

UNDERSTANDING THE PROJECT MANAGER COMPETENCIES
IN A DIVERSIFIED PROJECT MANAGEMENT COMMUNITY
USING A PROJECT MANAGEMENT COMPETENCY VALUE GRID

by

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Abstract

Project Management is an internationally recognized and widely accepted management practice used by many individuals, both formally and informally, across numerous industries. While there is an increasing demand for certified Project Management Professionals (PMP) today and the use of project management has existed in some form for many decades there are still significant problems occurring within the discipline. Late project completions and costly over-runs negatively impact many stakeholders.

Competent Project Managers (PM) could be the key to success. The research conducted and resulting analysis identifies key competencies perceived by actual Project Managers (PM) that a PM should possess to be highly successful in today's current and the near future's expected environment and those competencies actually used by the organization. The research discusses the competencies perceived as those needed by a successful PM.

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CHAPTER 1. INTRODUCTION

Introduction to the Problem

In today's business environment, organizations are experiencing a greater number of, and much more complex, challenges in competing and trying to survive. Definitive research indicates organizations need competent managers, especially highly competent project managers (George, 2003; Kerzner, 2003; Wysocki & Lewis, 2001). The ever-increasing competition of the global marketplace with growing demands from both customers and employees in the rapidly changing socio-economic and technological environment are challenging even the best of organizations (Brake, Walker, & Walker, 1995; Chan & Wu, 2002; Green-Ivey, 2002; Kerzner, 2003; Wysocki & Lewis, 2001). Drucker believes, "The world economy is increasingly becoming global" (1999, p. 63). Organizations need to face challenges with competent managers, in particular program and project managers. These managers, especially project managers, must be prepared to meet mounting uncertainties with methodical processes and potential solutions for solving both routine and non-routine workplace problems and project situations.

International organizations' are constantly being challenged by a host of significant factors which include the following list:

1. escalating costs for salaries and raw materials
2. increasing stockholder and union demands

3. developing communication technology
4. changing organizational relationships created by international acquisitions and mergers
5. fluctuating global and regional economies
6. changing regional political environments (Brake, Walker, & Walker, 1995; Chan & Wu, 2002; Green-Ivey, 2002; Kerzner, 2003; Wysocki & Lewis, 2001).

These factors can impair an organization's ability to effectively ascertain the uncertainties and risks associated with their operations and projects. As a result of this an organization can experience significant adverse outcomes.

Organizations must continuously improve their product(s) and/or service(s) to serve their existing clients and gain new customers while still making profits and enhancing their position in the marketplace (Chan & Wu, 2002; Green-Ivey, 2002; Kerzner, 2003; Krahn, 2005; Wysocki & Lewis, 2001). To survive in today's global competitive marketplace, an organization must make the most of all its resources, including human resources (Cadwell, 1995, p. 6). To be successful today, organizations must deliver results on time and within budget (Bruce & Langdon, 2000; Kerzner, 2003). While most of these conditions have existed before, the significance of them today is much harsher (Kerzner, 2003; Wysocki & Lewis, 2001). Employee competency and development is critical to an organization's success, especially when competing in the global community.

Lack of Employee Competencies

Many employees are lacking much needed competencies. Employers are finding shortfalls in competent workforces and capable managers to meet the explosive growth brought on by globalization (Brake et al., 1995; Green-Ivey, 2002). Erik Erikson, a prominent psychologist who has intensely studied the adult development process, suggests people gain confidence only by moving from one crisis to another. His catastrophic theory of development maintains individuals are continually confronted with life tasks which test and try them (Hill, 1984, p. 6). However, to avoid financial problems, organizations must avoid this catastrophic theory of adult development by initially selecting, employing, developing, and promoting competent employees, specifically project management staff.

Unfortunately in the case of project managers, they are often trained on the job with little or no formal education or training within the project management discipline (Carbone & Gholston, 2004, p. 10). As a result, they must attain and maintain their skills which are part craftsmanship, part opportunity, and part attitude (Robertson, 2004). Topchik believes many organizations are guilty of creating managerial incompetence and, as a result, a lack of success due to the promotion of unprepared employees who are promoted to management (2004, p. 159). Organizations promoting on seniority rather than employee competency are at most risk.

An example of a lack of employee competency, resulting in significant cost impact, is in the Information Technology (IT) field. The IT area is one of the most research oriented and expensive industries serving most other industries worldwide.

