner (1987) states that selecting a good PM is not a simple task and that being an effective PM is an ongoing challenge. He contends that the complex nature and multifaceted range of activities involved in managing projects precludes easily identifying managerial talent and continually stretches the capabilities of talented PMs (Posner, 1987).

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In an effort to identify qualities needed for effective project leadership, Einsiedel (1987) lists five as essential qualities:

1) Credibility

2) Creative Problem-solver

3) Tolerance for Ambiguity

4) Flexible Management Style

5) Effective Communication Skills

The importance of a PM's leadership style and the criteria for selecting PMs with strong leadership qualities are specifically identified in Kerzner's (1987) six critical success factors for excellent project management:

1. Corporate understanding of project management
2. Executive commitment to project management
3. Organization adaptability
4. PM selection criteria
5. PM's leadership style
6. Commitment to planning and control

Additionally, Kerzner (1987) states that given the fact that, in a project environment, the project office may not have any direct control over the project team (i.e., functional employees), a strong leadership style by the PM is necessary. Kerzner (1987) identifies four areas key to effective PM leadership within which the PM's job is more difficult than a functional manager's job:

1. Authority
2. Responsibility

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3. Adaptability (Flexibility)

4. Interface management

In studies on horizontally (matrix) structured organizations, where project management is widely used, researchers have found similar areas that make a manager's job more difficult. As Bohlen, Lee, and Sweeney (1998) state, a major element of most horizontal configurations is the participation of people from across different functional areas of the organization. Managers in these horizontal group situations have different types/levels of power, influence, and resource control, than their managerial counterparts in vertically structured organizations. Thus, there is an increasing realization that many traditional management ideas, observed in vertically oriented structures, may not equally apply to matrix type groups like project teams. Even if the overall structure of an organization is vertical, the PM will still have to utilize a diverse set of skills to carry out his/her job as if within a horizontal or matrixed structure. As Pettersen (1991) states,

> It seems to be accepted in the field of project managers, who evolve within a context made more difficult by the variety and complexity of its activities—a context characterized by disorder, ambiguity and disjunction between formal authority and responsibility—need to develop skills different from those of their colleagues in functional management. (p. 21)

For selecting PMs, Pettersen (1991) lists twenty-one predictors grouped in five sets (see Appendix A for the complete list of predictors). The main dimensions (leader's attributes, characteristics, qualities, etc.) found in the literature conceptually define each predictor. For practical purposes, Pettersen suggests these predictors should be tailored to each individual case by means of indicators specific to the position to be filled and according to the selection tools chosen. Additionally, Pettersen recommends that before starting the selection process itself, a preliminary screening of candidates should be done.

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He suggests that screening should be based above all on the candidate's education and experience (Pettersen, 1991). From his review of the literature, Pettersen (1991) identifies two key screening factors:

1) Basic Academic Training—The PM ideally should hold a university degree. This basic education may be either in the field of engineering or another related technical discipline relevant to the project, or in the field of management, or preferably both. Some experts believe that management education should prevail over technical education, while others are less categoric, saying that the balance should vary according to the nature and size of the project.
2) Practical Experience and On-the-Job Training—Experience and on-the-job training are of vital importance in project management, and should preferably be acquired progressively by the individual's carrying out different functions at different levels. It is good for the candidate to have worked for an experienced professional able to pass on the practical knowledge needed for a variety of assignments. Several years of diversified experience in the field seem essential for two main reasons. First, the ability to visualize the project as a whole in all its technical, social and political complexity is a skill that cannot be obtained in a few weeks, no matter how varied the work. Second, the interdisciplinary approach fundamental in project management also requires time to be developed in PMs who have, for the most part, specialized in a particular discipline very early in their training.

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On the debate as to whether technical skills versus management skills are more important, Badaway (1982) argues that the primary problems PMs have to deal with are really not technical ones. Rather the reason many managers fail at managing projects is because of their lack of critical organization and management skills. Similarly, Posner (1987) concludes that the primary problems faced by PMs are not technical, but human. Posner states, "The challenge for technical managers, or for those moving from technical into managerial positions, is to recognize the need for, and to develop where necessary, their interpersonal skills" (p. 54).

In an effort to better understand what makes a project successful, Lechler (1997) reviewed 44 empirical investigations of the determinants of project success and found that PMs do make a difference. In his study, he examined 257 successful and 191 unsuccessful projects and found that the success of a project is much more dependent on the human factors (project leadership, top management support, project team) than upon the technocratic instruments of project management such as planning, processing information, and communication. Furthermore, he found that the importance of the human factors increases when projects have greater complexity, risk, and innovativeness.

Correspondingly, Zimmerer and Yasin (1998) conclude that organizational effectiveness requires PMs to combine their technical competency with the ability to develop and display leadership. They state that, "Today's complex project environments require even greater skills at leadership than ever before" (p. 31). Their research found that positive leadership contributes almost 76% to the success of a project and negative or poor leadership contributes 67% to the failure of projects. Zimmerer and Yasin conclude that all the evidence of recent research supports the idea that successful projects are led

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by individuals who possess not only a blend of technical and management knowledge, but also leadership skills (Zimmerer & Yasin, 1998). Unfortunately, often those with technical skills, who are made PMs, lack leadership skills, as Thite (2000) states, "It is generally recognized that technical/scientific employees lack leadership skills to effectively manage people" (p. 235).

The assignment of PMs to projects where they can be successful and most effective is another area of great concern. Rowans (1986) maintains it would take an extraordinary individual to have all the critical personal characteristics that a PM needs to have. As a practical solution, Rowans recommends that one first should determine the critical problems that are likely to be faced by the PM on a particular project and then select a person who can handle such difficulties.

According to Shenhar (1991), a project's technology complexity should influence the type of leadership style that should be used. Shenhar developed a framework, Table 2, of the appropriate management philosophy to apply based on the complexity of the project's technology. Shenar's framework asserts that as the complexity of technology increases, from "low" to "super high," there should be a corresponding change in

Table 2

Project Classification and Managerial Philosophy

Type of Project	Low Technology	Medium Technology	High Technology	Super High Technology
Technology Uncertainty	No new technology	Some new technology	Mostly new, but existing technologies	No-yet existing technologies
Managerial Philosophy	Firmness	Firmness with Flexibility	Flexibility with Firmness	Flexibility

Adapted from Shenhar (1991)

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management philosophy, from "firmness" to one of greater "flexibility."

For engineering and construction firms, PMs seem to play a more significant role than their counterparts in other industries. Edum-Fotwe and McCaffer (2000) submit that for the construction industry, where essentially all business activities are based on the project management approach, the importance of focusing on improving competency of PMs derives from the impact projects have on the company's business. In the construction industry the failure of a single project can often trigger the failure of the whole company (Jannadi, 1997; Kangari, 1988). Therefore, any impact the PM's leadership may have on the success of a project can also have a significant impact on an engineering and construction firm's success.

Kirk (2000) points out that construction is in some respects unique because managers of the construction process must be able to deal with a wide variety of personnel and daily changes in working conditions. This is in contrast to other PMs, like those in software development that work primarily with computer programmers in comparatively unchanging working conditions.

Kirk (2000) further explains the unique leadership challenges faced by construction PMs. He states construction projects are kaleidoscopic in nature and that the administration of construction companies and their projects requires strong leadership and management skills. Change occurs daily, perhaps in availability of labor and materials, weather conditions, or financial constraints, and each project has its own unique combination of situations. Kirk points out that a construction PM must not only be an effective administrator within the framework of his/her company, but must also be an effective leader and manager of people from the different companies and occupations

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that come together to complete a given project. Depending on the project, the construction PM may be overseeing millions of dollars, estimating the various components of the project, scheduling these items and managing people from executive bankers to newly hired migrant workers. The construction PM must deal with the physical structure as well as with the variety of people involved, foresee potential problems and analyze problematic situations as they occur, and devise methods to solve these problems. Therefore, Kirk contends that effective leaders in the engineering and construction industry need to possess a vast array of leadership abilities.

In summary, most of the literature demonstrates that the PM plays a crucial leadership role in the success of a project. Likewise, the literature demonstrates that the selection and assignment of qualified PMs, who can provide the leadership necessary for the success of a given project, should be dependent on the situation at hand. While some leadership theorists are more emphatic and descriptive than others about which leadership style should be used in a given situation, most leadership theorists acknowledge, at least to some extent, that different leadership styles are needed for different situations. Also, some recent literature indicates that matching leadership style to a given situation is more important (and difficult) for PMs in the construction industry because they often encounter a more diverse and changing set of circumstances (situations) than many of their counterparts in other industries.

Project Managers—U.S. Domestic vs. International

In the literature, several researchers have pointed out there is a noticeable difference between the U.S. PMs and their international counterparts in the area of leadership—specifically the ability to be a leader. Yasin, Zimmerer, and Wafa (1997)

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deduced that cultural differences influencing the way that managers view management and leadership may partially be behind this finding. However, they stress that this finding may simply be attributed to educational and training backgrounds since PM training in the U.S., while it often stresses the human side of project management, generally does not address cultural differences. This deduction supports Kerzner's (1995) contention that PMs working in an international context need more training than domestic managers, particularly in the area of cultural sensitivity.

Jung and Avolio (1999) point out that there has been considerable interest in whether the attitudes, behavior, and motivation of managers and employees differ across cultures and in the effects those differences have on work group performance (Chen, Chen, & Meindl, 1998; Hofstede, 1980a). Hofstede (1980b) argues that many differences in individual motivation and leadership styles can be traced to differences in cultural programming. Hofstede (1993) states that changes due to globalization have brought to the attention of many organizational leaders the importance of understanding, addressing, and meeting the needs of culturally diverse work groups.

Wagner (1995) suggests that cultural orientation may interact with an individual's preferred way of working and many researchers like Erez (1994) have challenged the appropriateness of simply assuming that United States-centric leadership theories can be generalized to other countries.

Jung and Avolio (1999) question whether one should lead differently in different cultural settings? This question was formulated on the basis of preliminary evidence showing that culturally different groups prefer different ways of being led as suggested by Hofstede (1993) and Triandis (1993). Although there are several theoretical models to

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help explain cultural differences regarding what constitutes effective leadership, as reported by Dorfman (1996) and Triandis (1993), only a handful of studies have actually examined the effects of differences in cultural orientation on the effectiveness of leader-follower interactions.

Yasin, Martin, and Czuchry (2000) report that international PMs, in comparison to their U.S. counterparts, appeared to have more knowledge of cost management and the ability to be leaders. In addition, these managers exhibited more knowledge of communication, risk management, and the need for top management support. Managers with international experience reported significantly more use of leadership by example, in comparison to their counterparts without such international experience (Yasin, Martin, & Czuchry, 2000).

Bubshait & Farooq (1999) point out many PMs fail to realize that personnel management is vital to a successful project and that team building is not an easy task, especially in international projects where there is a multicultural environment. Hersey, Blanchard and Johnson (2001: p. 110) state that as the world becomes more international, as more stakeholders come into play, and as more traditional customs, practices, and authorities are eroded, the leadership process becomes more difficult.

Leadership Theories and Models

Leadership theory during the twentieth century can be categorized under three areas of thought: trait theory, personal-behavioral or best style theory, and contingency or situational theory.

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Trait Theories

During the early part of the twentieth century, leadership research focused on the traits of effective leaders. Researchers during this era believed that a finite number of personal characteristics separated leaders from followers and effective leaders from less effective leaders.

Much of the early leadership research focused on identifying the characteristics of effective leaders, hoping to find some traits related to leader behavior or fundamental physiological or psychological traits capable of explaining a leader's behaviors. The prevailing thought of the time was based on the proposition that individual traits explained leadership style. Researchers generally concluded that individual behavior was dictated by personal traits.

One of the more prominent early trait theorists, Orway Tead (1935) argues that leadership is a combination of qualities which enables an individual to induce others to accomplish a given task. Tead (1935: p. 17) lists ten qualities: energy, sense of purpose, enthusiasm, friendliness, integrity, technical knowledge, decisiveness, intelligence, teaching skill, and faith. Some of the other traits that researchers studied are age, height, weight, appearance, fluency of speech, scholastic abilities, judgement, insight, adaptability, dominance, and initiative.

Since early research on trait theories was so extensive (Gibb, 1954; Mann, 1959; Stogdill, 1948) with diverse results, Stogdill (1948) decided to review this research in order to identify the key leadership traits. After reviewing 120 articles on leadership trait research that were written between 1904 and 1947, Stogdill identified five traits that appeared consistently related to leadership ability:

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1. Capacity: intelligence, alertness, creativity, judgment, and flexibility
2. Achievement: knowledge, scholarship, and versatility in sports
3. Responsibility: reliability, initiative, perseverance, aggressiveness, self-confidence, and desire to be superior to others
4. Participation: activity, sociability, cooperation, adaptation, and sense of humor
5. Status: socio-economic status and reputation

Nevertheless, subsequent researchers have found little evidence to support trait theories. Jennings (1961) reports that research has failed to find any personal characteristics that can distinguish leaders from followers. Several years later, Stogdill (1974) admits that trait research has produced limited results. Likewise, Hodgetts (1975) stats that, after fifty years of research, not a single personality trait or one set of characteristics was found that could clearly distinguish a leader from a non-leader. However, the research that showed some support for trait theory did provide significant correlations between leadership effectiveness and personal traits of intelligence, supervisory ability, initiative and self-assurance (Ghiselli, 1963). Despite these findings, they were generally not persuasive and failed to generate interest (Bass, 1981; Nahavandi, 1997).

Although the interest in trait theories has greatly diminished, more recently a modified approach to trait theory of leadership has been suggested which identifies charisma as a key leadership trait (Frank, 1993). The leader's charisma is the ability to inspire followers to a particular point of view. The evidence that supports the charismatic leadership approach is limited.

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Personal-Behavioral (Best Style) Theories

A second category of leadership theory that has evolved during the twentieth century is the personal-behavioral theory. These theories are often referred to as best style theories because they focused on finding the single best leadership style for all situations. Personal-behavioral or best style theories were studied from the 1940s through the 1960s. Researchers focused on the leaders' actual behaviors; that is, what they do and how they do it. Once these behaviors were identified, the researchers attempted to identify a single, ideal, multipurpose leadership style that would fit virtually all leadership settings.

The behavioral theorist studied leadership style from two fundamental dimensions: task orientation and employee (individual) orientation. Personal-behavioral theories evolved from two schools of management theory: the scientific management movement associated with Frederick W. Taylor, and Elton Mayo's theories on human relations. The major emphasis of the scientific management movement was the study of the task as it related to the work environment (Taylor, 1911). In general, Taylor determined that workers were concerned with their personal economies and had physical limitations that resulted in the need for constant direction.

From the 1920s to 1940s,Taylor's theories were challenged by the emphasis on human relations. The human relations movement was driven by the research now known as the Hawthorne Studies conducted at the Chicago Western Electric Company plant. The studies resulted in an understanding that human relations are as important as developing the best way to perform a task. Thus, the focus of power and leadership is the

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effective understanding and use of interpersonal relations in the work place (Mayo, 1945).

According to the human relations theory, the role of the leader was to facilitate groups and individuals in achieving a goal (Mayo, 1945). The leader was also responsible for the personal growth and development of the individuals who belong to the group. Human relations theory emphasized the individual, contrary to the scientific management theory which was primarily concerned with the task (Hersey, 1976).

A significant amount of research examined the difference between the scientific management and human relations theories. The studies attempted to determine which theory offered the best potential for leaders. Two of the most significant studies were conducted at the University of Michigan and The Ohio State University.

The University of Michigan studies attempted to identify characteristics related to each other and to indicators of effectiveness. These studies resulted in the identification of two concepts called employee orientation and production orientation. Production orientation emphasized the technical aspects of a task and viewed the employee as tools in achieving goals. In contrast, employee orientation stressed the human relationships involved in achieving goals (Katz, Maccoby & Morse, 1950).

Likert (1961, 1967) expanded the Michigan studies when he examined the differences between successful managers and unsuccessful managers. Likert's studies resulted in the identification of two different styles of leadership: job-centered and employee-centered. A product of Likert's work was a theory that described leaders along a four-part continuum from the authoritative to participative. Likert labeled the four parts as exploitive-authoritative, benevolent-authoritative, consultative, and participative.

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Likert's (1967) work implies that the best style of leader behavior is consultative or participative. Likert's studies showed that the most effective managers focused on the human relations aspects of workers. He also found that effective managers had clear objectives and allowed others the freedom to perform their assigned tasks.

The Ohio State studies resulted in a two-factor theory of leadership called initiating structure and consideration. Initiating structure occurs when the leader organizes and defines the leadership, establishes well-defined channels of communication and decides how a task will be done. Consideration emphasizes interpersonal behavior, such as friendship, mutual trust, respect, and rapport between the leader and follower (Stogdill & Coons, 1957).

Two instruments were developed to measure the dimensions of initiating structure and consideration in the Ohio State studies. These instruments are the Leadership Opinion Questionnaire (LOQ) and the Leader Behavior Descriptive Questionnaire (LBDQ). The LOQ attempts to assess how leaders perceive that they behave in leadership roles, while the LBDQ measures the perceptions of followers, peers or supervisors.

Leadership style is measured using the scores of the LOQ and LBDQ. There have been numerous studies using the questionnaires that resulted from The Ohio State studies. These studies revealed that leadership style varies considerably from one leader to another. A resulting conclusion was that task and relationship behaviors are separate, and distinct leadership dimensions can be plotted on separate axes rather than on a single continuum as had been previously believed. Thus, a high score on one dimension does not necessarily mean a low score on the other. The Ohio State studies resulted in the

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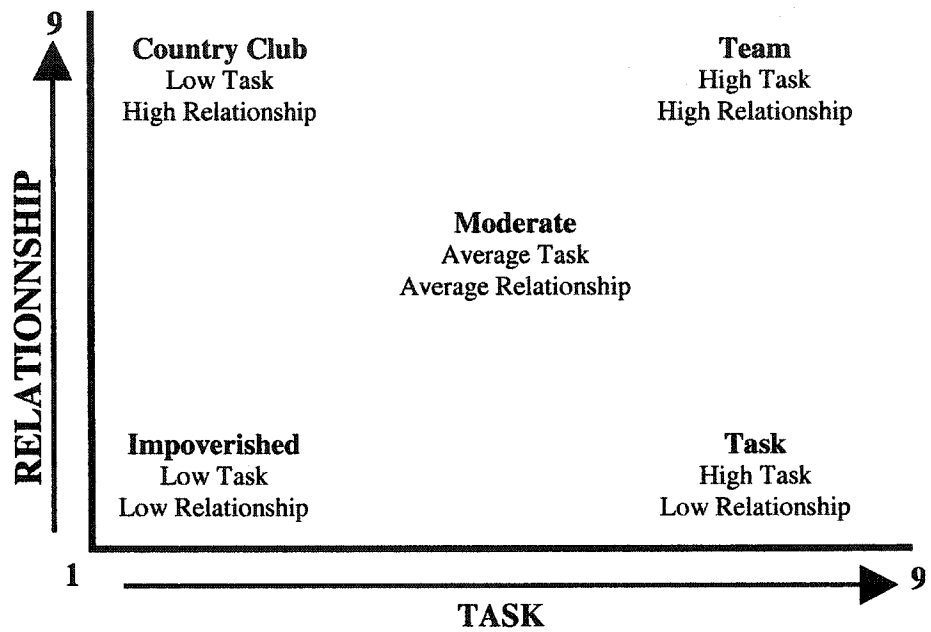
development of a four-quadrant model that displays various combinations of initiating structure (task) and consideration (relationship).

Another best style of leadership theory led to the development of the Managerial Grid as shown in Figure 2 (Blake & Mouton, 1964). Blake and Mouton's approach

Figure 2. Managerial Grid

Adapted from Blake & Mouton (1964)



focused on attitudinal dimensions. The dimensions were termed concern for production (Task) and concern for people (Relationship). According to Blake and Mouton (1964), the manager's leadership style (Impoverished, Task, Country Club, Middle of the Road, and Team) will have an impact on how effectively the task is completed. The Managerial Grid conceptual framework assumes that there is an unneeded separation in the mind of most leaders regarding concern for people and concern for production. Thus, this theory maintains that concern for people and concern for production complement each other, and that leaders should integrate them to be effective (Blake & Mouton, 1978).

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In summary, the personal-behavioral (best style) theories share a number of common characteristics. The major personal-behavioral theories generally use themes that center on people and the tasks they perform. This aspect of the theories closely links them to work done by Taylor (1911) and Mayo (1945). Although the major personal-behavioral theorists are widely reported in the literature, none conclusively resolve the linkage between leadership and performance indicators. The findings from the research on personal-behavioral (best style) theory tend to contradict the existence of an ideal or single style of leader behavior that can be applied to all situations (Chemers, 1984).

Contingency or Situational Theories and Models

The lack of support for personal-behavioral (best style) theory led to the hypothesis that there is no single best style of leadership that will fit all situations. Thus, a third category of theories evolved that suggests leader behavior effectiveness may be associated with recognizing that each situation may require a different leadership style. The basic concept centers on the predisposition that leadership style is adjusted to fit the current situation (Vroom, 1984). Effective leadership, according to situational leadership theories (SLT), depends on the fit among individuals, the prevailing attitudes and perceptions, the environment, the task to be performed, and other variables that may influence a situation (Fleishman, 1973). The theories that have been derived from situational leadership studies are based on the premise that effective leadership is dependent on the circumstances which make up the situation.