Based on historical data, organizations in the United States are estimated to spend more than \$250 billion dollars on the development of IT related projects alone. The average development cost for a project in a large company is more than \$2.25 million, in a medium-sized company approximately \$1.25 million, and over \$400,000 for a small company (The Standish Group, 1995, p. 1). “A great many of these projects will fail. Software development projects are in chaos . . .” (p.1). Even with all of the available well-defined project management concepts, tools, and techniques, unfortunately projects of all sizes and dollar values continue to fail at an alarming rate. The resultant costs of these failures have to be borne by the organization. Unfortunately they pass it onto the consumer, stockholder, or the taxpayer who really bear the cost. Therefore any potential adverse impact, especially involving cost, must be carefully considered and risk managed if at all possible to avoid the impact.

Organizational Impact

Organizations are impacted by individual competencies and success or failure. Economist Thomas Schultz was the first to equate skills and knowledge with human capital while arguing investments in education and training are crucial to a nation’s economic and productive growth contributing to their competitive advantage (Mirvis, 1993, p. 3). Hill believes research indicates increasing employee self-esteem is the key to their improved performance (1984, p. 8) and proves self-esteem or self-confidence is a significant factor contributing to managerial effectiveness (p. 20). Hill discusses Abraham Korman’s research as, “. . . the most successful managerial strategy to improve performance will focus on enhancing employees’ self-images” (1984, p. 8).

Organizations are comprised of individuals. While these individuals may operate equipment the most important resource is the individual, not the equipment.

The adverse impact to an organization as a result of a lack of qualified project managers can be significant. Well-defined project management staff roles and responsibilities are important to the development of specific skill sets for use in the initial interview, selection and hiring, training and developing, and promotion of project management staff. These defined roles and responsibilities are even more important with any promotion to the level of project manager.

Project Manager Roles

A project manager's primary role and responsibility is typically to insure project execution in such a manner the specified deliverables will be ready within the planned time and budget planned (Shtub, Bard, & Globerson, 1994). Today project managers play a critical role in an organization's success within the highly technical and fiercely competitive environments. The project manager must be the leader, organizer, and planner (Avots, 1970; Kerzner, 2003; Wysocki & Lewis, 2001). As the project leader, they are the focal point of the project, the rallying point for the team and the primary source of communication and information for the project stakeholders (Bauer, 2005; Harvard Business Essential, 2004). The project manager is personally accountable for the achievement of project goals within the cost, quality, and schedule constraints (*A Framework for Project Management - Facilitators Guide*, 1999; Kerzner, 2003; Wysocki & Lewis, 2001). They are responsible for the organizational change which will be taking

place as a result of the project completion, successful or not. Thus, the project manager is a critical element in every organization.

In trying to meet the increasing challenges of competitiveness, the only organizational survivors are those who accept and embrace change (Drucker, 1999). Effective project managers act as change leaders because they are managing one-time events of a relatively short-time frame which are intended to improve the organization's standing in the industry. They make important decisions, possibly impacting the cost and schedule of a project, based on little data. Further, analyses are often done hastily and ineffectively while working with people at different organizational levels and various disciplines (Avots, 1970; Baker & Baker, 1998; Kerzner, 2003). Therefore, a project manager's knowledge, skills, and abilities must be many, varied, and highly competent. And yet debate exists concerning the actual skills.

Skills Debate

PMI recognition of the need for the use of other management disciplines as effective tools and techniques for the successful project manager is a critical element in the continuing debate on which skills are most important (Bauer, 2005, PMI, 2004). It is clear project managers possessing only technical skills are unprepared to successfully meet client and corporate satisfaction in project management. Diversified competencies and skills are more essential to project manager success in the progressively diverse global environment of the new century (Bauer, 2005). This research project will collect

information from actual project managers and sponsors as to what skills they believe are most essential for a project manager to possess for insuring successful project completion.

Based on current research available, a new study effort is needed to update the literature. Since the existing writings are narrowly focused in regards to overall project manager competencies across industries, new research needs to expand to include project manager competencies in different industries.

Background of the Study

Significant hidden costs can adversely impact organizations as a result of turnover in employees. Gallup poll results indicate a 31% more turnover in poorly managed functions than organizations with employees who are productively and satisfactorily engaged by good management (Wagner & Harter, 2006, p. xiv). “Matching a person to the right job, or a job to the right person, is one of the most complicated responsibilities any manager will face” (Wagner & Harter, 2006, p. 34). This is a critical decision which a manager must be good at making or potentially incur additional work problems to include another personnel selection which will incur additional operating expenses at a later date.