A major model that exemplifies the SLT movement is Fiedler's (1967) Contingency Model. Fiedler believed that the effectiveness of performance is dependent

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upon the interaction of leadership style and a favorable situation. Favorable situations are those where the leader has:

1) The confidence, trust and respect of subordinates (followers)
2) A task structure where job assignments are formalized, procedures are in place, clear goals have been established, and performance standards set for accountability
3) Position power; that is, formal authority/power including the ability to hire, fire, and promote

Fiedler contends that engineering the situation is the most effective method for achieving congruence between the leadership situation and the leadership style. Because leadership is conceptualized under this model as a relationship based on power and influence, Fiedler says two questions must be asked:

1. Does the situation provide the leader with the power and influence required to be effective (how favorable are the situational factors)?
2. Can the leader predict the effect of a given leadership style on followers?

Fiedler (1967) further states that effective group performance is dependent upon the proper match between the leader's style of interacting with his or her subordinates and the degree to which the situation allows the leader to control and influence. The key to making the proper match is to figure out each individual's leadership style—whether it is task or relationship oriented. To determine an individual's orientation, Fiedler developed the Least Preferred Co-worker (LPC) questionnaire, which contained 16 pairs of contrasting adjectives to determine an individual's impersonal perception scores. These adjectives are rated on a 1-8 scale, with 1 being least enjoyed and 8 being most

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enjoyed. The instrument measures the leader's esteem for co-workers through a set of questions designed to determine with whom the leader works well according to the LPC score. A low LPC score indicates that the leader is task-oriented, and a high LPC score is viewed as relationship-oriented.

A summary of 63 studies on Contingency Models revealed several important findings regarding effective leaders (Fiedler & Chemers, 1974). First, task-oriented leaders tend to perform better than relationship-oriented leaders in situations that are very favorable and in those that are unfavorable. Relationship-oriented leaders tend to perform better in favorable situations. A conclusion from these findings is that both types of leaders are successful in certain situations. Second, the results indicate that a leader's performance depends as much on the favorableness of the situation as it does on the individual leadership's position. Thus, one could conclude that changing the leader's behavior or the leader's situation could influence leadership effectiveness.

Finally, Fiedler (1967) concluded that fitting the leader to the task through training and selection has not been very successful. He concluded that it would be easier to change the situation in most cases than to try to change a personality or leadership style. Hence, Fiedler believed that leaders should be trained to recognize the situations in which they are most successful and how to adjust their leadership situation to more closely fit their leadership style.

The Contingency Model developed by Fiedler has generated criticism (Graen, Orris & Alvares, 1971). Some researchers question the effectiveness of the LPC measurement instrument. The LPC reliability and validity are thought to be low, and to some it is not entirely clear what the LPC instrument measures and what the scores mean

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(Schriesheim, Bannister & Money, 1979). Others argue that Fiedler's model reverts to the single continuum model of leader behavior dispelled by The Ohio State studies (Hersey & Blanchard, 1982). Finally, Fiedler's premise that it would be easier to change almost anything in the task situation other than a leader's personality and leadership style has been contradicted in other research studies (Hersey & Blanchard, 1982; Kouzes & Posner, 1987).

The Path-Goal Model represents another example of a contingency leadership theory. Evans (1970, 1974) studied the relationship between the behavior of leaders and their followers. Evan's research findings concluded that a critical part of the leader's responsibility is to clarify for the follower the kind of behavior that will most likely result in successful accomplishment of the assigned task.

House (1971), then later House and Mitchell (1974), using Evan's work, proposed a more complex path-goal theory regarding the effects of leader behavior as it relates to followers. House's theory introduced four specific kinds of leader behavior: directive, supportive, participative, and achievement. The theory also described three subordinate attitudes: job satisfaction, acceptance of the leader, and expectations regarding performance and rewards. The directive leader tends to let subordinates know what is expected of them; the supportive leader tends to see followers as equals; the participative leader consults with followers for input in decision-making; and the achievement-oriented leader sets challenging goals and expects subordinates to perform at the highest possible level and to continually pursue improvement. House's studies suggest that there are four distinct styles that can be used by the same leader in different situations.

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The House and Mitchell (1974) studies led to the following observations:

1. Leader behavior is acceptable and satisfying to the extent that the subordinates perceive such behavior as a source of satisfaction or as instrumental to future satisfaction.
2. Leader behavior will be motivational to the extent that it satisfies subordinates' needs contingent on effective performance and supports the environment of subordinates by providing the guidance, clear direction and rewards needed for effective performance.

The Path-Goal Model suggests that leaders should change the variety of rewards available to followers, and the leader should clearly provide information and support on how such rewards can be obtained. Thus, the leader should help the follower develop realistic expectations and minimize barriers to the successful achievement of goals.

There is considerable criticism of Path-Goal Models. Since relatively few empirical studies have been conducted, researchers question the predictive ability of the model. The critics suggest that follower performance is responsible for change in leader behavior rather than the other way around as predicted by the Path-Goal Model. Other researchers have criticized the inconsistent findings of the available research on the model (Schriesheim & DeNisi, 1979).

Vroom and Yetton (1973) introduced another situational leadership model. Like those previously described, it is prescriptive in nature. However, this model is limited to one dimension of leader behavior; the process by which decisions are made. The Vroom-Yetton Model describes styles of decision-making rather than styles of leadership. The model is defined by five decision-making styles comprising three categories. The

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categories are autocratic, consultative and group. The model also describes seven problem attributes that are situational variables influencing the decision process. The seven attributes are (1) importance of quality, (2) leader information, (3) problem structure, (4) importance of subordinate acceptance to implementation, (5) subordinate acceptance expected if the decision is made independently, (6) subordinate commitment to organizational goals and (7) likelihood of subordinate conflict. These attributes are related to a specific problem or decision as opposed to being ongoing properties of a leader's role. Thus, a leader utilizing the model may choose a different approach for each decision.

The Vroom-Yetton Model utilizes a decision tree and incorporates the seven situational attributes and a feasible set of decision styles in guiding the leader to a decision. The rules of the model are designed to eliminate risks deemed likely to impact negatively on the quality of the decision or the acceptance of the decision by the subordinate. If there is more than one alternative after applying the rules, then the leader makes the choice based on the relative importance of each remaining alternative.

The Vroom-Yetton Model has received some criticism, generally for three reasons. First, the validity of the model is questionable because it relies on self-reported data. Second, the methods used to determine a leader's view of successful and unsuccessful behavior are subjective. Finally, little empirical data are available to support the findings of the model (Field, 1979).

A three dimensional theory on leadership style and leader effectiveness based on The Ohio State Model was developed by Reddin (1967). Reddin concluded that a style

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may be less or more effective according to the situation faced by the leader. Thus, each leadership style will have two counterparts, one less effective and one more effective.

According to Reddin (1970) the essential difference between the less-effective and more-effective style is the ability of the leader to adapt to the situation. He defined three categories of situational style demands:

1. The style demands of the job.
2. The style demands of the superior—corporate philosophy and the style of the superior.
3. The style demands of subordinates—expectations of subordinates and styles of subordinates.

Reddin (1970) integrated the concepts of leadership style with situational demands of a specific environment by adding an effectiveness dimension to The Ohio State Model. Through their particular style of leadership (which includes personality, emotions, behaviors, etc.), leaders could alter situations. Conversely, varying situations could alter the leader's ability to lead. Subordinates, as pointed out by Bass (1990), are important to effective leadership, and there can be a serious failure in the study of leadership if subordinates are not accountable in the study. According to Burns (1978), a serious failure in the study of leadership has been the bifurcation between the literature on leadership and the literature on followership.

Reddin's work forms the basis for Hersey and Blanchard's Situational Leadership Model (SLM). Hersey and Blanchard (1969) developed a two-dimensional, four-quadrant situational leadership model that depicts various combinations of task and

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relationship behavior. The dimensions essentially corresponded to the "initiating structure" and "consideration" dimensions of The Ohio State Model.

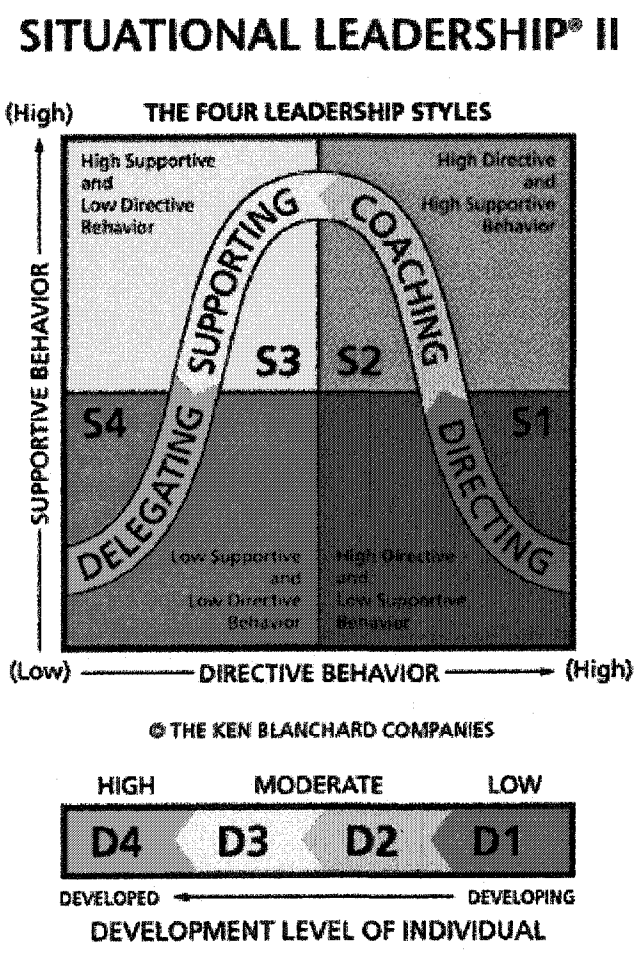
Hersey and Blanchard (1969, 1982) introduced a third dimension similar to Reddin's effectiveness dimension. Their Tri-Dimension Leader Effectiveness Model integrated the concepts of leader style with situational demands of a specific environment. Hersey and Blanchard (1982) suggested that the most effective leader adapts his or her behavior to fit the situation at hand. An appropriate leader style in a specific situation was deemed effective, while an inappropriate style in a specific situation was deemed ineffective.

Apparently in agreement, Bass (1990) states that matching the style of leadership to the needs of the subordinates and the work setting itself was thought to yield the maximum satisfaction between the leader and subordinates.

Hersey and Blanchard (1982) defined four leadership styles adapted from The Ohio State Model. In Blanchard's, Zigarmi's and Nelson's (1993) more recent version the model (Figure 3), leadership patterns are plotted on two different axes to

Figure 3. Situation Leadership® II Model

Adapted from Blanchard, Zigarmi & Nelson (1993)



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determine the leader behavior (supportive and directive).

Originally, high task/low relationship behavior (S1) was referred to as "telling." This style (S1) has been relabeled "directing" to make it easier for leaders to remember the two dimensions of leader behavior—directive and supportive (Blanchard, Zigarmi & Nelson, 1993). One-way communication in which the leader defines the roles of followers and tells them what, how, when and where to do a task characterize a directive style.

High task/high relationship behavior (S2) was originally titled "selling." It was changed to "coaching" because of a theory that managers use a combination of leadership behaviors when developing people's skills, motivation and confidence (Blanchard, et al., 1993). Within this style, the majority of the direction is still provided by the leader. The objective is to get the follower to "buy into" or accept the decisions that have been made.

High relationship/low task behavior (S3) originally referred to as "participating" has been relabeled "supporting" for the same reason "telling" was relabeled. This style allows for shared decision-making through two-way communication, with facilitating behavior provided by the leader. Followers have the ability and knowledge to perform a task. Low relationship/low task behavior (S4) is referred to as "delegating." This style allows the follower to make independent decisions. The follower is willing and able to take responsibility for directing his/her own behavior.

The development level of the follower whose behavior the leader is attempting to influence determines the contingency aspects of Hersey and Blanchard's model. Situational leadership recognizes that the follower's development is not the only variable that influences leadership styles but stresses that it is the most important variable.

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The conceptual framework of SLM includes the interaction among the amount of direction (task behavior) a leader offers, the amount of supportive behavior a leader provides, and the development levels that followers exhibit regarding the specific task the leader is attempting to accomplish. The development level of the follower must be determined before a leadership style can be selected for a specific situation. The quadrant in which the intersection takes place suggests the appropriate style to be used by the leader in that specific situation.

SLM appears to suggest a basic style for each level of development; however, this is not necessarily the case. Followers' development levels may regress, which may make it appropriate for leaders to adjust their style to fit the current situation.

The effectiveness dimension of the model is so named because a performance criterion is used to measure the degree of effectiveness or ineffectiveness of a leader. Also, while the "effectiveness" may appear to be an either/or situation, it fits on a continuum ranging from extremely effective to extremely ineffective.

The variable that determines the appropriate leader behavior is follower development. It refers to the extent to which a follower has mastered the skills necessary for the task and has developed a positive attitude toward the task (Blanchard, et al., 1993). The original SLM terms, "readiness and maturity", were changed to "follower development" because readiness connoted an attention mode while maturity was often related to a person's age and personality. The new model uses "commitment" for "willingness" because being unwilling is interpreted as stubborn in some cultures, and "ability" was changed to "competence" because people often associated ability with natural talents.

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The two dimensions of development (commitment and competence) are scaled from low to high, and result in four levels of task relevant development that can be matched to the appropriate leadership style as indicated in Figure 3. The development levels are defined as follows (Blanchard, et al., 1993):

1. Developmental Level 1 (D1) refers to people in the initial level of development and is high on commitment and low in competence. A follower at this level will require a directing (S1) leadership style.
2. Developmental Level 2 (D2) refers to people who have developed some competence but have low commitment. A person at this level will require a coaching (S2) leadership style.
3. Development Level 3 (D3) refers to people with high competence with variable commitment. A person at this level will require a supporting (S3) leadership style.
4. Development Level 4 (D4) refers to people with high competence and a high commitment level. People at this stage of development require a delegating (S4) leadership style.

In practice, a leader must determine the follower's activity that needs influencing as well as the follower's task relevant developmental level, and then the leader can select and apply the appropriate leadership style for that situation. However, this may be practical only when a leader is adaptable enough to enable himself or herself to select and employ the appropriate leadership style needed for the specific situation. Hersey and Blanchard (1982) state:

> An individual's style range is the extent to which that person is able to vary his or her leadership style. Leaders differ in their ability to vary their

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> style in different situations. Some leaders seem to be limited to one basic style. These rigid people tend to be effective only in situations in which their styles are compatible with the environment. Other leaders are able to modify their behavior to fit any of the four basic styles; still others can utilize two or three styles. Flexible leaders have the potential to be effective in a number of situations. (p. 234)

SLM implies that the leader should help followers in their development as far as followers are competent and committed to do the activity. The development is facilitated by rewarding the follower with positive reinforcement and by reducing the control over the follower's activities and relationship behavior. Also, in the application of SLM, leaders must regularly reassess the follower's development level, regardless of past development levels (Hersey & Blanchard, 1988).

Hersey, Blanchard and Johnson (2001) state that leaders develop their style over a period of time from experience, education, and training (p. 146). They further state that the leadership style of an individual is the behavior pattern, as perceived by others, that a person exhibits when attempting to influence the activities of those others. This may be very different from a person's own perception, which they define as self-perception rather than style (p. 117). Hersey, Blanchard and Johnson argue that consistent leadership is not using the same leadership style all the time, but using the style appropriate for the follower's level of readiness in such a way that followers understand why they are getting a certain behavior, a certain style, from the leader. Inconsistent leadership is using the same style in every situation (p. 121).

Application of Hersey and Blanchard's Situational Leadership Model

Hersey and Blanchard's Situational Leadership Model (SLM) has been adapted in various forms by a wide range of individuals and organizations (Irgens, 1995).

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Occupational specific models based on Hersey and Blanchard's model have been developed for diverse groups/individuals from engineers (Smith, 1991) to military leaders (Waddell, 1994). However, the research literature contains a limited number of studies on Hersey and Blanchard's leadership model.

There are some that feel the situational leadership models have not been empirically validated (Craeff, 1983; House, 1997; Johanson, 1990). A study involving 459 employees of a national retail chain generally did not support Hersey and Blanchard's model. The study shows that neither situational leadership's major proposition (leader behavior-readiness interaction) nor the specific, ordered predictions of Hersey and Blanchard (1988) were supported (Goodson, McGee & Cashman, 1989). Another study involving resident employees at two universities resulted in similar findings of no support for the assumptions and predictions of SLM. The study focused on basic assumptions of SLM by examining subordinate performance and satisfaction with supervision and work incidents of leader effectiveness (Blank, Weitzel & Green, 1990). A study involving 12 higher education institutions which tested the validity of measures of employee job readiness also showed lack of support for SLM assumptions about the relationship between readiness and achievement motivation (Wang & Knight, 1991).

There is literature that supports or suggests that SLM holds true in some cases. A study involving 159 managers in the Xerox Corporation resulted in limited support of Hersey and Blanchard's model (Hambleton & Gumpert, 1982). The study examined SLM predictions that high-performing managers will be rated higher than low performers in leader effectiveness and flexibility. A 1987 study involving 303 teachers from 14 high

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schools and measuring situational leadership core variables of follower maturity, performance, satisfaction with supervisor, supervisory style and quality of leader member exchange resulted in limited support for Hersey and Blanchard's model (Vecchio, 1987). In a follow-up to the 1987 study, research was conducted to examine the validity of situational leadership within the health-care industry. The study involved 105 nursing staff members at a private hospital that also resulted in limited support for Hersey and Blanchard's model (Norris & Vecchio, 1992). Finally, a study involving middle managers at hospitals resulted in support for Hersey and Blanchard's 1982 model. The study concluded that the model provided a structure for a leader to identify the task, to determine an individual's or group's maturity, to select an appropriate leadership style, and to adjust his or her behavior as change occurs (Waller, Smith & Warnock, 1989).

Summary of the Literature

The review of the literature began by providing a terse comparison between project work and operations work, a brief background on project management and a synopsis of the literature on PMs and leadership. In the section on PMs and leadership, the following aspects were discussed:

- The importance of a PM's leadership
- The wide variety of roles, responsibilities and functions that PMs must routinely perform, as well as the demands and difficulties they must face
- The selection and assignment of qualified PMs
- Uniqueness of engineering and construction PMs

Next, the literature review focused on the differences between U.S. PMs and their international counterparts before providing a compendium on the evolution of leadership

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theories and models: Trait Theories, Personal Behavioral (Best Style) Theories, and Contingency or Situational Theories and Models. This chapter concluded with the literature on the application of Hersey and Blanchard's Situational Leadership Model (1969).

The literature review demonstrates the need for additional research examining leadership behaviors (practices), as defined by a specific model of leadership, of PMs with domestic experience and international experience.

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CHAPTER III

METHODOLOGY

Introduction

The objective of this research was to extend the body of knowledge on leadership practices of PMs assigned to U.S. domestic and international projects in large, U.S.-based engineering and construction firms. Chapter III describes the design of a study to compare the self-perceived leadership styles of PMs with U.S. domestic experience to those of PMs with international experience. Leadership styles are operationalized as the behaviors (practices) of a leader per the Situational Leadership® II Model (Blanchard, et l., 1993).

This chapter identifies the research questions, states the hypotheses of the study, identifies the population and sample, provides a description of and rationale for the survey instruments used, identifies the variables and measures, and states how the data were collected and analyzed.

While variables and measures will be discussed in a later section, one measure deserves defining and explanation at the outset of this chapter. Since a portion of this study was to determine whether a PM's international experience affects his/her leadership behaviors (styles), the researcher developed a measure (an independent variable) termed "degree of internationality" (DOI) that attempts to quantify a PM's cumulative

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Table 3

Degree of Internationality—Points and Criteria

International Points	Criteria for Degree of Internationality (DOI)
1	Every different country lived in for ≥ 1 year
1	High School diploma or equivalent diploma obtained outside the U.S.
1	Each college degree awarded in a country different from where the High Diploma (or equivalent diploma) or other college degrees were awarded
1	Each language within which one is fluent in addition to English
1	Worked on international projects for 1-4 years
2	Worked on international projects for 5 or more years
1	Project Manager for 1-3 international projects
2	Project Manager for 4 or more international projects
1	11 or more years since last assignment as a project manager for an international project
2	6 – 10 years since last assignment as a project manager for an international project
3	0 - 5 years since last assignment as a project manager for an international project

international experience. Points were allotted for various kinds of international experiences. Table 3 provides the criteria that were utilized to assign the international points. The criteria were based on the fact that all the PMs in this study work for a U.S.-based engineering and construction firm that requires them to be able to conduct business in English. Hence, an English only speaking PM who has never lived outside the U.S. for greater than one year and whose entire education and work experience is all within the U.S. was assigned zero international points for his/her DOI. In contrast, a multilingual PM who was educated, lived, and worked in many different countries would be assigned international points based on those experiences. For example, a PM who had lived in three different countries other than his/her country of origin for more than one year, had a high school diploma (equivalent) from England, a bachelors degree from France, and a

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Masters degree from Germany, and is fluent in three languages in addition to English, was assigned nine international points—3 points for living in different countries, one point for high school diploma outside U.S., two points for college degrees from different countries, and three points for fluently speaking three languages in addition to English.

Research Questions and Hypotheses

Two research questions guided this study:

1. Are there differences in leadership style, primary leadership style, leader behavior, style flexibility or style effectiveness, as measured by LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience?
2. Is there a linear relationship between the leadership style, primary leadership style, leader behavior, style flexibility or style effectiveness, as measured by the LBAII®-Self, and a PMs' cumulative international experiences?

The following null and alternative hypotheses were used to explore the two research questions:

H_{01} There are no differences in the mean response frequency for each leadership style, as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience.

H_{A1} There are differences in the mean response frequency for each leadership style, as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both domestic and international PM experience.

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H_{02} There are no differences in primary leadership style, as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience.

H_{A2} There are differences in primary leadership style, as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both domestic and international PM experience.

H_{03} There are no differences in the mean response frequency for each leader behavior, as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience.

H_{A3} There are differences in the mean response frequency for each leader behavior, as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience.

H_{04} There are no differences in the mean style flexibility scores, as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience.

H_{A4} There are differences in the mean style flexibility scores, as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience.

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H_{05} There are no differences in the mean style effectiveness scores, as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience.

H_{A5} There are differences in the mean style effectiveness scores, as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience.

H_{06} There is no linear relationship between leadership style, as measured by the LBAII®-Self, and a PM's degree of internationality.

H_{A6} There is a linear relationship between leadership style, as measured by the LBAII®-Self, and a PM's degree of internationality.

H_{07} There is no linear relationship between the probability of a primary leadership style, as measured by the LBAII®-Self, and a PM's degree of internationality.

H_{A7} There is a linear relationship between the probability of a primary leadership style, as measured by the LBAII®-Self, and a PMs' degree of internationality.

H_{08} There is no linear relationship between leader behavior, as measured by the LBAII®-Self, and a PM's degree of internationality.

H_{A8} There is a linear relationship between leader behavior, as measured by the LBAII®-Self, and a PM's degree of internationality.

H_{09} There is no linear relationship between style flexibility, as measured by the LBAII®-Self, and a PM's degree of internationality.

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H_{A9} There is a linear relationship between style flexibility, as measured by the LBAII®-Self, and a PM's degree of internationality.

H_{010} There is no linear relationship between style effectiveness, as measured by the LBAII®-Self, and a PM's degree of internationality.

H_{A10} There is a linear relationship between style effectiveness, as measured by the LBAII®-Self, and a PM's degree of internationality.

Population

The population for this study consists of PMs working for a single large international engineering and construction firm, headquartered in the United States. The firm has more than 38,000 employees at work in 43 states and in more than 35 countries. In this study, the research surveyed the entire population of PMs assigned to the firm's U.S. domestic projects and/or international projects.

Description of Instruments

Two instruments were used in this study to survey PMs:

1) The Leader Behavior Analysis II®–Self (LBAII®-Self), see Appendix C.
2) Demographics Questionnaire, see Appendix D.

The LBAII®-Self, published by Blanchard Training Development Corporation in 1999, consists of 20 descriptive leader-follower situations with four typical actions from which a respondent must chose the one that he/she thinks most closely states what actions should be taken. The LBAII®-Self yields six different scores, two primary and four secondary.

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The two primary scores are the style flexibility score and the style effectiveness score. The style flexibility score is a numerical indicator of how often the respondent chooses a different style (S1, S2, S3 and S4) to solve each of the 20 situations in the LBAII®-Self. The more frequently a respondent chooses a single style over the 20 situations, the less flexibility is evidenced. The more evenly the four choices appear over the 20 situations, the higher style flexibility score. The style flexibility score ranges from 0-30 and can be subjected to traditional parametric statistical analysis (Zigarmi, et al., 1997).

The style effectiveness score is a numerical representation of the respondent's appropriate use of the chosen style in light of the situation described. For the LBAII®-Self, the style effectiveness score is an indicator of the respondent's diagnostic skill in choosing the appropriate style advocated by the SLM. There are five situations in which each of the four styles (S1, S2, S3 and S4) would be more effective according to the model. A value of 4 is assigned to excellent, 3 to good, and 1 to fair and poor answers. If the respondent chooses all fair or poor answers, the score will be computed by multiplying

1 x 20 questions answered to produce a score of 20 points. If the respondent chooses all excellent answers, the score will be computed by multiplying 4 x 20 questions answered to produce a score of 80 points. Thus, the style effectiveness score can range from a low of 20 points to a high of 80 points and can be subjected to parametric statistical analysis (Zigarmi, et al., 1997).

The four secondary scores are for the leadership styles, S1 to S4, which are determined by totaling the number of times a respondent chooses a particular style out of

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the four within the twenty opportunities to do so. Since choosing one style from four excludes the other three in each situation answered, the data must be subjected to non-parametric analysis in most cases. The style that occurs most frequently is the leader's primary style. Styles occurring four or more times are considered secondary styles. styles occurring 3 or less times are considered developing styles. It should be remembered that the style score is an "extracted" subscore of effectiveness or flexibility and, therefore, does not reflect the concept of diagnosis or appropriate use. The cumulative style score does, however, reflect the amount of direction and support most frequently chosen by the respondent at the time the data were collected (Zigarmi, et al., 1997).

The demographics questionnaire was developed by the researcher, in consultation with the executive and senior management of the organization being surveyed, to capture data that may influence how a PM responds in the LBAII®-Self and determine the PM's DOI. The Demographics Questionnaire captured the following selected data: (1) gender; (2) age; (3) country of origin (birth), countries lived in, and the amount of time lived in each country; (4) education level and type, country where education was received, and when (year) degrees were awarded; (5) language fluency; (6) operating unit; (7) general work experience, U.S. domestic PM experience, international PM experience, and time elapsed since last international PM assignment; (8) project size, type, scope, and contract type; and (9) project management certifications and their respective issuing organizations, as well as the year the certification was awarded.

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Instrument Rationale

The LBAII®-Self was developed for research purposes and measures self-perception of three aspects of leader behavior: leadership style, style flexibility, style effectiveness. It is a 20-item, enlarged version of the leadership style measurement instrument known as the LEAD-Self (Hersey & Blanchard, 1982). The LEAD-Self, because of its brevity and simplicity, was designed principally for applications in training situations. However, the LBAII®-Self is structured similarly to the LEAD-Self and yields similar results. The broader range of scores makes the LBAII®-Self a more useful research instrument (Hambleton & Gumpert, 1982).

The LBAII®-Self items correlate with the items of the Leader Behavior Description Questionnaire (LBDQ), which has been widely employed in leadership research (Bass, 1981). Styles 1 and 2 of the LBAII®-Self correlate with the LBDQ dimension of initiating structure; Styles 3 and 4 correlate with the consideration or relationship behavior.

The LBAII®-Self has been used in research and similar studies involving U.S. Department of Defense information systems PMs (Price, 1993). The copyright for this latest version of the instrument was obtained in 1999 by Blanchard Training and Development, Inc. Permission to use the LBAII®-Self was secured from holders of the copyright (Appendix B).

The demographics questionnaire collects a fairly extensive set of data about each respondent. Even though some of the demographic data were not needed to test the hypotheses, they were collected at the request of the executive and senior management of the participating company. In addition to collecting much of the same basic institutional

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and personal variables identified in previous applications of the LBAII® (Zigarmi, et al., 1997), the demographics questionnaire collected data deemed applicable to engineering and construction PMs working on either U.S. domestic or international projects. Also, this collection of demographic data was more extensive and in greater detail than those of previous studies primarily because of the comparative nature of this study.

Since part of this study was trying to determine whether there are any differences in the attributes of self-perceived leadership of PMs with U.S. domestic PM experience as compared to those with international PM experience, some "non-routine" data were collected to determine the PM's DOI. While the routinely studied factors of age, gender, education level and type, and overall work experience have their place, the overall conclusion is that they have little influence one's leadership behavior, at least those behaviors measured by the LBAII® (Zigarmi, et al., 1997). The collection of "non-routine" data allowed the researcher to explore, at least in a general way, if the cumulative international experience of an engineering and construction PM may affect his/her leadership behaviors (styles).

One of the premises behind the Situation Leadership Model is that a leader's leadership style should depend on the follower and the situational conditions present. From the literature, it is evident that U.S. domestic situations are quite different from international situations. Therefore, it is appropriate to test for differences in the attributes of leadership style between managers with only U.S. domestic experience and managers with international experience.

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Variables and Measures

The dependent and independent variables are given in Table 4. The primary focus of this study was to determine if there are any differences in the dependent variables

Table 4

Variables—Dependent and Independent

Dependent Variables	Independent Variables
Leadership Style	Only U.S. domestic PM experience
Primary Leadership Style	Only international PM experience
Leader Behavior	Both U.S. domestic and international PM experience
Style Flexibility	Degree of Internationality (see Table 3.1 for details)
Style Effectiveness	

(leadership style, primary leadership style, leader behavior, style flexibility, and style effectiveness) based on the independent variables (only U.S. domestic PM experience, only international PM experience, both U.S. domestic and international PM experience, and degree of internationality).

To more easily identify a different educational type (type of degree) for each different college educational level (Associates, Bachelors, Masters, Doctorate), a two digit code is assigned per the matrix in Table 5. The first digit represents the education type and second digit the educational level.

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Table 5

Codes for Different College Educational Type/Level

College Educational Type / Level	Unspecified	Management	Technical	Other
Associates	1	11	21	31
Bachelors	2	12	22	32
Masters	3	13	23	33
Doctorate	4	14	24	34

Data Collection

A cover letter introducing and explaining the nature and purpose of the research study along with an instruction sheet and the two survey instruments was sent to all participants. The letter (see Appendix E) described the relevance and importance of the study, provided directions for completing the questionnaires, and assured the participants of confidentiality. Respondents were asked to return the surveys by a specified date. In order to improve response rate, the cover letter was signed by the company's Chief Operating Officer.

The instruction sheet, Appendix F, provided guidance and detailed instruction for completing and returning the survey instruments. In addition, the instruction sheet contained a "block" for the respondent to simply check off that he/she was currently not performing project management responsibilities and return only the instruction sheet.

A follow-up reminder notice, Appendix G, was sent to each PM reminding them of the importance of fully completing both questionnaires and returning them. A response rate of those surveyed was calculated during the actual research.

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Data Analysis

After collection, the data were scored using the LBAII®-Self scoring procedures, which produced the following scores for the PMs.

1. Average Style Flexibility Score and Standard Deviation
2. Average Style Effectiveness Score and Standard Deviation
3. Average Style Score Means and Standard Deviations to Styles 1 through Styles 4
4. Percent of Primary Styles 1 through Styles 4
5. Maximums and Minimums of Style Flexibility Scores, Style Effectiveness Scores, and Percents of Primary Styles

The data were screened to reduce possible problems caused by missing data and inconsistencies. The null hypotheses were tested as follows:

H_{01} Oneway ANOVA of the mean response frequency for each leadership style by PM experience.

H_{02} Contingency analysis, Likelihood Ratio, and Pearson Product for primary leadership style by PM experience

H_{03} Oneway ANOVA of the mean response frequency for each leadership style by PM experience.

H_{04} Oneway ANOVA of the mean style flexibility scores by PM experience.

H_{05} Oneway ANOVA of the mean style effectiveness scores by PM experience.

H_{06} Bivarate fit and ANOVA of each leadership style by DOI.

H_{07} Logisitic fit of each primary leadership style by DOI

H_{08} Bivarate fit and ANOVA of each leadership behavior by DOI

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H_{09} Bivarate fit and ANOVA of style flexibility scores by DOI

H_{010} Bivarate fit and ANOVA of style effectiveness scores by DOI

Statistical computations and analyses were performed using commercially available statistical analysis software. All statistical tests were conducted as two-tailed tests using an alpha value (significance level) of .05.

Summary of Methodology

This chapter identified the research questions and stated the hypotheses upon which the study was based. Engineering and construction PMs, of a single large, U.S.-based engineering and construction firm, were defined as the population to be studied. The survey instruments were described and the rationale for their use presented. Variables and measures were identified. Finally, how the data were collected and analyzed was presented.

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CHAPTER IV

ANALYSIS AND PRESENTATION OF FINDINGS

Introduction

This chapter presents the data analysis and the findings of this study. The purpose of this study was to examine whether there are any differences in the attributes of leadership styles, as measured by LBAII®-Self, between three categories of PMs with: 1) only U.S. domestic PM experience, 2) only international PM experience, and 3) both U.S domestic and international PM experience. A secondary purpose was to explore whether there is a linear relationship between the attributes of leadership styles, as measured by LBAII®-Self, and a PM's cumulative international experience.

The company identified 475 individuals who by their titles held positions with project management responsibilities for engineering and construction projects. All 475 potential PMs were mailed a survey package that contained:

1) An instruction sheet, which included instructions for simply checking a box and returning the instruction sheet to indicate that he/she does not currently have project management responsibilities. See Appendix F.
2) A cover letter signed by the company's Chief Operating Officer encouraging participation in this study. See Appendix G.
3) The Leader Behavior Analysis II®–Self (LBAII®-Self). See Appendix D.

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4) A demographic questionnaire. See Appendix E.

5) A return envelope addressed to the researcher.

There were 272 respondents, for a response rate of 57.3%. 87 (32.0%) of the returned instruments were not acceptable for inclusion in the analysis of the data because they were:

1) Incomplete in that they contained omissions or were incorrectly completed

2) Not acceptable in that the recipient was not currently performing project management responsibilities as per the instruction sheet, Appendix F.

Thus, the final sample for the study contained a total of 185 (38.9%) individuals who returned surveys. However, Table 6 demonstrates that 185 participants represent a response rate of 45.6% only when one considers those participants who potentially have current project management responsibilities (Net Potential Current PMs Surveyed, Line 6 of Table 6).

Table 6

Survey Response Summary

Description	N
1) Surveys mailed to potential current PMs	475
2) Returned survey as not currently a PM	54
3) Gross potential current PMs (1-2)	421
4) Returned surveys of gross potential current PMs	218
5) Currently not PM based on Demographics	15
6) Net potential current PMs surveyed (3-5)	406
7) Returned surveys of net potential current PMs (4-5)	203
8) Returned both questionnaires blank	1
9) Returned that didn't answer LBAII®-Self	4
10) Returned that didn't fully answer LBAII®-Self	8
11) Returned that didn't answer Demographics	2
12) Inconsistent or conflicting responses in Demographics	3
13) Net fully complete (good) surveys (7-9-10-11-12)	185
Percent of acceptable surveys for net potential PMs (13/6)	45.6%

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For the 185 acceptable responses, the Cronbach's alpha coefficients were calculated for the LBAII®-Self. Appendix T contains the Cronbach's alpha coefficients calculated when a particular leadership style question is excluded and the coefficients for an entire set of leadership style questions, which are as follows: S1=0.15; S2=0.35; S3=0.32; and S4=0.39. These leadership style coefficients are slightly lower, significantly lower for S1, than those reported in previous studies for the LBAII®-Self (Zigarmi, et al., in 1997). The significantly lower S1 coefficient may be due to PMs being expected to avoid S1 behavior and to be interpersonal in their management style.

The findings of the study are presented under the following categories:

1. Demographic description of the project managers
2. Cumulative international experience of the project managers
3. Leadership styles of the project managers
4. Leader behavior of the project managers
5. Style flexibility of the project managers
6. Style effectiveness of the project managers
7. Comparison of style flexibility to style effectiveness
8. Research question one and tested hypotheses
9. Research question two and tested hypotheses
10. Summary of the results

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Demographic Description of the Project Managers

The gender of the 185 participating project managers was overwhelmingly male, 176 (95.1%) males compared to 9 (4.9%) female. Table 7 shows the age distribution of

Table 7

Age Distribution of Participants (N=185)

Age Category (Years)	n	%
Less than 25	0	0.0
25-34	1	0.5
35-44	39	21.1
45-54	83	44.9
55 and older	62	33.5

the participants by age category. The age distribution is skewed towards the older age categories, with 145 (78.4%) participants over the age of 45 and only 1 (0.5%) participant under the age of 35. With 62 (33.5%) over the age of 55, approximately a third of the participants are likely to retire in the next few years.

The 185 PMs who participated in the survey represented a wide range of U.S. domestic and international work experience, as well as each of the seven operating units of the company. The project managers participating by operating unit are shown in Appendix H. 115 (62.2%) of the participants were from only two of the operating units while two of the operating units had a combined total of 4 (2.1%) participants.

The participants' education levels, represented as quantitative values, are summarized in Table 8. The average PM had a bachelors degree (mean of 3.05). A more detailed breakdown of the participants by education level, presented in Table 9, shows that 157 (84.9%) have a bachelors degree and 56 (30.3%) have at least one masters degree. Table 10 shows that when one looks at the participants' highest education level,

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Table 8

Participants' Education Level as a Quantitative Value

Demographic Variable	N	Mean	Std Dev	Range
Participants' education level	185	3.05	0.86	0-4

Note: The following values were assigned to each education level: 0 = No High School Diploma, 1 = High School Diploma and General Education Development (GED), 2 = Associate Degree, 3 = Bachelors Degree, 4 = Masters Degree, and 5 = Doctorate Degree.

Table 9

Participants by Each Education Level (N=185)

Education Level	n	%
No High School Diploma	2	1.1
General Education Development (GED)	4	2.2
High School Diploma	164	88.6
No Response for High School	15	8.1
Associate Degree	27	14.6
Bachelors Degree	157	84.9
Masters Degree	56	30.3
Doctorate Degree	0*	0.0

* One doctoral candidate that still needs to complete dissertation

Table 10

Participants' Highest Education Level (N=185)

Highest Education Level	n	%
No High School Diploma	0	0.0
High School Diploma or GED	18	9.7
Associate Degree	10	5.4
Bachelors Degree	101	54.6
Masters Degree	56	30.3
Doctorate Degree	0*	0.0

* One doctoral candidate that still needs to complete dissertation

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all PMs have a least a high school diploma or GED. From the highest education level perspective, 167 (90.3%) have completed two or more years of college education. It is interesting to note that the two participants who did not have a high school diploma went on to obtain college degrees, one a bachelors and the other an associates, bachelors and masters.

For participants with college degrees, Table 11 shows the number and percentage of participants by education type for each education level. Technical degrees dominated

Table 11

Education Type for Each College Education Level

Education Type	n	%
Associates Degree (N=27)		
Technical	17	63.0
Management	1	3.7
Other	2	7.4
Unspecified	7	25.9
Bachelors Degree (N=157)		
Technical	121	77.1
Management	11	7.0
Other	1	0.6
Unspecified	22	14.0
Technical and Management	1	0.6
Technical and Unspecified	1	0.6
Masters Degree (N=56)		
Technical	26	46.4
Management	19	33.9
Other	0	0.0
Unspecified	6	10.7
Technical and Management	4	7.1
Technical and Other	1	1.8

the associates' (63.0%) and bachelors' (77.1%) education levels, and accounted for the largest portion of the masters' (46.4%) education level. The percentage of participants

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with technical degrees further increases when one includes those with a combination of technical and management, technical and other, and technical and unspecified degrees at the bachelors and masters education levels, 78.3%, and 55.3%, respectively. Unspecified education type, where a major was not specified, was a significant portion of the associates', bachelors', and masters' education levels, 25.9%, 14%, and 10.7%, respectively. Note that a relatively significant portion of the unspecified education type is likely to be technical degrees.

Table 12 shows the number and percentage of college degreed participants by education type for their highest college degree. 111 (66.5%) of the college degreed

Table 12

Education Type of Highest College Degree (N=167)

Highest College Degree-Education Type	n	%
Technical	111	66.5
Management	28	16.8
Other	1	0.6
Unspecified	21	12.6
Technical and Management	5	3.0
Technical and Other	1	0.6

participants specified that they have a technical degree, 28 (16.8%) have a management degree, and only 1 (0.6%) had an "other" degree type as their highest college degree. Only 6 (3.6%) had a combination of either technical and management degrees or technical and other degrees as their highest college degree. Noteworthy is that 21 (12.6%) of the participants did not specify the major of their highest college degree.

From an international perspective, 12 (6.5%) of the participants were awarded their high school diplomas outside the U.S. and only 6 (3.6%) of the participants were awarded their college degrees outside the U.S.

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Table 13 shows the number and percentage of participants by their years of general work experience and PM experience. The number of years that each participant

Table 13

Participants' Years of General Work Experience and PM Work Experience (N=185)

Timeframe (Years)	General Work Experience n	General Work Experience %	PM Work Experience n	PM Work Experience %
Less than 1	0	0.0	0	0.0
1-5	0	0.0	39	21.1
6-10	2	1.1	41	22.2
11-15	12	6.5	44	23.8
16-20	10	5.4	32	17.3
21-25	43	23.2	23	12.4
26 and greater	118	63.8	6	3.2

has been in the workforce is skewed to the longer timeframes. 118 (63.8%) respondents have 26 or more years of general work experience and 161 (87%) had 21 or more years of general work experience. None of the participants had 5 or less years of general work experience and only 2 (1.1%) had 10 or less years of general work experience.

For PM work experience, Table 13 shows that the participants are relatively evenly distributed over the mid-timeframes. Approximately, two-thirds (124 or 67.1%) of the participants have 15 or less years experience as a PM. No participant had less than one year of PM work experience and six (3.2%) have more than 26 years of PM work experience. With 188 (63.8%) of the participants with over 26 years of work experience, the PMs have significant amounts of general work experience but have somewhat limited amounts of PM work experience.

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A more detailed look at the participants' U.S. domestic and/or international PM experience is presented in Table 14. In terms of their projects with the largest total

Table 14

U.S. Domestic and International PM Experience of Participants (N=185)

PM Experience	n	%
U.S. Domestic Only	116	62.7
International Only	4	2.2
U.S. Domestic and International	65	35.1
Currently U.S. Domestic	161	87.0
Currently International	24	13.0

installed costs (TIC), currently 161 (87.0%) of the participants are assigned as PMs to U.S. domestic projects and 24 (13.0%) to international projects. From the participants' entire career standpoint, 116 (62.5%) have only U.S. domestic PM experience, 4 (2.2%) only international PM experience, and 65 (35.1%) both U.S. domestic and international PM experience. While over a third of the participants have both U.S. domestic and international PM experience, the participants' PM experience is predominately U.S. domestic.