Project managers play a critical role in an organization’s success in today’s highly technical, fast-paced, and fiercely competitive business environments where projects have become the engines of growth. Their selection, assignment, and professional development are often one of the keys to a project’s ultimate success (Bauer, 2005; Kerzner, 2003; Lientz & Rea, 2002; Pinto & Kharbanda, 1995). While some researchers

believe management competencies can be learned and used by individuals independent of their personal dispositions, other researchers believe interpersonal skills training may have a negligible impact on some individuals (McKenna, 2004, p. 665). Project managers lacking the necessary competencies to be successful endanger an overall project's success and thus the organization.

Current literature frequently suggests project manager's lack the necessary qualifications needed for the many challenges of specific projects. As a result, increased levels of risk and less than optimal performance exists. Like other managerial promotions, too often project managers are selected primarily based on their technical competence while lacking the much needed management competencies (Bauer, 2005; Crawford, 2002; Kerzner, 2003; Wysocki & Lewis, 2001). Project management is often called the accidental profession (Crawford, 2002; Heerkens, 2002; Young, 2000).

Topchik writes about many individuals being promoted into the ranks of management every day. Individuals, who are not ready to be or even wanting to be, promoted to managerial level. He calls them the accidental manager (2004, p. 1). Heerkens defines an accidental project manager as, "A person who is placed into the role of project manager by organizational necessity and chance, rather than by design or through choice of career path" (2002, p. 2). While Heerkens definition applies to project managers, there are examples of employees being promoted from a worker position to manager as a result of being the longest term employee.

Many of the reasons technology projects fail are more management-related than technical-related. The practice of promoting the best technical personnel to project

manager does not always work, since technical ability alone is a poor indicator of any real management skills, especially project management abilities. Unfortunately, many organizations fail to have processes in place to properly train and evaluate project managers (Crawford, 2002; Kerzner, 2003). The promotion from worker-bee to project manager often occurs from an individual excelling on a particular, often failing project, and somehow saving it. As a result, they come to the attention of executive management who rewards this newly discovered and perceived highly talented individual with the opportunity of taking on another project along with the new, honorary title of project manager (Crawford, 2002; Kerzner, 2003; Thomsett, 2002). A title many are unqualified to fulfill the roles and responsibilities of the position.

Many project management tools and techniques have been in use for centuries; however, the world in which these early tools and techniques were first used has changed considerably. A whole host of factors, such as global relations; technological advances; and management, employee, and stakeholder expectations have changed (Crawford, 2002; Kerzner, 2003; Krahn, 2005). The pyramids, the Coliseum of Rome, Roman roads throughout Europe, the Great Wall of China, the Taj Mahal, Stonehenge, and the Aztec, Inca, and Maya Temples are examples of the earliest project management efforts over the centuries of project management existence (Lientz & Rea, 2002; Wysocki & Lewis, 2001). Any travel within the city of Rome and sight of the many ancient structures will easily reveal how project management certainly existed in order to build such huge undertakings.

While Krahn writes, “From a broader perspective, society has changed” (2005, p. 10), Lientz and Rea believe, “Current times represent a period of geopolitical and social change.” (2002, p. 3). Project management is at the forefront of many organizational endeavors worldwide and, as such, must be better implemented and managed by competent project managers prepared to meet the project requirements and client expectations. It is important to consider the potential impact of unqualified or incompetent project managers to the overall organization’s capability for success.

The field of project management is continuing to grow with little evidence of it slowing down or, more importantly, becoming less complex. As an increasing number of professionals become new project managers, many without any meaningful background in management or project management tools and techniques, there is an increasing potential for both great successes and, unfortunately, dismal and costly failures. As a result, there is an ever-increasing need to study the competencies and skills expected of the new project manager (Krahn, 2005; Lientz & Rea, 2002). While project managers all have the same end goal of a successfully completed project in mind, they are all different people with varying levels of competence (George, 2003, p. 12). Project failures can create a negative impact to the organizational image and reputation which eventually lead to a loss of future revenues and any accompanying potential profits.

As a result of project management, even poor general management behaviors, any of the following events could occur:

1. potential losses may impact profitability
2. high and unrecoverable expenses may be created

3. significant risks to organizational survival may occur
4. disillusioned and disgruntled employees may develop
5. dissatisfied clients and stakeholders may arise. (Bauer, 2005).