As presented in Table 15, the vast majority of the participants with international PM experience have recent experience. 56 (81.2%) have been a PM of an international

Table 15

Time Elapsed Since Participant's Last International PM Experience (N=69)

Time Elapsed (Years)	n	%
0 to 5	56	81.2
5 to 10	6	8.7
11 and greater	7	10.1

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project within the last 5 years. Only 7 (10.1%) have not been the PM of an international project within the last 10 years.

As for the participants' country of origin (birth), the vast majority of the participants were born in the U.S., 166 (89.7%) compared to 19 (10.3%) who were born outside the U.S. As to the participants' other international experiences, 72 (38.9%) of the participants have lived in a country other than their country of origin for at least one year. 27 (14.6%) of the participants reported being fluent in at least one language in addition to English.

By project size in terms of total installed cost (TIC), the participants were responsible for a wide range of projects. Table 16 shows the mean TIC is $225K with a

Table 16

Project Size in Terms of Total Installed Cost (TIC)

Demographic Variable	N	Min	Max	Median	Mean	Std Dev
Total Installed Cost (TIC)	185	$0.5K	$3500K	$56K	$225K	$454.2K

$454.2K standard deviation. A few very large contracts increased the mean, as well as the standard deviation, for the project's TIC.

The number and percentage of participants by contract type are shown in Table 17. For their largest projects in terms of TIC, 112 (60.5%) of the participants were PMs for projects under reimbursable contracts and 68 (36.8%) were PMs for projects under fixed price contracts. 5 (2.7%) of the participants did not specify a contract type.

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Table 17

Participants per Contract Type (N=185)

Contract Type	n	%
Reimbursable	112	60.5
Fixed Price	68	36.8
Unspecified	5	2.7

In terms of the number and percentage of participants by project scope, Table 18 shows that the majority of the participants (116, 62.7%) are PMs for engineering, procurement, and construction projects. 12 (6.5%) of the participants either did not

Table 18

Participants per Project Scope (N=185)

Project Scope	n	%
Construction Only	17	9.2
Engineering Only	8	4.3
Engrg, Procurement, & Constr.	116	62.7
Construction Management	32	17.3
Other or Unspecified	12	6.5

indicate a project scope or indicated a project scope other than one of the options provided in the demographics questionnaire. Note that "Engineering Only" was added as a project scope category because 8 (4.3%) of the participants indicated their project scope as such.

25 (13.5%) of the participants were certified Project Management Professionals by the Project Management Institute. Interesting to note is that by operating units, 22 (88.0%) of the certified PMs worked for Energy and Environment. Only 1 (0.4%) of the

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certified PMs was female. All 25 (100%) of the certified PMs were currently assigned to U.S. domestic projects.

In summary, the demographics of the participants show that they are a fairly homogenous group. In general, the PMs have the following attributes:

1. Born in the U.S.
2. Male over the age of 45
3. Fluent only in English
4. Earned a bachelors degree in technical field
5. Over 20 years of general work experience
6. 15 or less years of PM experience
7. Primarily U.S. domestic PM experience

Cumulative International Experience of the Project Managers

The demographics questionnaire provides the data for determining the "degree of internationality" (DOI), a quantitative number representing a PM's cumulative international experience. DOI points were allotted and summed for each PM's various types of international experiences according to the criteria specified in Table 3. While more DOI points are awarded for greater international experiences, all DOI points are equally weighted. Therefore, this study did not attempt to differentiate or determine the degree (weighted value) to which each international experience contributed to the participants' DOI values.

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The distribution of the DOI values for all the PMs is shown is Figure 4. As Figure 4 shows, the DOI of the PMs is greatly skewed to the lower values. 84 (45.4%) of the PMs have a DOI of zero, indicating that they are an English-only-speaking PM who has never lived outside the U.S. for greater than 1 year and whose entire education and work experience are within the U.S. Only 10 (5.4%) had a DOI of greater than 10. Considering that 166 (89.7%) of the participants were born in the U.S. and that 116 (62.7%) have only U.S. domestic PM experience, it is not surprising that the participants' overall DOI values are relatively low.

Figure 4. Participants' Distribution of Degree of Internationality (DOI)

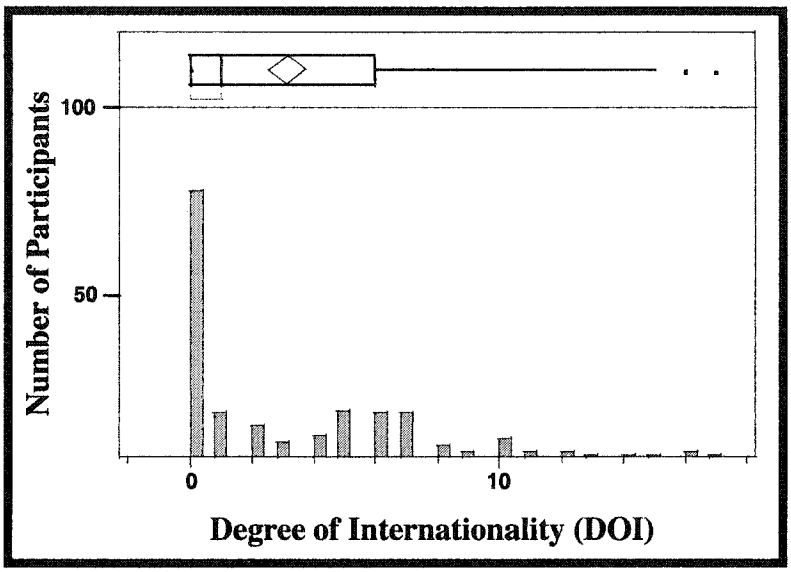

Table 19 provides a summary of the DOI values by category of participants. As one would expect, the participants with only U.S. domestic PM experience have a relatively low mean DOI value (0.58) and participants with only international PM experience have a relatively high mean DOI value (11.75). The participants with both domestic and international PM experience have a mean DOI value of 7.18.

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Table 19

Participants' Cumulative Degree of Internationality (DOI) by Category of Participants

Category of Participants	Degree of Internationality (DOI)						
	N	Min	Max	Mean	SD	SEM	95% CI
All Participating PMs	185	0	17	3.14	3.96	0.291	2.57—3.71
Domestic Only	116	0	6	0.58	1.14	0.106	0.37—0.79
International Only	4	7	16	11.75	4.03	2.016	7.80—15.70
Domestic & International	65	1	17	7.18	2.98	0.370	6.46—7.91

In summary, the DOI provides a quantitative (unweighted) measure of the participants' cumulative international experiences that can be used as an independent variable upon which the attributes (dependent variables) of self-perceived leadership styles can be measured.

Leadership Styles of the Project Managers

Leadership style was determined through the use of the Leader Behavior Analysis II®-Self (LBAII®-Self). It is designed to assess the self-perceived leadership style of the participant. The instrument describes 20 different leadership situations and provides four leadership alternatives for each situation. Each of the leadership alternatives corresponded to one of Hersey and Blanchard's Leadership styles: Directing (S1), Coaching (S2), Supporting (S3), and Delegating (S4). Each style is the optimal choice in 5 of the 20 leadership situations. The leadership style profile for each participant is determined by summing the frequency with which each leadership style was selected for

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all 20 leadership situations. Table 20 provides a summary of the participants' cumulative response frequencies for each leadership style profile by category of participants. The style selected most frequently is the participant's primary leadership style. The PMs' primary leadership styles are presented in Table 21. The most frequent primary leadership styles identified for all the participants were supporting (60.0%) and coaching (33.0%), both high supportive styles. The low supportive and low directive leadership style of delegating was identified by 2.2 percent of PMs as their primary leadership style. The low supportive and high directive leadership style of directing was not identified as a primary leadership style by any of the PMs. Nine (4.8%) of the PMs had two primary leadership styles; that is, they scored equally high in two leadership styles. Six of the nine PMs with two primary leadership styles had both coaching (S2) and supporting (S3), both of which are high supportive behaviors. Two of the nine PMs with two primary leadership styles had both supporting (S3) and delegating (S4), both of which are high directive behaviors. The final remaining PMs with two primary leadership styles had the opposing combination of high directive/high supportive and low directive/low supportive behaviors or coaching (S2) and delegating (S4), respectively.

Of the participants with only U.S. domestic PM experience, the most frequent primary leadership styles were supporting (58.6%) and coaching (39.0%), both high supportive styles. The low supportive leadership style of delegating was identified by 1.7 percent of participants with only domestic PM experience as their primary leadership style. Seven (6.0%) of the participants with only U.S. domestic PM experience had two primary leadership styles. 4 of these 7 had both coaching (S2) and supporting (S3) as their primary leadership styles.

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Table 20

Leadership Style Response Frequencies by Category of Participants

Category of Participants	N	Leadership Style Response Frequencies							
		Directing (S1)[a]		Coaching (S2)[b]		Supporting (S3)[c]		Delegating (S4)[d]	
		n	%	n	%	n	%	n	%
All Participating PMs	3700	260	7.0	1241	33.5	1594	43.1	605	16.4
Domestic Only	2320	154	6.6	783	33.8	996	42.9	387	16.7
International Only	80	9	11.3	38	47.5	23	28.8	10	12.5
Domestic and International	1300	97	7.5	420	32.3	575	44.2	208	16.0

[a]Directing: High directive (task), low supportive (relationship) behavior
[b]Coaching: High directive (task), high supportive (relationship)behavior
[c]Supporting: Low directive (task), high supportive (relationship) behavior
[d]Delegating: Low directive (task), low supportive (relationship) behavior

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Table 21

Primary Leadership Styles by Category of Participants

Category of Participants	N	Primary Leadership Style													
		(S1)[a]		(S2)[b]		(S3)[c]		(S4)[d]		(S2S3)[e]		(S2S4)[f]		(S3S4)[g]	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Participating PMs	185	0	0.0	61	33.0	111	60.0	4	2.2	6	3.2	1	0.5	2	1.1
Domestic Only	116	0	0.0	39	33.6	68	58.6	2	1.7	4	3.4	1	0.9	2	1.7
International Only	4	0	0.0	3	75.0	1	25.0	0	0.0	0	0.0	0	0.0	0	0.0
Domestic and International	65	0	0.0	19	29.2	42	64.6	2	3.1	2	3.1	0	0.0	0	0.0

[a]Directing: High directive (task), low supportive (relationship) behavior
[b]Coaching: High directive (task), high supportive (relationship)behavior
[c]Supporting: Low directive (task), high supportive (relationship) behavior
[d]Delegating: Low directive (task), low supportive (relationship) behavior
[e]Both Coaching and Supporting
[f]Both Coaching and Delegating
[g]Both Supporting and Delegating

For the primary leadership style of the four PMs with only international PM experience, three (75%) were supporting and one (25%) was coaching. None of the four PMs with only international PM experience had 2 primary leadership styles.

For the primary leadership style of the 65 PMs with both U.S. domestic and international PM experience, 42 (64.6%) were supporting, 19 (29.2%) were coaching, 2 (3.1%) were delegating, and the remaining 2 (3.1%) were both coaching and supporting.

Leader Behavior of the Project Managers

As was shown in Figure 3 per the SLM, there is a relationship between a leader's behavior (directive and supportive) and his/her leadership style. While the LBAII®-Self focuses on identifying a respondent's leadership style, it is fundamentally attempting to measure the respondent's tendency to behave in a directive (task-oriented) and/or a supportive (relationship-oriented) manner. Since the scoring of the LBAII®-Self does not assess a leader's behavior directly, it must be derived from the leadership styles. To derive a leader's behavior profile from the leadership style profile, one must first determine the frequency with which the participant selected a particular leadership style in response to each of the 20 leadership situations as was done for Table 20. Then by summing the frequencies by which a participant selected a particular leadership style with the frequencies he/she selected another leadership style, one can identify a participant's leadership behavior profile. For example, summing the frequencies that a participant selected S1 and S2 for all 20 of the situations provides the frequency the participant chose a high directive (task-oriented) behavior. Likewise, summing the frequencies of S3 and S4 yields low directive behavior, summing S1 and S4 yields low supportive behavior, and finally summing S2 and S3 yields high supporting behavior.

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Table 22 provides a summary of the cumulative response frequencies for each leader behavior by category of participants. For supportive (relationship) behavior, the percentages of low and high response frequencies were practically identical for all categories of participants, approximately 11.7% and 38.3%, respectively. For directive (task) behavior, the percentages of low and high responses were approximately the same for the participants with only U.S. domestic PM experience and those with both U.S. domestic and international PM experience, approximately 30% and 20%, respectively. However, for the 4 participants with only international PM experience, the percentages of directive behavior responses are 20.6% low directive and 29.4% high directive, roughly the opposite of those for the other category of participants. While there are only 4 participants with only international PM experience, these results indicate they feel that a more directive behavior is appropriate.

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Table 22

Leader Behavior Response Frequencies by Category of Participants

Category of Participants	N	Leader Behavior Response Frequencies							
		Low Directive (S3S4)		High Directive (S1S2)		Low Supportive (S1S4)		High Supportive (S2S3)	
		n	%	n	%	n	%	n	%
All Participating PMs	7400	2199	29.7	1501	20.3	865	11.7	2835	38.3
Domestic Only	4640	1383	29.8	937	20.2	541	11.7	1779	38.3
International Only	160	33	20.6	47	29.4	19	11.9	61	38.1
Domestic and International	2600	783	30.1	517	19.9	305	11.7	995	38.3

Style Flexibility of the Project Managers

The LBAII®-Self provides a style flexibility score that is a numerical indicator of how often the respondent selects a different style (S1, S2, S3, or S4) to solve each of the 20 situations in the LBAII®-Self. The more frequently a respondent selects a single style over the 20 situations, the less flexibility is evidenced. The more evenly the four selections appear over the 20 situations, the greater the style flexibility score. The style flexibility score ranges from 0-30. The LBAII®-Self is designed to have a mean style flexibility score of 17. A respondent with a style flexibility score of less than 14 is considered to have "low flexibility" because he/she tended to select the same one or two styles for every situation. A respondent with a style flexibility score greater than 20 is considered to have "high flexibility" because he/she tended to select all four styles more or less equally (Zigarmi, et al., 1997).

The style flexibility scores for each category of participants are presented in Table 23. For all the participating PMs, the style flexibility scores ranged from 4 to 28, with a mean of 17.04 and a standard deviation of 4.22. Similar values were found for the

Table 23

Participants' Style Flexibility Scores as Measured by the LBAII®-Self

Category of Participants	Style Flexibility Scores						
	N	Min	Max	Mean	SD	SEM	95% CI
All Participating PMs	185	4	28	17.04	4.22	0.310	16.42–17.65
Domestic Only	116	4	28	17.14	4.19	0.394	16.36–17.91
International Only	4	12	20	17.00	3.83	2.119	12.82–21.18
Domestic & International	65	8	26	16.86	4.34	0.526	15.82–17.90

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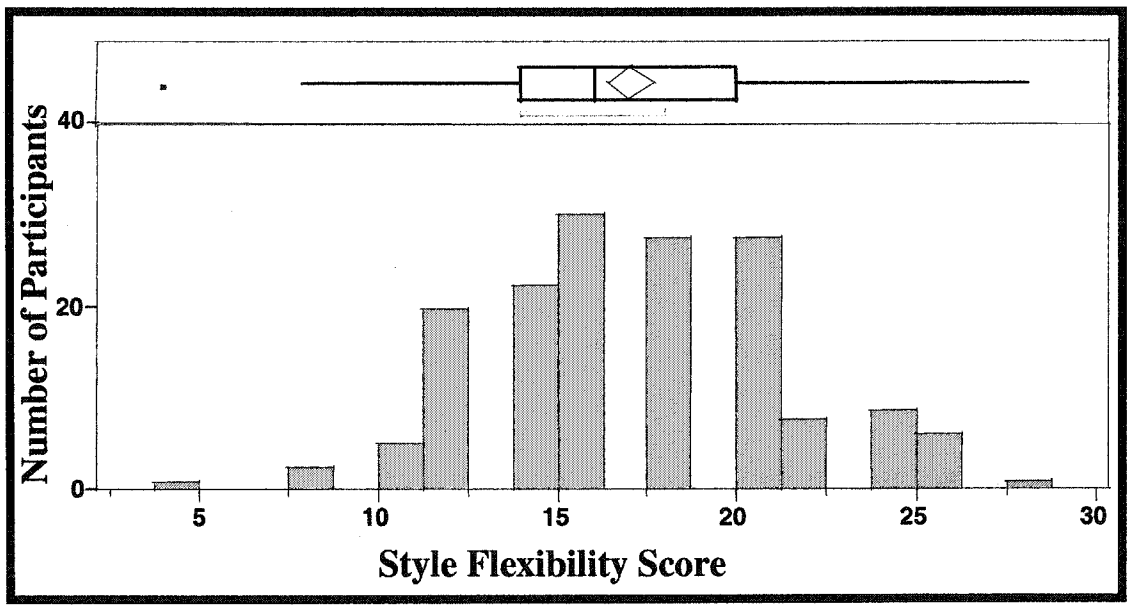
participants with only U.S. domestic PM experience: range 4 to 20, mean 17.1, and standard deviation of 4.19. The four participants with only international PM experience had a much narrower range of 12 to 20 and only a slightly lower mean of 17.00 and a standard deviation of 3.83. Participants with both U.S. domestic and international PM experience had a range of 8 to 26, a mean of 16.86, and a standard deviation of 4.34.

Figure 5 show the distribution of the style flexibility scores and Table 24 shows the distribution of the participants by their level (low, average, high) of flexibility. In

Figure 5. Distribution of Participants' Style Flexibility Scores



comparing style flexibility, 14.6% of the PMs with only U.S. domestic PM experience fall in the low level and 16.4% fall into the high level compared to those with both U.S. domestic and international PM experience where 23.1% are in the low level and 12.3% in the high level. This comparison indicates that those with only U.S. domestic PM experience tend to have a higher level of flexibility than do those with both U.S. domestic and international PM experience.

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Table 24

Participants' Level of Leadership Style Flexibility

Category of Participants	N	Level of Leadership Style Flexibility					
		Low Flexibility		Average Flexibility		High Flexibility	
		n	%	n	%	n	%
All Participating PMs	185	33	17.8	125	67.6	27	14.6
Domestic Only	116	17	14.6	80	69.0	19	16.4
International Only	4	1	25.0	3	75.0	0	0.0
Domestic and International	65	15	23.1	42	64.6	8	12.3

Style Effectiveness Scores of the Project Managers

The LBAII®-Self provides a style effectiveness score that is a numerical representation of the respondent's appropriate use of the selected style in light of the situation described. For the LBAII®-Self, the style effectiveness score is an indicator of the respondent's diagnostic skill in selecting the appropriate style advocated by the SLM. There are five situations in which each of the four styles (S1, S2, S3 and S4) would be more effective according to the model. A value of 4 is assigned to excellent, 3 to good, and 1 to fair and poor answers. If the respondent selects all fair or poor answers, the score will be computed by multiplying 1 x 20 questions answered to produce a score of 20 points. If the respondent selects all excellent answers, the score will be computed by multiplying 4 x 20 questions answered to produce a score of 80 points. Thus, the style effectiveness score can range from a low of 20 points to a high of 80 points. The LBAII®-Self is designed to have a mean style effectiveness score of 54. A respondent with a style effectiveness score of less than 50 is considered to have "low effectiveness" because

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he/she tended to select more fair or poor leadership style choices per the SLM. A respondent with a style effectiveness score greater than 58 is considered to have "high effectiveness" because he/she tended to select more good and excellent leadership style choices per the SLM. The style effectiveness scores for each category of participants are presented in Table 25.

Table 25

Participants' Style Effectiveness Scores as Measured by the LBAII®-Self

Category of Participants	Style Effectiveness Scores						
	N	Min	Max	Mean	SD	SEM	95% CI
All Participating PMs	185	41	67	52.59	4.82	0.354	51.89–53.29
Domestic Only	116	42	65	52.51	4.54	0.444	51.63–53.39
International Only	4	44	51	47.75	3.30	2.391	43.03–52.47
Domestic & International	65	41	67	53.03	5.25	0.593	51.86–54.20

For each category of participants, Table 25 reveals that the mean style effectiveness score is less than the LBAII®-Self expected mean style effectiveness score of 54. While each category of participants has a mean style effectiveness score less than the LBAII®-Self expected mean of 54, the category of participants with only international PM experience is below 50, which indicates that as a group they have a low effectiveness level. Only the PMs with both U.S. domestic and international PM experience have a confidence interval (CI) that contains 54.

For all the participating PMs, the style effectiveness scores ranged from 41 to 67, with a mean of 52.59 and a standard deviation of 4.82. The participants with only U.S. domestic PM experience had style effectiveness scores that ranged from 42 to 65. The 4

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participants with only international PM experience had a much smaller range of 44 to 51, as well as a lower mean value and a correspondingly smaller standard deviation than the other category of participants.

As shown in Figure 6, the distribution of the style effectiveness scores is slightly skewed to the lower values. While the distribution is "bell-shaped," a small subset of participants had relatively high style effectiveness scores.

Figure 6. Distribution of Participants' Style Effectiveness Scores

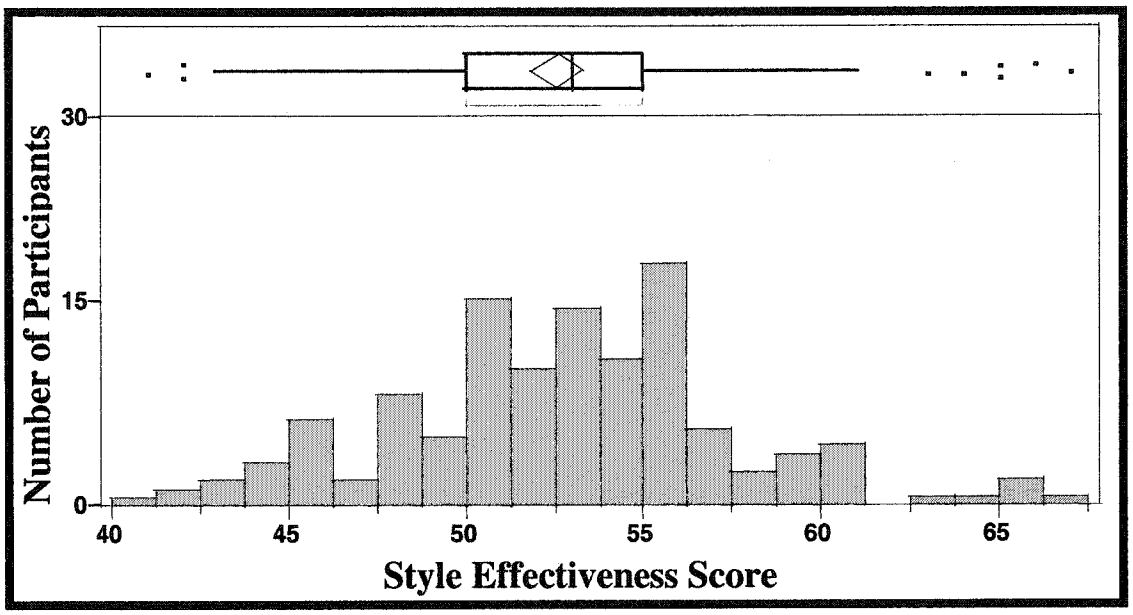

Table 26 shows the distribution of the participants by their level (low, average, high) of effectiveness. In comparing style effectiveness, 25.9% of the PMs with only U.S. domestic PM experience fall in the low level and 8.6% fall into the high level compared to those with both U.S. domestic and international PM experience where 20.0% are in the low level and 13.8% in the high level. This comparison indicates that those with only U.S. domestic PM experience tend to have a lower level of effectiveness than do those with both U.S. domestic and international PM experience.

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Table 26

Participants' Level of Leadership Style Effectiveness

Category of Participants	N	Level of Leadership Style Effectiveness					
		Low Effectiveness		Average Effectiveness		High Effectiveness	
		n	%	n	%	n	%
All Participating PMs	185	45	24.3	121	65.4	19	10.3
Domestic Only	116	30	25.9	76	65.5	10	8.6
International Only	4	2	50.0	2	50.0	0	0.0
Domestic and International	65	13	20.0	43	66.2	9	13.8

Comparison of Leadership Style Flexibility to Leadership Style Effectiveness

The previous two sections looked individually at the style flexibility scores and the style effectiveness scores of the participants. Both of those sections identified the level (low, average, or high) of the respective mean score (flexibility or effectiveness) represented for each of the category of participants based upon the LBAII®-Self expected mean scores. In this section, a comparison is made of the respondents' levels (low, average, or high) of flexibility and effectiveness based on the percentage of participants in each category of participants that fall into each level. Table 27 presents the results of this comparison.

From Table 27, the following indications are noted:

- Except for the percentage of participants with only U.S. domestic PM experience that scored "low" in style flexibility, for each category of participants there is a greater percentage of participants that scored "low" versus "high" in both style flexibility and style effectiveness.

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Table 27

Level of Leadership Style Flexibility vs. Level of Leadership Style Effectiveness

Category of Participants	Level of Leadership Style Flexibility (Flex) and Leadership Style Effectiveness (Effect)						
	N	Low		Average		High	
		Flex	Effect	Flex	Effect	Flex	Effect
		%	%	%	%	%	%
All Participating PMs	185	17.8	24.3	67.6	65.4	14.6	10.3
Domestic Only	116	14.6	25.9	69.0	65.5	16.4	8.6
International Only	4	25.0	50.0	75.0	50.0	0.0	0.0
Domestic and International	65	23.1	20.0	64.6	66.2	12.3	13.8

- None of the four participants with only international PM experience ranked "high" in style flexibility or style effectiveness.
- Based on percentages of participants that scored either "low" or high" in style flexibility and style effectiveness, those with only U.S. domestic PM experience are more flexible but less effective than the participants with both U.S. domestic and international PM experience.

Research Question One and Tested Hypotheses

The first research question addresses the differences in leadership style, primary leadership style, leader behavior, style flexibilty, and style effectiveness, as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S domestic and international PM experience. Hypotheses 1 through 5 explore this first research question.

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The first null hypothesis stated that there are no differences in the mean response frequency for each leadership style (S1, S2, S3, or S4), as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience. To test this hypothesis an ANOVA was performed on the response frequencies for each leadership style by PM experience. The results of the ANOVA are presented in Appendix I and the R-Square values and p-values are summarized in Table 28. Since all the p-values are all much

Table 28

R-Square and p-values for Leadership Style by PM Experience (N=185)

Leadership Style	R-Square	p-value
Directing (S1)	0.008636	0.4542
Coaching (S2)	0.015772	0.2353
Supporting (S3)	0.017353	0.2033
Delegating (S4)	0.004427	0.6678

greater than an alpha value (or significance level) of 0.05, the first null hypothesis is not rejected. Therefore, no significant differences in mean response frequency for each leadership style were found between the PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience.

The second null hypothesis stated that there are no differences in primary leadership (S1, S2, S3, or S4), as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience. Stated another way, this null hypothesis is a test for independence between primary leadership style and category of PM experience. Contingency analysis was used to test the second null hypothesis and results are

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presented in Appendix J. The p-value for the Likelihood Ratio and the Pearson Product are 0.7472 and 0.8241, respectively. Since these p-values are much greater than an alpha value of 0.05, the second hypothesis of independence between primary leadership style and category of PM experience is not rejected. Therefore, no significant differences in primary leadership style were found between the PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience.

The third null hypothesis stated that there are no differences in the mean response frequency for each leader behavior (directive or supportive), as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience. An ANOVA of the response frequencies for each leader behavior was used to test the third hypothesis and results are presented in Appendix K and the R-Square and p-values are summarized in Table 29. Since all the p-values are greater than an alpha value of 0.05, the third null

Table 29

R-Square and p-values for Leadership Behavior by PM Experience (N=185)

Leader Behavior	R-Square	p-value
Directive	0.019096	0.1730
Supportive	0.000057	0.9949

hypothesis is not rejected. Therefore, no significant differences in the mean response frequency for each leader behavior were found between the PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience.

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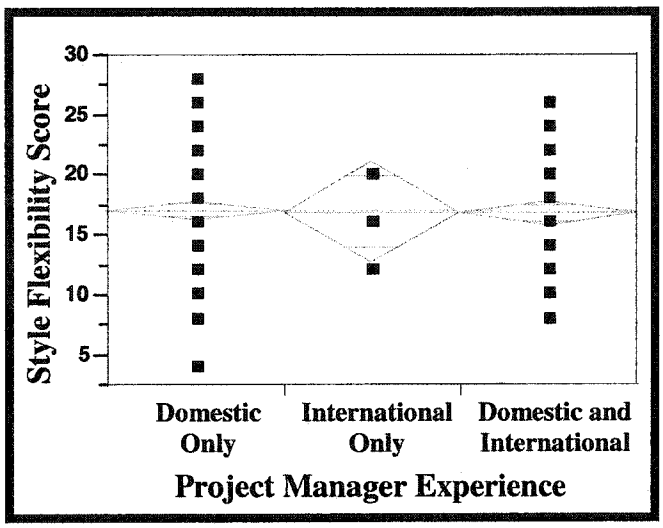
The fourth null hypothesis stated that there are no differences in the mean style flexibility scores, as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience. To test the fourth hypothesis an ANOVA of the style flexibility scores for each of the three categories of participants was utilized. The results of the ANOVA are provided in Appendix L and are graphically presented in Figure 7.

Figure 7. Oneway ANOVA of Style Flexibility Scores by PM Experience



As shown in Appendix L, the ANOVA analysis resulted in an R-Square of 0.000974 and a p-value of 0.9151. Since this p-value is much greater than an alpha value of 0.05, the fourth null hypothesis is not rejected. Therefore, no significant differences in the mean style flexibility scores were found between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience.

The fifth null hypothesis stated that there are no differences in the mean style effectiveness scores, as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience. To test the fifth null hypothesis an ANOVA of the style effectiveness scores for each of the three categories of participants was utilized. The

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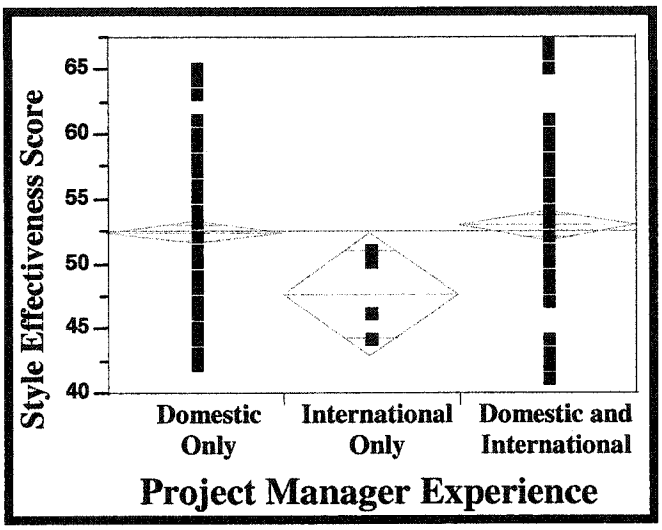
results of the ANOVA are provided in Appendix M and are graphically presented in Figure 8. As shown in Appendix M, the ANOVA analysis resulted in an R-Square of 0.025089 and a p-value of 0.0990. Since this p-value is greater than an alpha value of 0.05, the fifth null hypothesis is not rejected. Therefore, no significant differences in the mean style effectiveness scores were found between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience.

Figure 8. Oneway ANOVA of Style Effectiveness Scores by PM Experience



Research Question Two and Tested Hypotheses

The second research question deals with determining if there are linear relationships between leadership style, primary leadership style, leader behavior, style flexibilty, or style effectiveness and a PM's cumulative international experience, which is defined and quantified in this study by one's "degree of internationality" (DOI). Hypotheses 6 through 10 explore this second research question.

The sixth null hypothesis stated that there is no linear relationship between leadership style (S1, S2, S3, or S4), as measured by the LBAII®-Self, and a PMs' DOI. To test the sixth null hypothesis a bivariate fit test and corresponding ANOVA were performed on the response frequencies for each leadership style (S1, S2, S3, and S4) by

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Table 30

R-Square and p-values for Leadership Style by DOI (N=185)

Leadership Style	R-Square	p-value
Directing (S1)	0.004545	0.3619
Coaching (S2)	0.000548	0.7517
Supporting (S3)	0.003051	0.4552
Delegating (S4)	0.000002	0.9849

DOI. The results of the bivarite fit and ANOVA are provided in Appendix N and the R-Square and p-values are shown in Table 30. Since all four of the p-values are greater than an alpha value of 0.05, the sixth null hypothesis is not rejected. Therefore, no linear relationship was found between leadership style and a PM's DOI.

The seventh null hypothesis stated that there is no linear relationship between the probability of a primary leadership style (S1, S2, S3, or S4), as measured by the LBAII®-Self, and a PM's DOI. To test the seventh null hypothesis a logistic regression was performed for each of the selected primary leadership styles (S2, S3, and S4) by DOI. The results of the logistic fit and associated whole model test for each of the selected primary leadership styles by DOI are provided in Appendix O. Table 31 shows the R-Square and p-values for all the selected primary leadership styles by DOI. Since all the p-values are much greater than an alpha value of 0.05, the seventh null hypothesis is not

Table 31

R-Square and p-values for Primary Leadership Style by DOI (N=185)

Primary Leadership Style	R-Square	p-values
Directing (S1)	N/A	N/A
Coaching (S2)	0.0001	0.8907
Supporting (S3)	0.0002	0.8244
Delegating (S4)	0.0015	0.7659

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rejected. Therefore, no linear relationship was found between the probability of a PM's primary leadership style and his/her DOI.

The eighth null hypothesis stated that there is no linear relationship between leader behavior (directive and supportive), as measured by the LBAII®-Self, and a PM's DOI. To test the eighth null hypothesis a bivariate fit test and corresponding ANOVA was performed on the response frequencies for each leader behavior by DOI. The results of the bivarite fit and ANOVA are provided in Appendix P and the R-Square and p-values are shown in Table 32. Since both of the p-values are much greater than an alpha value of 0.05, the eighth null hypothesis is not rejected. Therefore, no linear relationship was found between leader behavior and a PM's DOI.

Table 32

R-Square and p-values for Leader Behavior by DOI (N=185)

Leader Behavior	R-Square	p-value
Directive	0.002302	0.5167
Supportive	0.002024	0.5431

The ninth null hypothesis stated that there is no linear relationship between style flexibility, as measured by the LBAII®-Self, and a PM's DOI. To test the ninth null hypothesis a bivariate fit and corresponding ANOVA were performed to determine if there is a linear relationship between the style flexibility score and a PM's DOI. The results of the tests are provided in Appendix Q. The ANOVA resulted in a p-value of 0.7617. Since this p-value is greater than an alpha value of 0.05, the ninth null hypothesis is not rejected. Therefore, no linear relationship was found between style flexibility and a PM's DOI.

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The tenth null hypothesis stated that there is no linear relationship between style effectiveness, as measured by the LBAII®-Self, and the PMs' DOI. To test the tenth null hypothesis a bivariate fit and corresponding ANOVA were performed to determine if there is a linear relationship between the style effectiveness score and a PM's DOI. The results of the tests are provided in Appendix R. The ANOVA resulted in a p-value of 0.8244. Since this p-value is greater than an alpha value of 0.05, the tenth null hypothesis is not rejected. Therefore, no linear relationship was found between style effectiveness and a PM's DOI.

Summary of Results

Each of the ten null hypotheses was not rejected. Therefore, this study did not find any significant differences in leadership style, primary leadership style, leader behavior, style flexibility, or style effectiveness, as measured by the LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience.

Additionally, no linear relationships were found between leadership style, primary leadership style, leader behavior, style flexibility, or style effectiveness and a PM's cumulative international experience, as defined and quantified in this study by the "degree of internationality" (DOI).

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CHAPTER V

SUMMARY AND CONCLUSIONS

Introduction

The purpose of this chapter is to summarize the results, discuss significant findings and make recommendations as a result of this study.

The primary purpose of this study was to examine whether there are any differences in the attributes of leadership styles, as measured by LBAII®-Self, between three categories of PMs with only U.S. domestic PM experience, only international PM experience, and both U.S domestic and international PM experience. A secondary purpose was to explore whether there is a linear relationship between the attributes of leadership styles, as measured by LBAII®-Self, and a PM's cumulative international experience.

This study was designed to provide additional understanding of any differences that may exist in the attributes of self-perceived leadership styles between engineering and construction PMs with domestic PM experience versus those with international PM experience. This study attempted to answer the following two research questions:

1. Are there differences in leadership style, primary leadership style, leader behavior, style flexibility or style effectiveness, as measured by LBAII®-Self, between project managers with only U.S. domestic project manager experience,

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only international project manager experience, and both U.S. domestic and international project manager experience?

2. Is there a linear relationship between the leadership style, primary leadership style, leader behavior, style flexibility or style effectiveness, as measured by the LBAII®-Self, and a project manager's cumulative international experiences?

The data for this study were acquired through a leadership instrument, LBAII®-Self, and a demographic questionnaire designed by the researcher. All the participants in this study were PMs employed by the same large, U.S.-based engineering and construction firm, which consists of multiple operating units serving both U.S. domestic and international markets.

The survey instruments were sent to 475 individuals who had been identified by the company as having project management responsibilities. Of the 475 surveys sent out, 185 usable surveys were returned (38.9% response rate). However, based on survey responses only 406 were identified as potentially being PMs currently assigned project management responsibilities, the intended subjects of the study. Therefore, the 185 usable research instruments actually represents 45.6% of the potential PMs currently assigned project management responsibilities.

A commercial statistical software program was employed to analyze the data. All statistical tests were conducted as two-tailed tests using an alpha value (significance level) of .05. The following is a discussion of the findings of this study.

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Overview of the Significant Findings

Leadership Attributes and a Project Manager's Experience

Five null hypotheses were utilized to test whether there are differences in the attributes of self-perceived leadership between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience. The self-perceived leadership attributes tested were leadership style, primary leadership style, leader behavior, style flexibility and style effectiveness as measured by LBAII®-Self, which is based on the Situational Leader Model (Blanchard, et al., 1993). The findings of this study showed that there are no statistically significant differences in attributes of leadership, as measured by LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience. For the ANOVA tests that were performed, the p-value of 0.099 for the mean style effectiveness scores (Appendix L) was closest to the alpha value of 0.05. All other p-values were greater than 0.173.

While no statistically significant differences in the attributes of self-perceived leadership styles were found between the three categories of PMs, there were two indications of differences that are noteworthy. First, the PMs with only U.S. domestic PM experience tended to exhibit slightly more style flexibility but less style effectiveness than the PMs with both U.S. domestic and international PM experience. Second, even though as a group their sample size was too small to produce any statistically meaningful observations, the PMs with only international PM experience tended to exhibit more directive leader behavior, about the same style flexibility, and less style effectiveness

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than the other two categories of PMs. These observations raise the question as to whether studies of PMs or leaders in other companies would yield similar or different results.

An additional noteworthy observation applicable to all three categories of PMs is that while their mean style flexibility scores were practically identical to the LBAII®-Self expected mean, the mean style effective scores were lower that the LBAII®-Self expected mean. The style flexibility score is an indicator of how often the respondent selects a different style to solve each of the 20 situations and the style effectiveness score is an indicator of how often a respondent selects an appropriate answer for a given situation per the SLM. Even though the respondents selected different leadership styles at the expected rate, they did not select the appropriate style as often as expected by the SLM. However, the respondents' style effectiveness scores are within the expected range. As mentioned previously, it was the mean style effectiveness scores between the different categories of PMs for which a p-value of 0.099 was obtained. Therefore, while not statistically significant, there appears to be differences in style effectiveness due to a PM's experience.

The PMs in this study were not trained on the SLM prior to the study. Therefore, the respondents selected the answers they believed to be the best answer. However, another possibility is that some of the participating PMs may have selected their answers based on how they believe the company would want them to respond. If this is the case, then according the SLM, the company may have a more problematic leadership problem where the PMs are not selecting the most appropriate leadership style for the situation presented. Again, since only self-perceived leadership was tested, how the PMs deal with actual situations may be totally different.

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While the literature revealed that several researchers have found noticeable differences between the PMs with U.S. domestic experience and PMs with international experience, this study did not find such differences among the PMs in the firm studied. One explanation for the lack of differences found might be for the reasons mentioned by Yasin, Zimmer, and Wafa (1997), when they deduced that cultural differences influence the way managers view management and leadership. They suggested that the lack of differences might be attributed to educational and training backgrounds of the PMs. They point out that U.S. PM training focuses on the technical aspects versus the human side of project management and that the training generally does not address cultural differences.

Since the demographics of the PMs in this study reveal that they are a fairly homogeneous group with project management training primarily U.S. based, it is reasonable to expect that their project management training was technical in nature and did not include cultural training. Also, as previously mentioned, the PMs were not provided training on the SLM prior to this study. Therefore, one can probably safely assume that the PMs in this study were not aware that different leadership styles (behaviors) may be necessary for different project situations, such as when working with people from different cultures.

Leadership Attributes and a Project Manager's Cumulative International Experiences

Five null hypotheses were utilized to test whether there is a linear relationship between any of the leadership attributes and a PM's cumulative international experience, as defined and quantified in this study by one's "degree of internationality"(DOI).

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The findings of this study showed that there is no linear relationship between leadership style, primary leadership style, leader behavior, style flexibility or style effectiveness and a PM's DOI. All of the associated p-values were much greater than an alpha value of 0.05. While this study did not find a linear relationship between the attributes of leadership and a PM's cumulative international experience, studies of leaders in other more diverse populations may yield different results. This outcome was probably affected by the relatively small sample for PMs with only international experience in addition to the homogeneity of their education and experiences.

Implication of these Findings

Since no significant differences were found in the attributes of leadership, as measured by LBAII®-Self, between PMs with only U.S. domestic PM experience, only international PM experience, and both U.S. domestic and international PM experience, one should question whether there should be a difference. While there are obviously many limitations with looking only at self-perceived leadership, one could argue that if the leader does not see the need for employing a different leadership style (behavior) for different situations, then one could argue that there is little chance the leader will employ a different leadership style (behavior)in different situations.

For the company surveyed, the results raise the following concerns:

1. Demographics reveal a lack of diversity among PMs: 95.1% were male, 78.4% were over the age of 45, 33.5% were over the age of 55, 62.5 % have only U.S. domestic PM experience, 89.7% were born in the U.S., 93.2% received their high school or equivalent education in the U.S., 92.4% of the bachelors and 98.2% of

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the masters degrees were from U.S. colleges, and 85.4% are fluent only in English.

2. For each category of PM experience, the mean style effectiveness score was below the LBAII®-Self expected mean.

The first concern, lack of diversity among the PMs, raises the question as to whether the firm is really an international company or a U.S. company doing international work. The demographics of the PMs lead one to believe the latter. The firm's executives will need to determine for themselves what it takes to be an international engineering and construction company, including what is the right demographic mix of its PMs. The lack of diversity among the PMs could explain the lack of different leadership styles being selected.