Therefore, it is critical to study the competencies and skills needed for project managers. For the organization, the future picture has become even more complex (Lientz & Rea, 2002). And their ability to respond requires competent managers capable of working across cultures and in the international arena (Brake et al., 1995). Topchik believes he has uncovered a major, largely unexamined barrier to successful organizational performance because of many unwilling managers, accidental or not, to manage effectively (2004, p. 3). As aforementioned, some employees have been promoted to manager as a result of being the longest term employee or the individual who successfully saved a project. Lacking essential management skills and any type of skills development through some education or training programs these new managers can very quickly and adversely impact an organization. Thus a clear statement of the problem is important to be determined and the issue(s) studied.

Statement of the Problem

In dealing with the problem of project manager competencies there are both general and specific issues to be addressed. Generally the problem is a lack of competent project managers overall. Specifically there is little research concerning project manager competencies needed in particular industries. The following explains the general and specific problem issues to be considered.

General Problem Issues

Competency is commonly believed to be a measurable capability required for effective performance and comprised of knowledge, skills, attributes, or personal characteristics which are the building blocks of performance (Langdon & Whiteside, 2004; Marrelli, Tondora, & Hoge, 2005). While the term may be commonly believed and understood, the fact is project managers are still failing to meet stakeholder expectations. Thus, one of the overarching problems is then more a need to discover what specific competencies are desirable for project managers. As a result of current literature lacking particular focus on specific industries, this problem is a significant organizational challenge. This is especially so for an international organization and executive leadership trying to meet specific deadlines and work within the constraints of a tight budget and schedule to meet client and shareholder expectations.

Specific Problem Issues

Finding competent individuals to become successful managers, especially project managers, is a major problem facing global organizations. Most important today is the need for managers, to include project managers, to be experienced in the multi-cultural workplace environments as well as different cultures and societies. Discovering the needed competencies and skills project managers require in their specific industry and type of project is challenging organizational leaders. This is further exacerbated in trying to effectively survive in a global community with its many complexities and increasing number of competitors.

Purpose of the Study

The aim of this research project is to make a meaningful contribution to the literature involving project management by revealing a relational importance of certain competencies and skills as they influence project success. The general problem of the overall lack of competent project managers will be addressed. Research survey questions will ask about the current state of available project management education and training and organizational support for it. In regards to the more specific problem of little research involving project manager competencies needed in particular industries, this research project is oriented to this issue by asking the survey respondents targeted questions concerning industries. Survey questions focus on the discovery of the most important skills a project manager should possess when involved in different industries. Further, it will identify which skills are considered as most important - Hard/Technical (Engineering/Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills.

Final results will provide information organizational leaders can use in developing accurate position descriptions for project managers, hiring the best qualified individuals, and promoting project managers. Properly used, these findings will enable the selection of competent project managers and help eliminate any thoughts where, "Project management is the art of creating the illusion that any outcome is the result of a series of predetermined, deliberate acts when, in fact, it was dumb luck" (Kerzner, 2003, p. 4). Specifically, the results will contribute meaningful research to the academic literature concerning project management and project manager competencies and skills needed in

different industries. The significance of these findings will be a much more detailed analysis of the needed project manager competencies across the spectrum of different types of project work and industries.

Research Questions

The research questions developed for this research project are specifically targeting the competencies needed by project managers across a large spectrum of issues. Beveridge writes, “The man with the right outlook for research develops a habit of correlating what is read with his knowledge and experience, looking for significant analogies and generalizations” (Beveridge, 1957, p. 6). It is the experience of this researcher there is a difference between what actual project managers perceive as important competencies and what organizational executive level management or project sponsors believe are important. Furthermore, there is a disparity in how organizations do initial hiring of individuals to become project managers and then the promotion of internal staff to project manager positions.

More specific information is needed to determine which set of skills is more important to the overall successful project completion. To gain a better insight into the problem concerning needed project manager competencies and skills, this research project will obtain responses to the following three issues:

1. Which skills are most important, when:
 - a. developing job descriptions for a project manager?
 - b. selecting and hiring an individual as a project manager?
 - c. selecting and promoting an internal organizational individual as a PM?

2. Which skills are more important to the overall success of project management in specific businesses or industries?
3. Which skill sets are most important between Hard/Technical (Engineering/Scientific) Skills and Soft/Non-Technical (Interpersonal/People Management) Skills?