The second concern, the lower than expected mean style effectiveness scores, may also reflect the lack of diversity among the PMs. As mentioned in the previous section, the effectiveness score is dependent on selecting the best answer for a given situation, the low score raises concern about the PMs' ability to take the most appropriate action. Table 20 shows that the PMs tended to either select a coaching (S2) or a supporting (S3) leadership style for approximately 76% situations, when ideally according to the SLM these two leadership style should have been selected for only 50% of the situations. Of course, if coaching (S2) and supporting (S3) leadership styles were selected more frequently than expected by the SLM, then directing (S1) and delegating (S4) were selected less than expected by the SLM. The worst case was the selection of the directing (S1) leadership style, where it was only selected for approximately 7% of situations versus the 25% ideally expected according to the SLM. One explanation may

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be that people with similar demographic characteristics may have a tendency to respond similarly to situations. Or another explanation may be that company culture influenced the PMs to believe that a particular leadership style is preferred.

Except for the four participants with only international PM experience, the majority of the participants had a primary leadership style of supporting (S3), a low directive and high supportive style. Three out of four participants with only international PM experience had a primary leadership style of coaching (S2), a high directive and high supportive style. Participants with both U.S. domestic and international PM experience had a higher percentage of people with a primary leadership style of supporting (S3) than those with only U.S. domestic PM experience.

For the researcher and the practitioner, this study, involving only a single company, leaves open the question as to whether or not PMs with only U.S. domestic PM experience should have scored differently than those with only international PM experience or both U.S. domestic and international PM experience. The researcher should question whether the SLM is the appropriate model to test these differences, as well as whether the LBAII®-Self and/or LBAII®-Other are appropriate instruments to measure leadership style differences. Additional studies are needed to see if PM managers in other companies and industries make similar choices.

Recommendations for Future Research

This study on the attributes of leadership styles has added to the knowledge regarding PMs in a large, U.S.-based engineering and construction firm. However, there are many potential areas to study including:

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1. Replicate this study in companies that have PMs with more international experiences particularly those with PMs from countries other than the U.S. and those with only international PM experience.
2. Study the attributes of leadership styles from the perspective of the followers.
3. Replicate this study with persons in leadership positions other than project managers or in industries other than engineering and construction.
4. Replicate this study after the potential participants have been trained on the Situational Leadership Model.
5. Perform a similar study utilizing a different leadership theory or model.
6. Replicate this study for non-U.S. based firms.
7. Compare the responses of leaders from different regions of the world.

Summary

While there were some indications that there are differences in the attributes of leadership, as measured by the LBAII®-Self, between the different categories of PM experiences, none were statistically significant. Additionally, no linear relationship was found between any of the attributes of leadership, as measured by the LBAII®-Self, and a PM's cumulative international experience.

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APPENDIX A

LIST OF PREDICTORS FOR PROJECT MANAGERS

Adapted from Pettersen (1991)

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A. Problem Solving

1. **Problem Analysis**
   - Mental and conceptual abilities
   - Ability to deal with large quantities of information
   - Identify significant problems
   - Look beyond symptoms to find the cause
   - Gather and analyze solutions and their consequences

2. **Judgement and Practical Sense**
   - Choose wisely among possible solutions
   - Make decisions and apply solutions which take into account the constraints of the project and its environment
   - Always bear in mind the overall perspective of the project and not just one of its facets; concentrate on the problem as a whole

3. **Decisiveness**
   - Propensity to make decisions
   - Committed to decisions, even in difficult or delicate situations where the consequences could be personally unpleasant
   - Set up a concrete strategy for implementing the decision (action planning, delegating responsibilities, fixing objectives, follow-up mechanisms and assessing results)

B. Administration

4. **Planning and Organization**
   - Identify objectives and priorities
   - Establish work timetables
   - Organize resources to achieve the objectives
   - Define the tasks and work methods

5. **Control**
   - Maintain everyday activities in line with objectives and project deadlines
   - Ensure follow-up and make corrections if necessary
   - Follow budgets and exercise financial control

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6. **Strategy and Organizational Know-How**
   - Take steps to be well informed
   - Build format and informal collaboration networks
   - Know who to talk to outside the team or service when necessary
   - Know the organization and its operation
   - Ability to work in harmony with the organization's political reality
   - Ability to implicate others to reach objectives

7. **Specialized Knowledge**
   - Know the information, principles, theories and techniques which are useful for the various tasks to be done
   - This knowledge cam be related to management (planning and control tools, accounting, finance, contracts, decision-making tools, behavioral sciences, etc.), the technology to be used, the product or service offered, the market, production or marketing

C. Supervision and Project Team Management

8. **Delegation of Responsibilities**
   - Believe fundamentally in others
   - Structure clearly the tasks to be carried out, while leaving enough latitude for initiative on the part of team members
   - Delegate responsibility to the appropriate level
   - Share part of the responsibility with team members
   - Allocated authority and resources to team members to enable them to make significant decisions in their fields of responsibility an competence
   - Ability to work with subordinates who are clearly identified as experts in their field without being either too direct or too deferential

9. **Team Structuring**
   - Structure tasks to be carried out and communicate them clearly (see No. 4, Planning and Organization)
   - Ability to use power unilaterally
   - Use reinforcement to stimulate team members
   - Establish control mechanisms which favor task accomplishment according to objectives and correct them if necessary (see No. 5 Control)

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10. Consideration Towards Team Members

- Behave kindly towards team members
- Identify their needs and ensure their satisfaction
- Fair

11. Development of Team Members

- Frequently assess the performance of each team member and give him feedback
- Identify training needs of team members on the basis of their present and future tasks
- Set up training strategies and ensure they are carried out
- Demonstrate the importance of training by devoting financial and human resources and personal time to it

12. Teamwork, Flexibility and Cooperation

- Ability to work as part of a group
- Recognize the circumstances which require teamwork or a team decision
- Maintain a climate which encourages the participation and implication of each team member
- Receptive towards other people's point of view
- Prepared to change own opinion and to compromise

13. Resolving Conflicts

- Ability to coordinated specialists from different fields
- Recognize a conflictual situation and resolve it efficiently (see A, Problem Solving)
- Know conflict psychology

D. Interpersonal Relations

14. Oral Communication

- Communicate efficiently in exchanger with others
- Make efficient verbal presentations
- Concretize communications in respect to the project

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15. Interpersonal Influence, Persuasion and Negotiation

- Aware of the feelings, needs and expectations of others
- Conscious of the effect of one's behavior on others
- Ability to influence others towards realizing objectives
- Bring interlocutor round to own point of view while maintaining a good relationship

16. Ascendancy

- Liking for command
- Need to dominate others and not be dominated
- Concerned by one's influence on others

E. Other Personal Qualities

17. Need to Achieve and Proactivity

- Need to excel, to achieve something unique
- Constant desire to do better, to be the best
- Directed towards action and results
- Dynamism, relentlessness, energy
- Optimism, belief in ability to influence events around oneself

18. Self-confident, Maturity and Emotional Stability

- Confidence in self and abilities
- Ready to live with personal consequences of difficult decisions (see No. 3, Decisiveness)
- Emotionally stable and strong
- Able to control emotions
- Short- and long-term resistance to stress

19. Loyalty, Honesty and Integrity

- Endorse the organization's politics and values
- Place the organization's interest before own
- Respect superiors
- Respect engagements
- Professional and personal integrity

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20. Tolerance Towards Ambiguity and Openness to Change

- Accept uncertainty and unforeseen circumstances which are inevitable during a project
- Desire to work among more supple organizational structures such as matrix structure or its variants
- Propensity to change plans, approaches, strategies, policies or practices according to the demands of the situation

21. Interest in the Job

- Intrinsic motivation for the work itself and its different activities
- Hopes and career plan which correspond to the opportunities offered
- Interest in the working conditions (place, timetable, salary, etc.)

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APPENDIX B

PERMISSION TO USE THE LBAII®-SELF

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THE Ken Blanchard COMPANIES
San Diego • London • Toronto
Center for Professional Development • International Group • Learning Materials
Performance Systems • Solutions Group • Speakers Group

October 3, 2001

Mr. Benjamin J. Cross
1791 Huckleberry Drive
Aiken, SC 29803-5813

Dear Mr. Cross:

I have enclosed the Reliability and Validity Study for your review.

Over the years, the LBAII® Self or Other has been used in over forty dissertations on Master studies. We are pleased that the model and instruments have become more visible. As the requests for LBAIIs increase, we have found it necessary to humbly request that researchers follow some general guidelines.

The Ken Blanchard Companies will provide the LBAII instruments to you at no cost providing you are willing to meet the following conditions:

- That any dissertations, papers, etc. written from this theoretical framework and using these instruments give citations and references as to where the instruments can be obtained.
- That you do not sell or make economic gain from selling the instruments for popular consumption and that any copies of the instruments used be clearly marked "For research only."
- That The Ken Blanchard Companies receives a full bound copy of any dissertation or monograph written concerning this research.
- That The Ken Blanchard Companies be allowed to pass on your research (in summary form) to others who might be doing similar research as a way of supporting those who are working hard to further the field of education.
- That the following scores be produced and reported in your publication using your sample base.

    1. Average Flexibility Score and Standard Deviation
    2. Average Effectiveness Score and Standard Deviation
    3. Average Style Score Means and Standard Deviations to Styles 1 through Styles 4
    4. Percent of Primary Styles 1 through Styles 4
    5. Percent of Secondary Styles 1 through Styles 4
    6. Percent of Developing Styles 1 through Styles 4

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Performance Systems • Solutions Group • Speakers Group

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7. Maximums and Minimums

This request has emerged because researchers do not fully utilize the six scores that can be derived from the LBAII®. With these scores, The Ken Blanchard Companies will be able to compare across populations. These numbers may aid in a future meta analysis.

Optional scores that would help further comparisons are:

1. Average Flexibility Scores and Standard Deviations by Gender.
2. Average Effectiveness Scores and Standard Deviations by Gender.
3. Average Style Score Means and Standard Deviations by Gender.

We will grant you permission to use the LBA upon receipt of a letter from you agreeing to the stipulations. If you have any questions, please do not hesitate to call me.

Sincerely,

Drea Zigarmi, Ed.D.

Drea Zigarmi, Ed.D.
Research Coordinator

Enclosure

125 State Place • Escondido, CA 92029 • 800 728-6000 • 760 489-5005 • www.blanchardtraining.com

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APPENDIX C

THE LEADER BEHAVIOR ANALYSIS II®–SELF

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SITUATIONAL LEADERSHIP® II

HAND SCORE

LBAII®

Leader Behavior Analysis II™

Questionnaire

Self

For Research Only

Name	Date
Organization Name	

KEN BLANCHARD
RONALD HAMBLETON
DREA ZIGARMI
DOUGLAS FORSYTH

The Ken Blanchard Companies

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APPENDIX D

DEMOGRAPHICS QUESTIONNAIRE

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Demographics Questionnaire

Please answer each of the following questions.

1. **Gender:** (*check only one*, √) ___ Female ___Male

2. **Age group:** (*check only one*, √)

   ___ under 25 years old
   ___ 25 – 34 years old
   ___ 35 – 44 years old
   ___ 45 – 54 years old
   ___ over 55 years old

3. **Countries lived in: Please list in chronological order (birth to present) the countries within which you were born and have lived in. Also, indicate the amount of time (Years/Months) you lived in each country:**

Country lived in (had residency in)	Amount of Time (Years/Months)	Country lived in (had residency in)	Amount of Time (Years/Months)
1. Country within which you were born	Years / Months	9.	Years / Months
2.	Years / Months	10.	Years / Months
3.	Years / Months	11.	Years / Months
4.	Years / Months	12.	Years / Months
5.	Years / Months	13.	Years / Months
6.	Years / Months	14.	Years / Months
7.	Years / Months	15.	Years / Months
8.	Years / Months	16.	Years / Months

Note: If you need additional space, please attach a separate sheet of paper.

4. **High School education or equivalent:** (*check only one*, √)

   ___ No High School diploma or no equivalent diploma/exam

   ___ General Education Development (GED) or an equivalent exam _____ Country awarded in

   ___ High School diploma or an equivalent diploma awarded in a non-U.S. country _____ Country awarded in

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Demographics Questionnaire

5. **College education: For each category below, list degree(s) or equivalent degree(s) awarded, country within which the degree was awarded, and year the degree was awarded.**

NOTE: If you need additional space, please attach a separate sheet of paper.

Category 1: Associates (2-year) degree(s) or equivalent degree(s) awarded. If none, skip to category 2.

Associates Degree or equivalent	Country degree was awarded in	Year Awarded

Category 2: Bachelors (4-year) degree(s) or equivalent degree(s) awarded. If none, skip to category 3.

Bachelors Degree or equivalent	Country degree was awarded in	Year Awarded

Category 3: Graduate (Masters) degree(s) or equivalent degree(s) awarded. If none, skip to category 4.

Graduate (Masters) Degree or equivalent	Country degree was awarded in	Year Awarded

Category 4: Doctorate degree(s) or equivalent degree(s) awarded. If none, skip to question 6.

Doctorate Degree or equivalent	Country degree was awarded in	Year Awarded

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Demographics Questionnaire

6. **Language Fluency: In addition to English, list the languages within which you are (<u>at minimum</u>) able to speak freely in normal conversations.**

_____ _____ _____

_____ _____ _____

_____ _____ _____

7. **Employer: Name of your WGI business/operating unit.**

_____
(Business/Operating Unit)

8. **Years of work experience, regardless of position held:** (***check only one,*** √)

___ less than 1 year ___ 11 – 15 years ___ 26 or more years

___ 1 – 5 years ___ 16 – 20 years

___ 6 – 10 years ___ 21 – 25 years

9. **Years of work experience as a project manager:** (***check only one,*** √)

___ less than 1 year ___ 11 – 15 years ___ 26 or more years

___ 1 – 5 years ___ 16 – 20 years

___ 6 – 10 years ___ 21 – 25 years

10. **U.S. domestic project manager experience: Write in the total number of projects and the total number of years for which you were the project manager for U.S. domestic projects.**

Number of U.S. domestic projects worked on as the project manager _____

Number of years worked as the project manager on U.S. domestic projects _____

11. **International project manager experience: Write in the total number of projects and the total number of years for which you were the project manager for International projects.**

Number of international projects worked on as the project manager _____

Number of years worked as the project manager on international projects _____

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Demographics Questionnaire

12. **<u>If you have been a project manager for an international project</u>, how many years has it been since your last assignment as a project manager for an international project? If never a project manager for an international project, skip to question 13.**

(check only one, √)

___ 0- 5 years ___ 6-10 years ___ 11 or more years

13. **Project(s) size: What is the combined Total Installed Cost (TIC) of the project(s) you currently manage?**

$_____ Million

14. **Project type: For the largest project (in terms of TIC) that you currently manage, please indicate type of project.** *(check only one, √)*

___ U.S. domestic project ___ International project

15. **Contract type: For the largest project (in terms of TIC) that you currently manage, please indicate the type of contract.** *(check only one, √)*

___Reimbursable ___Fixed Price

16. **Project scope: For the largest project (in terms of TIC) that you currently manage, please indicate the scope of project.** *(check only one, √)*

___ Construction Only (CO)
___ Engineering, Procurement, and Construction (EPC)
___ Construction Management (CM)

17. **Certification: List titles of all project management certifications you have been awarded, their respective issuing organization, and year awarded. If none, please leave blank or write N/A for not applicable.**

Certification Title	Issuing Organization	Year Awarded

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Demographics Questionnaire

Please review all the questions and be sure you have completely answered all the questions accurately. Incomplete questionnaires will have to be rejected.

If you would like to receive a summary of the study's results, please contact:

Benjamin J. Cross
Westinghouse Savannah River Company
Building 773-41A, Room 128
Aiken, SC 29808
803-725-8105 (Voice)
803-725-2978 (Fax)
ben.cross@srs.gov (Email)

Note: In order to ensure your anonymity and confidentially, the request for a summary of this study's results should NOT be sent in with your completed questionnaires.

THANKS for your time and participation in this study.

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APPENDIX E

COVER LETTER TO POTENTIAL RESPONDENTS

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CHARLIE OLIVER
Chief Operating Officer

August 27, 2002

Dear Project Manager:

Mr. Benjamin J. Cross, an employee of Westinghouse Savannah River Company, is completing his doctoral dissertation on leadership among engineering and construction project managers. Even though this study is being performed for academic purposes, Washington Group will be interested in its findings and how the company can be improved as a result. As a person with project management responsibilities, you play a very important leadership role in the success of Washington Group. Therefore, it is important that all of us in leadership capacities have a better understanding of our leadership styles.

The study involves completing (in approximately 20-30 minutes) two simple questionnaires that accompany this request. The first, LBAII-Self, is a twenty-question leadership questionnaire and the second questionnaire collects basic demographic information and provides you an opportunity to request a summary of the study's results. All the information you provide to Mr. Cross will be kept confidential and will not be viewed by anyone else within Washington Group. Washington Group will receive a summary of the results.

The success of this study depends on your timely participation. Although as a person with project management responsibilities your schedule is always full, I hope you can devote a few minutes to participate in this study. Please send your completed questionnaires via company mail in the enclosed preaddressed envelope to:

Benjamin J. Cross
Westinghouse Savannah River Company
Building 773-41A
Aiken, SC 29803-5813

I am sure Mr. Cross will greatly appreciate your participation in this study. Thank you for your timely participation.

Sincerely,

Charles R. Oliver

Washington Group International, Inc. • 720 Park Boulevard • P.O. Box 73 • Boise, ID USA 83729 • Phone: (208) 386-5218• Fax: (208) 386-5379

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APPENDIX F

INSTRUCTION SHEET

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PLEASE READ CAREFULLY

A Study on Project Management Leadership within Washington Group International

For the purpose of this study, please see the enclosed letter from Charlie Oliver, WGI's Chief Operating Officer, encouraging your timely participation.
You have been identified as a person who currently has project management responsibilities. Recognizing that the position title of "Project Manager" is not used consistently throughout WGI, the enclosed Demographics Questionnaire uses the title "Project Manager" as a generic title for anyone who has management responsibility for the completion of a single project or several projects.

If you currently have project management responsibilities, please:

1. Fully complete the enclosed LBAII®-Self by following the directions on page 2. It is very important that you select only one alternative for each of the twenty questions. Failure to do so will invalidate your questionnaire.

2. Fully complete the enclosed Demographics Questionnaire.

3. Return both completed questionnaires by company mail in the enclosed preaddressed envelope. Please mail by September 25, 2002.

If you do NOT currently project management responsibilities, please:

1. Check the box below.

2. Do NOT complete the LBAII®-Self or the Demographics Questionnaire.

3. Return only this sheet by company mail in the enclosed preaddressed envelope. **Please mail by September 25, 2002.**

❑ **Do NOT currently have project management responsibilities.**

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APPENDIX G

REMINDER NOTICE

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If you have completed and returned your questionnaire for the study on project management leadership within Washington Group International, then

THANK YOU for your participation.

If you have NOT completed and returned your questionnaire for the study on project management leadership within Washington Group International, then

PLEASE COMPLETE and mail by September 25th.

If you did not receive a copy of the questionnaire, please request one by contacting me ASAP by whatever means is most convenient for you.

Benjamin J. (Ben) Cross
Westinghouse Savannah River Company
Building 773-41A, Room 128
Aiken, SC 29808
803-725-8105 (Voice)
803-725-2978 (Fax)
ben.cross@srs.gov (email)

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APPENDIX H

PARTICIPANTS BY OPERATING UNIT

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Participants by Operating Unit
(N=185)

Operating Unit	n	%
1. Energy and Environment	61	33.0
2. Industrial/Process	54	29.2
3. Defense	3	1.6
4. Power	33	17.8
5. Infrastructure	23	12.4
6. Rust Constructors	6	3.2
7. Mining	1	0.5
8. No response	4	2.2

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APPENDIX I

ONEWAY ANOVA OF THE MEAN RESPONSE FREQUENCY FOR EACH LEADERSHIP STYLE BY PM EXPERIENCE (Hypothesis 1)

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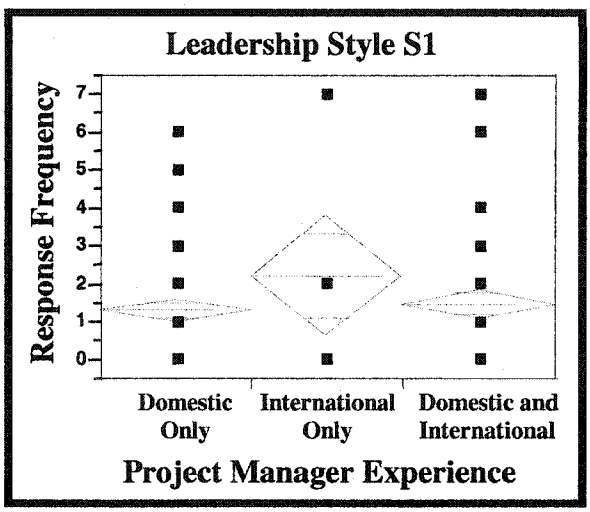
Oneway ANOVA of the Mean Response Frequency for Leadership Style S1 by Category of PM Experience

(Hypothesis 1)



Summary of Fit

Rsquare	0.008636
Adj Rsquare	-0.00226
Root Mean Square Error	1.597642
Mean of Response	1.405405
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Domestic/International PM Experience	2	4.04672	2.02336	0.7927	0.4542
Error	182	464.54788	2.55246		
C. Total	184	468.59459			

Means for Oneway ANOVA

Participants	N	Mean	Std Error	Lower 95%	Upper 95%
Domestic Only	116	1.32759	0.14834	1.0349	1.6203
International Only	4	2.25000	0.79882	0.6739	3.8261
Domestic and International	65	1.49231	0.19816	1.1013	1.8833

Std Error uses a pooled estimate of error variance

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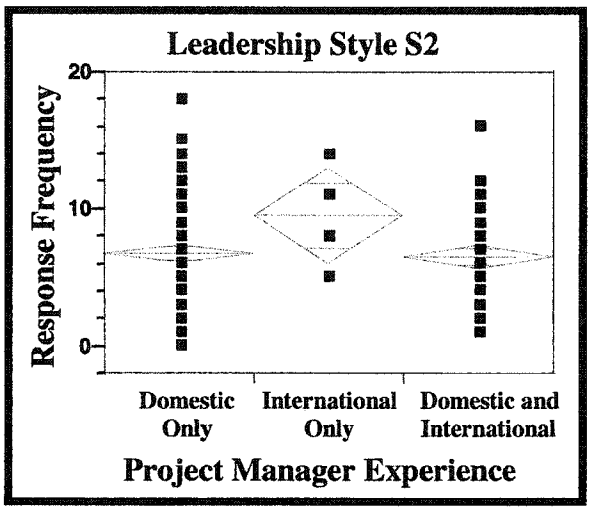
Oneway ANOVA of the Mean Response Frequency for Leadership Style S2 by PM Experience

(Hypothesis 1)



Summary of Fit

Rsquare	0.015772
Adj Rsquare	0.004957
Root Mean Square Error	3.48064
Mean of Response	6.708108
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Domestic/International PM Experience	2	35.3340	17.6670	1.4583	0.2353
Error	182	2204.9038	12.1149		
C. Total	184	2240.2378			

Means for Oneway ANOVA

Participants	N	Mean	Std Error	Lower 95%	Upper 95%
Domestic Only	116	6.75000	0.3232	6.1124	7.388
International Only	4	9.50000	1.7403	6.0662	12.934
Domestic and International	65	6.46154	0.4317	5.6097	7.313

Std Error uses a pooled estimate of error variance

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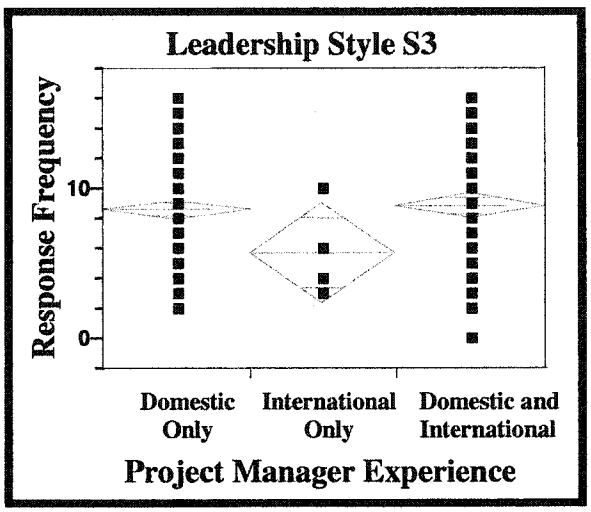
Oneway ANOVA of the Mean Response Frequency for Leadership Style S3 by PM Experience

(Hypothesis 1)



Summary of Fit

Rsquare	0.017353
Adj Rsquare	0.006554
Root Mean Square Error	3.365427
Mean of Response	8.616216
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Domestic/International PM Experience	2	36.4019	18.2009	1.6070	0.2033
Error	182	2061.3495	11.3261		
C. Total	184	2097.7514			

Means for Oneway ANOVA

Participants	N	Mean	Std Error	Lower 95%	Upper 95%
Domestic Only	116	8.58621	0.3125	7.9697	9.2027
International Only	4	5.75000	1.6827	2.4299	9.0701
Domestic and International	65	8.84615	0.4174	8.0225	9.6698

Std Error uses a pooled estimate of error variance

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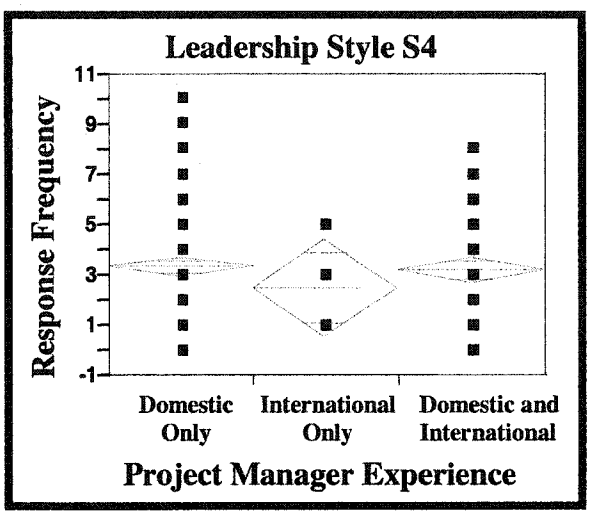
Oneway ANOVA of the Mean Response Frequency for Leadership Style S4 by PM Experience

(Hypothesis 1)



Summary of Fit

Rsquare	0.004427
Adj Rsquare	-0.00651
Root Mean Square Error	1.987997
Mean of Response	3.27027
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Domestic/International PM Experience	2	3.19856	1.59928	0.4047	0.6678
Error	182	719.28793	3.95213		
C. Total	184	722.48649			

Means for Oneway ANOVA

Participants	N	Mean	Std Error	Lower 95%	Upper 95%
Domestic Only	116	3.33621	0.18458	2.9720	3.7004
International Only	4	2.50000	0.99400	0.5388	4.4612
Domestic and International	65	3.20000	0.24658	2.7135	3.6865

Std Error uses a pooled estimate of error variance

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APPENDIX J

CONTINGENCY TABLE FOR PRIMARY LEADERSHIP STYLES AND PM EXPERIENCE
(Hypothesis 2)

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Contingency Table: Primary Leadership Styles and PM Experience

(Hypothesis 2)

Count Total % Column % Row % Expected	S2	S2S3	S2S4	S3	S3S4	S4	Row Totals
Domestic Only	39 21.08 63.93 33.62 38.2486	4 2.16 66.67 3.45 3.76216	1 0.54 100.00 0.86 0.62703	68 36.76 61.26 58.62 69.6	2 1.08 100.00 1.72 1.25405	2 1.08 50.00 1.72 2.50811	116 62.70
International Only	3 1.62 4.92 75.00 1.31892	0 0.00 0.00 0.00 0.12973	0 0.00 0.00 0.00 0.02162	1 0.54 0.90 25.00 2.4	0 0.00 0.00 0.00 0.04324	0 0.00 0.00 0.00 0.08649	4 2.16
Domestic and International	19 10.27 31.15 29.23 21.4324	2 1.08 33.33 3.08 2.10811	0 0.00 0.00 0.00 0.35135	42 22.70 37.84 64.62 39	0 0.00 0.00 0.00 0.7027	2 1.08 50.00 3.08 1.40541	65 35.14
Column Totals	61 32.97	6 3.24	1 0.54	111 60.00	2 1.08	4 2.16	185

Tests

Source	DF	-LogLike	RSquare (U)
Model	10	3.38391	0.0194
Error	170	171.17873	
C. Total	180	174.56264	
N	185		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	6.768	0.7472
Pearson	5.894	0.8241

Warning: 20% of cells have expected count less than 5, ChiSquare suspect

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APPENDIX K

ONEWAY ANOVA OF THE MEAN RESPONSE FREQUENCY FOR EACH LEADER BEHAVIOR BY PM EXPERIENCE (Hypothesis 3)

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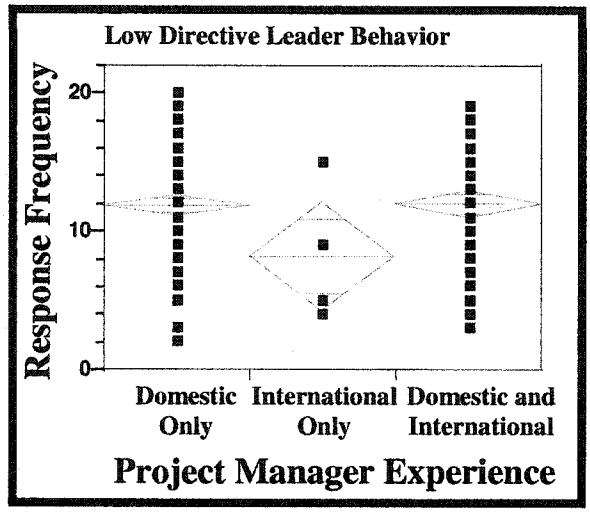
Oneway ANOVA of the Mean Response Frequency for Low Directive Leader Behavior by PM Experience

(Hypothesis 3)



Summary of Fit

Rsquare	0.019096
Adj Rsquare	0.008317
Root Mean Square Error	3.92926
Mean of Response	11.88649
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Domestic/International PM Experience	2	54.7030	27.3515	1.7716	0.1730
Error	182	2809.9133	15.4391		
C. Total	184	2864.6162			

Means for Oneway ANOVA

Participants	N	Mean	Std Error	Lower 95%	Upper 95%
Domestic Only	116	11.9224	0.3648	11.203	12.642
International Only	4	8.2500	1.9646	4.374	12.126
Domestic and International	65	12.0462	0.4874	11.085	13.008

Std Error uses a pooled estimate of error variance

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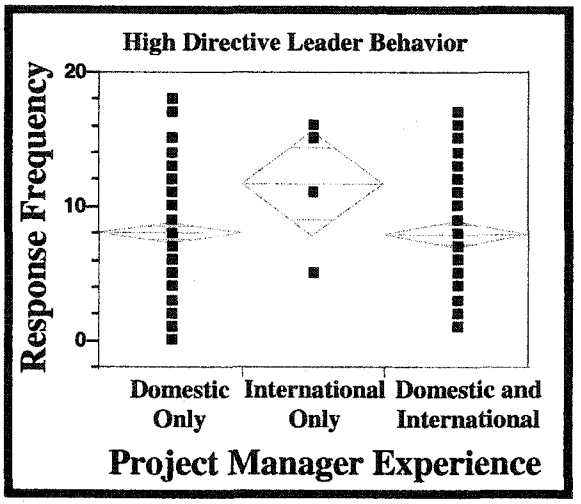
Oneway ANOVA of the Mean Response Frequency for High Directive Leader Behavior by PM Experience

(Hypothesis 3)



Summary of Fit

Rsquare	0.019096
Adj Rsquare	0.008317
Root Mean Square Error	3.92926
Mean of Response	8.113514
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Domestic/International PM Experience	2	54.7030	27.3515	1.7716	0.1730
Error	182	2809.9133	15.4391		
C. Total	184	2864.6162			

Means for Oneway ANOVA

Participants	N	Mean	Std Error	Lower 95%	Upper 95%
Domestic Only	116	8.0776	0.3648	7.3578	8.797
International Only	4	11.7500	1.9646	7.8736	15.626
Domestic and International	65	7.9538	0.4874	6.9922	8.915

Std Error uses a pooled estimate of error variance

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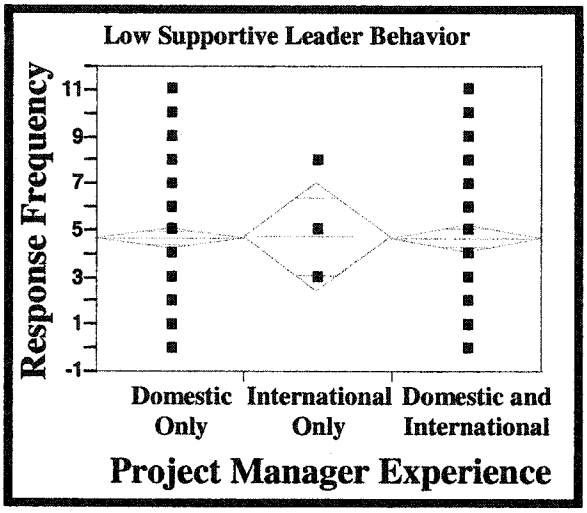
Oneway ANOVA of the Mean Response Frequency for Low Supportive Leader Behavior by PM Experience

(Hypothesis 3)



Summary of Fit

Rsquare	0.000057
Adj Rsquare	-0.01093
Root Mean Square Error	2.342259
Mean of Response	4.675676
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Domestic/International PM Experience	2	0.05646	0.02823	0.0051	0.9949
Error	182	998.48408	5.48618		
C. Total	184	998.54054			

Means for Oneway ANOVA

Participants	N	Mean	Std Error	Lower 95%	Upper 95%
Domestic Only	116	4.66379	0.2175	4.2347	5.0929
International Only	4	4.75000	1.1711	2.4393	7.0607
Domestic and International	65	4.69231	0.2905	4.1191	5.2655

Std Error uses a pooled estimate of error variance

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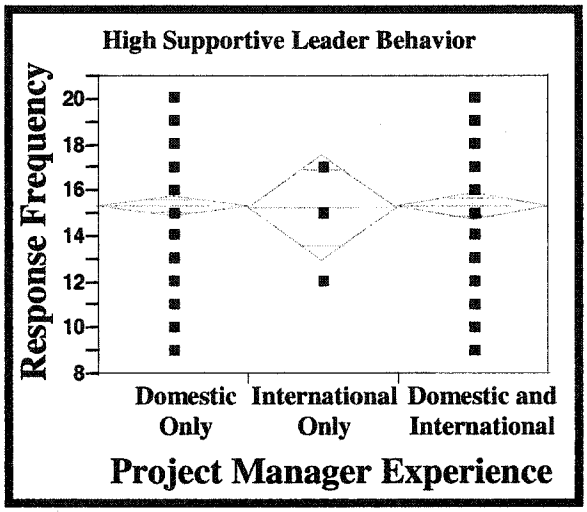
Oneway ANOVA of the Mean Response Frequency for High Supportive Leader Behavior by PM Experience

(Hypothesis 3)



Summary of Fit

Rsquare	0.000057
Adj Rsquare	-0.01093
Root Mean Square Error	2.342259
Mean of Response	15.32432
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Domestic/International PM Experience	2	0.05646	0.02823	0.0051	0.9949
Error	182	998.48408	5.48618		
C. Total	184	998.54054			

Means for Oneway ANOVA

Participants	N	Mean	Std Error	Lower 95%	Upper 95%
Domestic Only	116	15.3362	0.2175	14.907	15.765
International Only	4	15.2500	1.1711	12.939	17.561
Domestic and International	65	15.3077	0.2905	14.734	15.881

Std Error uses a pooled estimate of error variance

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APPENDIX L

ONEWAY ANOVA OF THE MEAN STYLE FLEXIBILITY SCORES BY PM EXPERIENCE
(Hypothesis 4)

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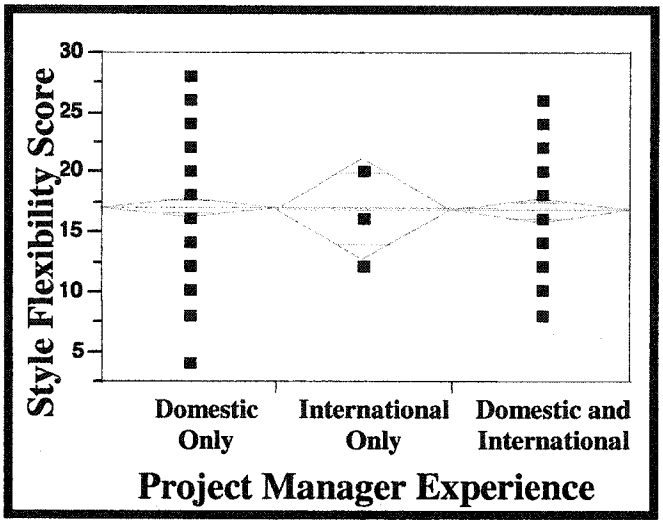
Oneway ANOVA of the Mean Style Flexibility Scores by PM Experience

(Hypothesis 4)



Summary of Fit

Rsquare	0.000974
Adj Rsquare	-0.01
Root Mean Square Error	4.23846
Mean of Response	17.03784
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Domestic/International PM Experience	2	3.1882	1.5941	0.0887	0.9151
Error	182	3269.5469	17.9645		
C. Total	184	3272.7351			

Means for Oneway ANOVA

Participants	N	Mean	Std Error	Lower 95%	Upper 95%
Domestic Only	116	17.1379	0.3935	16.361	17.914
International Only	4	17.0000	2.1192	12.819	21.181
Domestic and International	65	16.8615	0.5257	15.824	17.899

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APPENDIX M

ONEWAY ANOVA OF THE MEAN STYLE EFFECTIVENESS SCORES BY PM EXPERIENCE
(Hypothesis 5)

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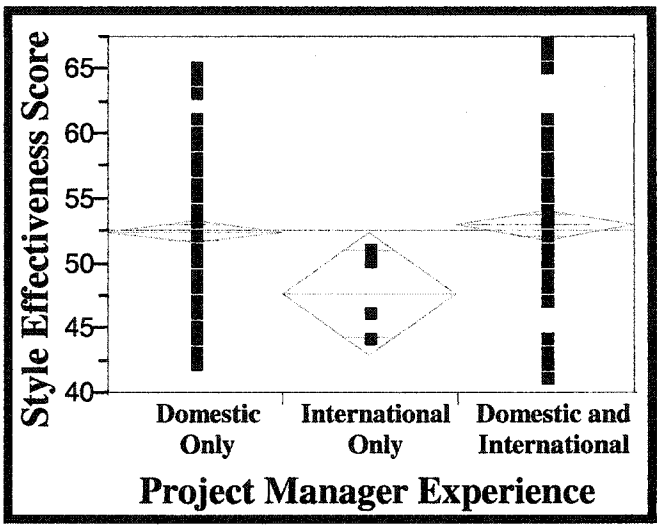
Oneway ANOVA of the Mean Style Effectiveness Scores by PM Experience

(Hypothesis 5)



Summary of Fit

Rsquare	0.025089
Adj Rsquare	0.014375
Root Mean Square Error	4.78188
Mean of Response	52.58919
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Domestic/International PM Experience	2	107.0985	53.5493	2.3418	0.0990
Error	182	4161.6798	22.8664		
C. Total	184	4268.7784			

Means for Oneway ANOVA

Participants	N	Mean	Std Error	Lower 95%	Upper 95%
Domestic Only	116	52.5086	0.4440	51.633	53.385
International Only	4	47.7500	2.3909	43.032	52.468
Domestic and International	65	53.0308	0.5931	51.860	54.201

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APPENDIX N

BIVARIATE FIT AND ANOVA OF EACH LEADERSHIP STYLE BY DEGREE OF INTERNATIONALITY (Hypothesis 6)

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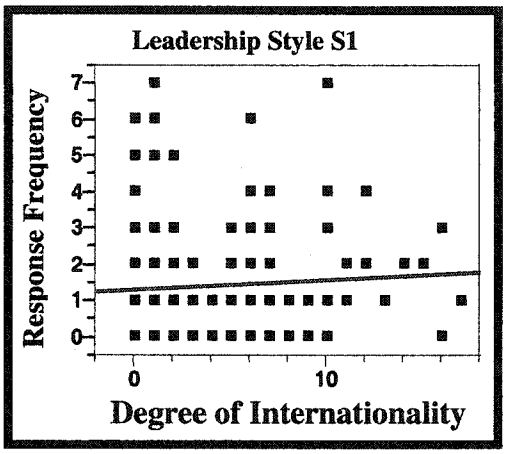
Bivariate Fit and ANOVA of Leadership Style S1 by DOI

(Hypothesis 6)



Linear Fit

S1 = 1.3201543 + 0.0271454 DOI

Summary of Fit

RSquare	0.004545
RSquare Adjustment	-0.00089
Root Mean Square Error	1.596555
Mean of Response	1.405405
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Model	1	2.12981	2.12981	0.8356	0.3619
Error	183	466.46478	2.54899		
C. Total	184	468.59459			

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	1.3201543	0.149922	8.81	<.0001
DOI	0.0271454	0.029697	0.91	0.3619

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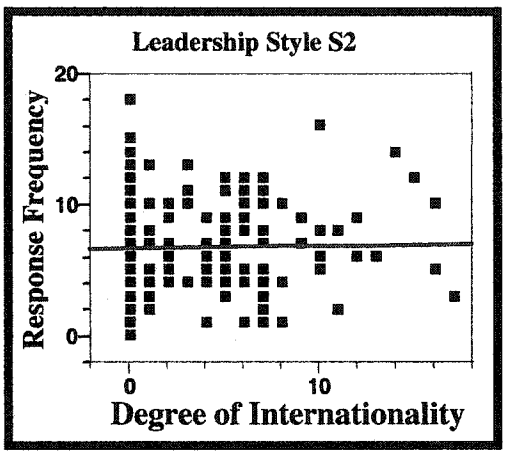
Bivariate Fit and ANOVA of Leadership Style S2 by DOI

(Hypothesis 6)



Linear Fit

S2 = 6.6433607 + 0.0206166 DOI

Summary of Fit

RSquare	0.000548
RSquare Adjustment	-0.00491
Root Mean Square Error	3.49786
Mean of Response	6.708108
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Model	1	1.2285	1.2285	0.1004	0.7517
Error	183	2239.0093	12.2350		
C. Total	184	2240.2378			

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	6.6433607	0.32846	20.23	<.0001
DOI	0.0206166	0.065062	0.32	0.7517

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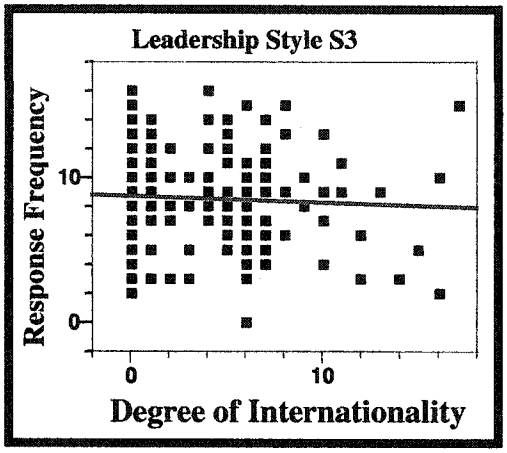
Bivariate Fit and ANOVA of Leadership Style S3 by DOI

(Hypothesis 6)



Linear Fit

S3 = 8.7640122 - 0.0470607 DOI

Summary of Fit

RSquare	0.003051
RSquare Adjustment	-0.0024
Root Mean Square Error	3.380554
Mean of Response	8.616216
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Model	1	6.4013	6.4013	0.5601	0.4552
Error	183	2091.3501	11.4281		
C. Total	184	2097.7514			

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	8.7640122	0.317445	27.61	<.0001
DOI	-0.047061	0.06288	-0.75	0.4552

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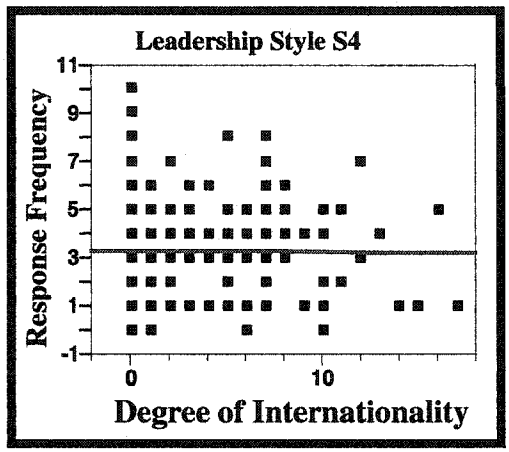
Bivariate Fit and ANOVA of Leadership Style S4 by DOI

(Hypothesis 6)



Linear Fit

S4 = 3.2724728 - 0.0007013 DOI

Summary of Fit

RSquare	0.000002
RSquare Adjustment	-0.00546
Root Mean Square Error	1.986959
Mean of Response	3.27027
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Model	1	0.00142	0.00142	0.0004	0.9849
Error	183	722.48506	3.94801		
C. Total	184	722.48649			

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	3.2724728	0.186582	17.54	<.0001
DOI	-0.000701	0.036958	-0.02	0.9849

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APPENDIX O

LOGISTIC FIT OF EACH PRIMARY LEADERSHIP STYLE BY DEGREE OF INTERNATIONALITY
(Hypothesis 7)

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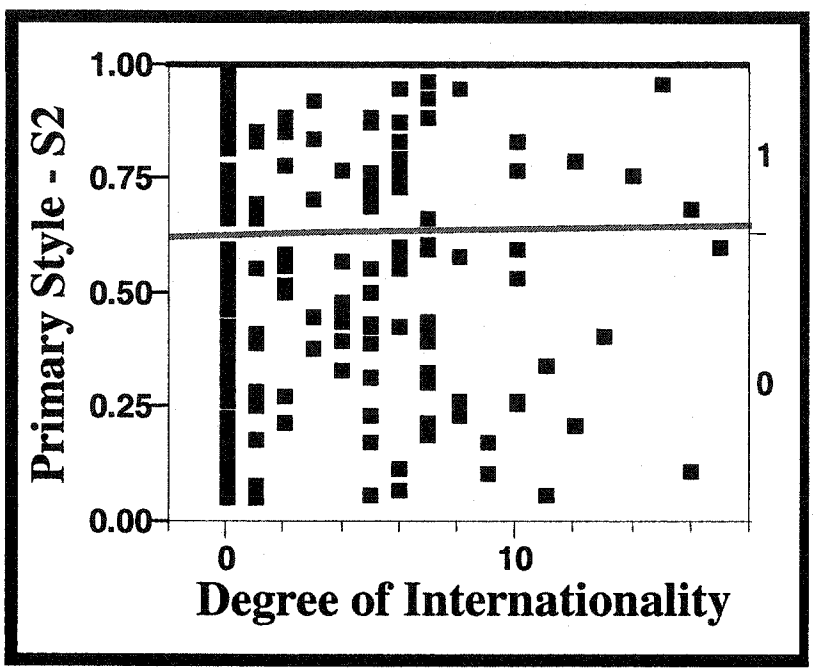
Logistic Fit of Primary Leadership Style S2 by DOI

(Hypothesis 7)



Whole Model Test

Model	-LogLikelihood	DF	ChiSquare	Prob>ChiSq
Difference	0.00944	1	0.018874	0.8907
Full	121.65552			
Reduced	121.66495			

RSquare (U)	0.0001
Observations	185

Converged by Gradient

Parameter Estimates

Term	Estimate	Std Error	ChiSquare	Prob>ChiSq
Intercept	0.5260396	0.1945104	7.31	0.0068
DOI	0.00531303	0.0387231	0.02	0.8909

For log odds of 0/1

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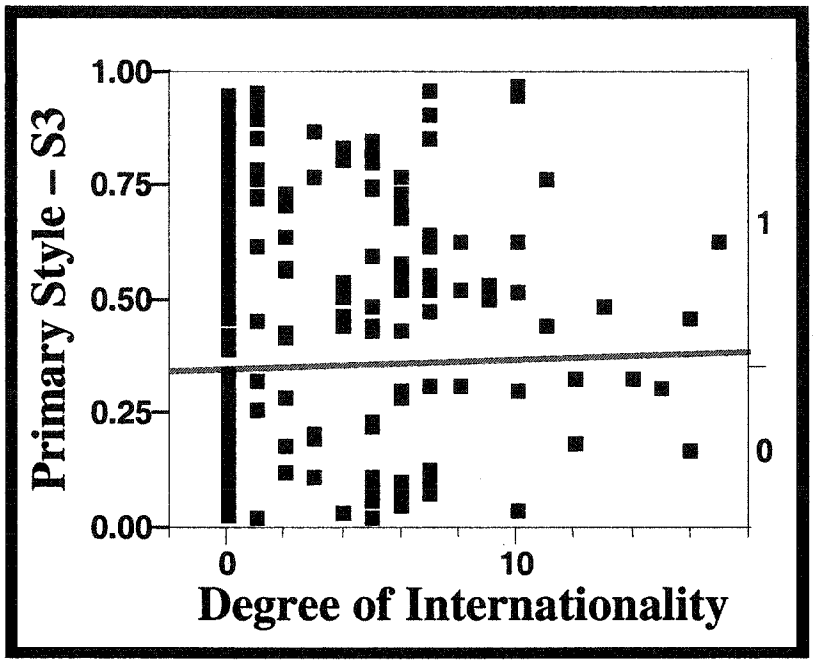
Logistic Fit of Primary Leadership Style S3 by DOI
(Hypothesis 7)



Whole Model Test

Model	-LogLikelihood	DF	ChiSquare	Prob>ChiSq
Difference	0.02460	1	0.049209	0.8244
Full	120.50831			
Reduced	120.53292			

RSquare (U)	0.0002
Observations	185

Converged by Gradient

Parameter Estimates

Term	Estimate	Std Error	ChiSquare	Prob>ChiSq
Intercept	-0.6165779	0.1965124	9.84	0.0017
DOI	0.00858056	0.0386121	0.05	0.8241

For log odds of 0/1

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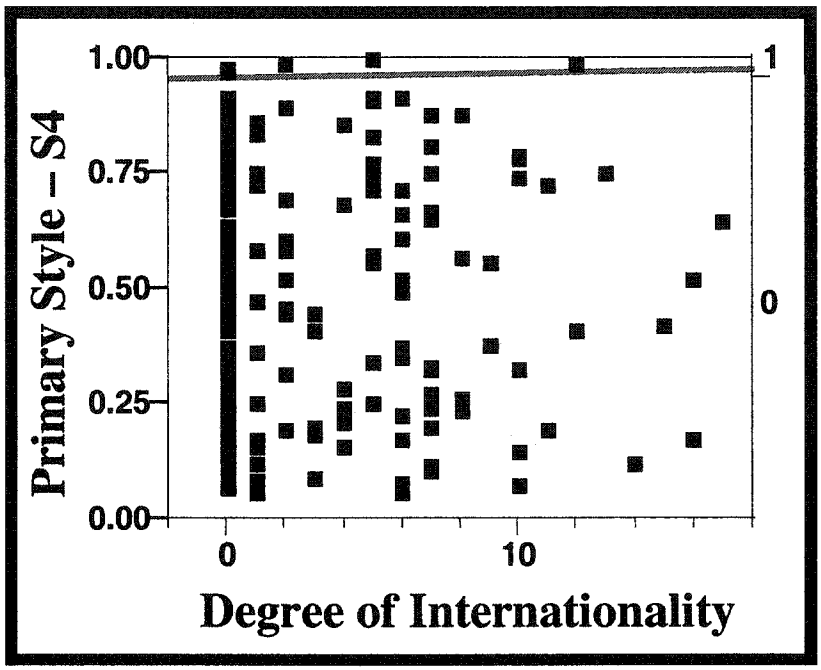
Logistic Fit of Primary Leadership Style S4 by DOI

(Hypothesis 7)



Whole Model Test

Model	-LogLikelihood	DF	ChiSquare	Prob>ChiSq
Difference	0.044321	1	0.088642	0.7659
Full	29.742664			
Reduced	29.786985			

RSquare (U)	0.0015
Observations	185

Converged by Gradient

Parameter Estimates

Term	Estimate	Std Error	ChiSquare	Prob>ChiSq
Intercept	3.14666421	0.4799807	42.98	<.0001
DOI	0.03043697	0.1048312	0.08	0.7716

For log odds of 0/1

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APPENDIX P

BIVARATE FIT AND ANOVA OF EACH LEADER BEHAVIOR BY DEGREE OF INTERNATIONALITY (Hypothesis 8)

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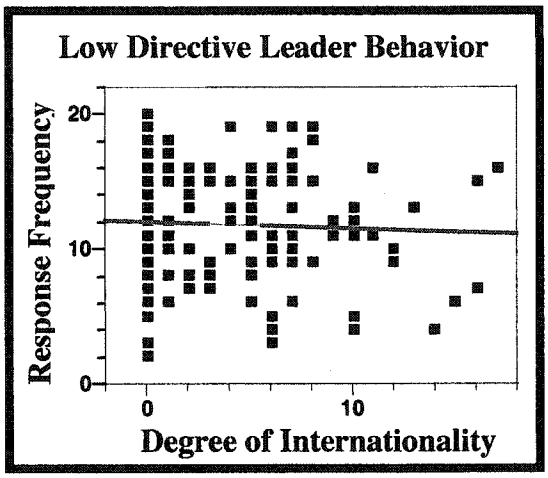
Bivariate Fit and ANOVA of Low Directive Leader Behavior by DOI

(Hypothesis 8)



Linear Fit

Low Directive Leader Behavior (S3S4) = 12.036485 - 0.047762 DOI

Summary of Fit

RSquare	0.002302
RSquare Adjustment	-0.00315
Root Mean Square Error	3.951912
Mean of Response	11.88649
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Model	1	6.5935	6.5935	0.4222	0.5167
Error	183	2858.0227	15.6176		
C. Total	184	2864.6162			

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	12.036485	0.371097	32.43	<.0001
DOI	-0.047762	0.073508	-0.65	0.5167

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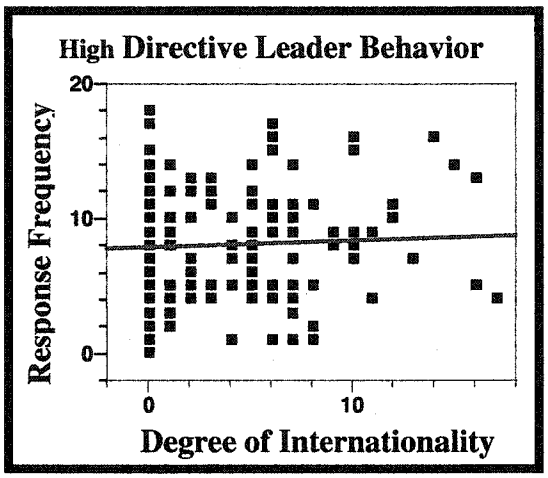
Bivariate Fit and ANOVA of High Directive Leader Behavior by DOI

(Hypothesis 8)



Linear Fit

High Directive Leader Behavior (S1S2) = 7.9635151 + 0.047762 DOI

Summary of Fit

RSquare	0.002302
RSquare Adjustment	-0.00315
Root Mean Square Error	3.951912
Mean of Response	8.113514
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Model	1	6.5935	6.5935	0.4222	0.5167
Error	183	2858.0227	15.6176		
C. Total	184	2864.6162			

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	7.9635151	0.371097	21.46	<.0001
DOI	0.047762	0.073508	0.65	0.5167

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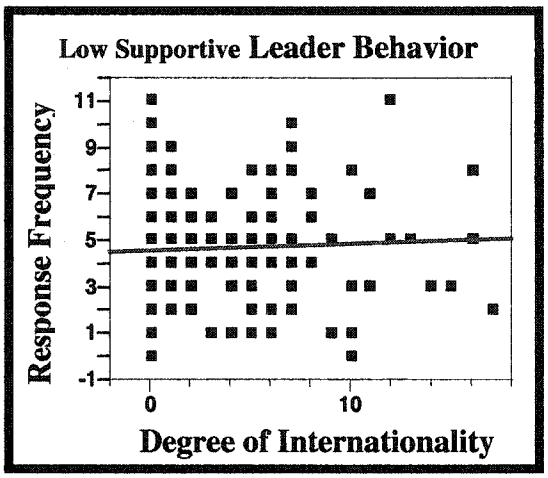
Bivariate Fit and ANOVA of Low Supportive Leader Behavior by DOI

(Hypothesis 8)



Linear Fit

Low Supportive Leader Behavior (S1S4) = 4.5926271 + 0.026444 DOI

Summary of Fit

RSquare	0.002024
RSquare Adjustment	-0.00343
Root Mean Square Error	2.333551
Mean of Response	4.675676
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Model	1	2.02118	2.02118	0.3712	0.5431
Error	183	996.51936	5.44546		
C. Total	184	998.54054			

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	4.5926271	0.219128	20.96	<.0001
DOI	0.026444	0.043405	0.61	0.5431

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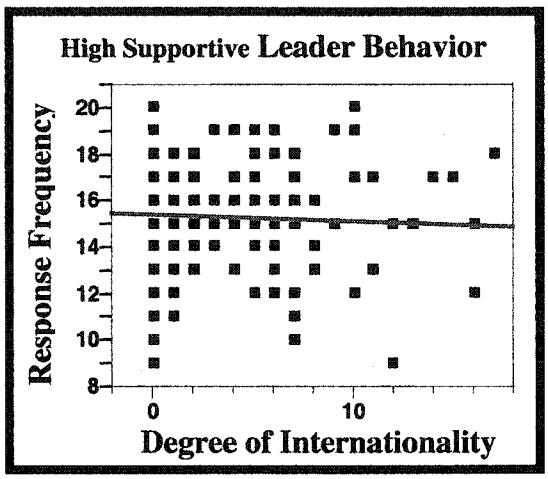
Bivariate Fit and ANOVA of High Supportive Leader Behavior by DOI

(Hypothesis 8)



Linear Fit

High Supportive Leader Behavior (S2S3) = 15.407373 - 0.026444 DOI

Summary of Fit

RSquare	0.002024
RSquare Adjustment	-0.00343
Root Mean Square Error	2.333551
Mean of Response	15.32432
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Model	1	2.02118	2.02118	0.3712	0.5431
Error	183	996.51936	5.44546		
C. Total	184	998.54054			

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	15.407373	0.219128	70.31	<.0001
DOI	-0.026444	0.043405	-0.61	0.5431

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APPENDIX Q

BIVARIATE FIT AND ANOVA OF STYLE FLEXIBILITY SCORES BY DEGREE OF INTERNATIONALITY
(Hypothesis 9)

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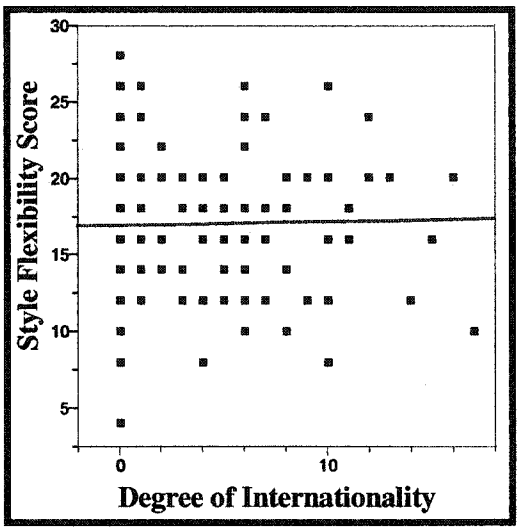
Bivariate Fit and ANOVA of Style Flexibility Scores by DOI

(Hypothesis 9)



Linear Fit

Style Flexibility Score = 16.962847 + 0.0238782 DOI

Summary of Fit

RSquare	0.000504
RSquare Adjustment	-0.00496
Root Mean Square Error	4.227859
Mean of Response	17.03784
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Model	1	1.6480	1.6480	0.0922	0.7617
Error	183	3271.0872	17.8748		
C. Total	184	3272.7351			

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	16.962847	0.397009	42.73	<.0001
DOI	0.0238782	0.07864	0.30	0.7617

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APPENDIX R

BIVARIATE FIT AND ANOVA OF STYLE EFFECTIVENESS SCORES BY DEGREE OF INTERNATIONALITY
(Hypothesis 10)

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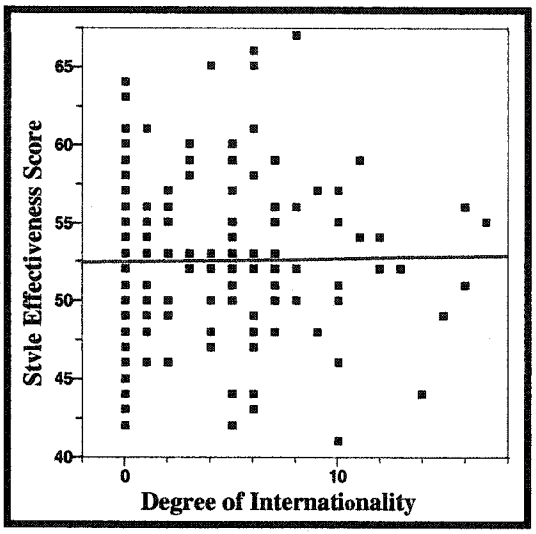
Bivariate Fit and ANOVA of Style Effectiveness Scores by DOI

(Hypothesis 10)



Linear Fit

Style Effectiveness Score = 52.526515 + 0.0199565 DOI

Summary of Fit

RSquare	0.00027
RSquare Adjustment	-0.00519
Root Mean Square Error	4.829117
Mean of Response	52.58919
Observations (N)	185

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Model	1	1.1511	1.1511	0.0494	0.8244
Error	183	4267.6273	23.3204		
C. Total	184	4268.7784			

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	52.526515	0.453469	115.83	<.0001
DOI	0.0199565	0.089824	0.22	0.8244

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APPENDIX S

SECONDARY AND DEVELOPING LEADERSHIP STYLE RESPONSE FREQUENCIES BY CATEGORY OF PARTICIPANTS

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Secondary Leadership Style Response Frequencies by Category of Participants

Category of Participants	Secondary Leadership Style Response Frequencies				
	N	S1[a]	S2[b]	S3[c]	S4[d]
		%	%	%	%
All Participating PMs	185	9.7	37.4	22.9	30.0
Domestic Only	116	9.4	38.9	23.7	28.0
International Only	4	20.0	20.0	40.0	20.0
Domestic and International	65	9.6	36.2	20.5	33.7

[a]Directing: High directive (task), low supportive (relationship) behavior
[b]Coaching: High directive (task), high supportive (relationship)behavior
[c]Supporting: Low directive (task), high supportive (relationship) behavior
[d]Delegating: Low directive (task), low supportive (relationship) behavior

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Developing Leadership Style Response Frequencies by Category of Participants

Category of Participants	Developing Leadership Style Response Frequencies				
	N	S1[a]	S2[b]	S3[c]	S4[d]
		%	%	%	%
All Participating PMs	185	48.4	11.6	6.5	33.5
Domestic Only	116	47.7	10.7	6.9	34.7
International Only	4	42.8	0.0	14.3	42.9
Domestic and International	65	50.0	14.0	5.3	30.7

[a]Directing: High directive (task), low supportive (relationship) behavior
[b]Coaching: High directive (task), high supportive (relationship)behavior
[c]Supporting: Low directive (task), high supportive (relationship) behavior
[d]Delegating: Low directive (task), low supportive (relationship) behavior

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APPENDIX T

CRONBACH'S ALPHA COEFFICIENT FOR LBAII®-SELF USING THE ACCEPTABLE RESPONSE DATA

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Multivariate Cronbach's Alpha

Leadership Style S1

	Alpha	Plot Alpha
Entire set (S1)	0.1481	

Excluded Col	Alpha	Plot Alpha
S1-2	0.1716	
S1-4	0.2318	
S1-7	0.0682	
S1-13	0.1111	
S1-18	0.0589	

Leadership Style S2

	Alpha	Plot Alpha
Entire set (S2)	0.3513	

Excluded Col	Alpha	Plot Alpha
S2-1	0.3367	
S2-3	0.2866	
S2-10	0.2820	
S2-19	0.3192	
S2-20	0.2843	

Leadership Style S3

	Alpha	Plot Alpha
Entire set (S3)	0.3240	

Excluded Col	Alpha	Plot Alpha
S3-5	0.2748	
S3-6	0.3488	
S3-8	0.2731	
S3-12	0.2156	
S3-14	0.2662	

Leadership Style S4

	Alpha	Plot Alpha
Entire set (S4)	0.3864	

Excluded Col	Alpha	Plot Alpha
S4-9	0.2639	
S4-11	0.3786	
S4-15	0.3816	
S4-16	0.3467	
S4-17	0.2850	

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