Hypotheses

The following six hypotheses involved in this research project are a direct result of the three research project questions. The null ($H_{#O}$) and alternative ($H_{#A}$) hypotheses are:

- H_{1O} - There is no perceived difference concerning various competencies needed by project managers when management is developing a project manager job description
- H_{1A} - There is a perceived difference concerning various competencies needed by project managers when management is developing a project manager job description
- H_{2O} - There is no perceived difference concerning the various competencies a project manager needs when management is selecting and hiring an individual as a project manager
- H_{2A} - There is a perceived difference concerning the various competencies a project manager needs when management is selecting and hiring an individual as a project manager

- H3_O - There is no perceived difference concerning the various competencies a project manager needs when management is selecting and promoting an internal candidate to project manager
- H3_A - There is a perceived difference concerning the various competencies a project manager needs when management is selecting and promoting an internal candidate to project manager
- H4_O - There is no perceived difference between the various competencies a project manager needs to be successful in different industries
- H4_A - There is a perceived difference between the various competencies a project manager needs to be successful in different industries
- H5_O - There is no perceived difference concerning the importance between the Hard/Technical (Engineering/ Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills
- H5_A - There is a perceived difference concerning the importance between the Hard/Technical (Engineering/ Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills

Theoretical Framework of the Study

Within the project management community a belief exists whereas some amount or degree of skills may have an over-arching impact on other skill sets and possibly impact the overall success of a project. Golob's 2002 dissertation and Bauer's 2005 dissertation serve as the foundation for this research project. Their research projects were of the same basic design in reference to the basic questions and their search for

information regarding project manager competencies. Golob found the potential for organizational mistakes in the development and application of project manager position descriptions which could lead to the hiring and promotion of the wrong individuals (Golob, 2002, p. 136). Bauer discovered in the more technical/engineering dominated aerospace industry project managers are generally selected on their technical competence rather than management ability (Bauer, 2005, p. 176). Both Bauer and Golob recommend further study of project manager competencies (Bauer, 2005; Golob, 2002). This project continues the needed research in the area of project manager competencies to better insure successful project completion.

Significance of the Study

This research project will provide a constructive contribution to the knowledge base of the project management discipline. By exploring the relationships among the various skills for project manager competencies relative to impact on project success, this research project will generate valuable insight to offer a basis for improved project manager selection and promotion criteria. It will contribute to the foundation of the PMBOK from both the academic and practitioner orientation. By showing a relationship exists among certain competencies and skills, the final results will provide organizational executive leadership with a better insight into those key competencies and skills most important for their use in developing position descriptions for project managers, hiring new project managers, and promoting internal candidates to project managers. Further, it will determine if organizations are providing needed training and development for their future organizational project managers. However, at the same time, it is important to

remember the simple fact of having the knowledge and skills does not guarantee good job performance (Langdon & Whiteside, 2004). Having the abilities to perform does not necessarily mean an individual will apply them or apply them properly. Coaching and mentoring to lead and motivate project managers is an important element.

Organizational interest in project management has increased with projects becoming more prevalent in the normal workplace environment and important to overall organizational success. Projects have also increased in magnitude and complexity. Project manager effectiveness is generally accepted as critical to the successful accomplishment of any project. Therefore, it is essential to know and understand which key competencies and skills are most important. Since projects may vary in characteristics across different businesses and industries the project manager competencies and skills may also differ (Krahn, 2005). As such the survey questions include some specific demographic questions to determine if and what specific differences industries may create.

Projects tied to an organization's strategic plan and supporting specific objectives significantly raises the value of project management to an important investment for an organization (Golob, 2002). Limited budget dollars means management must spend them wisely on training and development of those competent project management staff where the revenue generated and resultant profits will far outweigh the expense of any training and development. One of the basic questions considered in the hiring process should be as assessment of whether the individual is worth training and development.

Definition of Terms

Key terms and their definitions used in this research project are provided to serve as a basis of understanding the content and meaning while serving as a common vocabulary. For the most part the definitions are taken from specific sources as indicated by the appropriate citations.

Ability. Demonstrated cognitive or physical capability to successfully accomplish a task. It often has several underlying capacities which enable an individual to learn and perform. Sometimes these are time-consuming and difficult to develop (Marrelli, Tondora, & Hoge, 2005).

Accidental Project Manager. A person placed into the role of project manager by organizational necessity and chance, rather than by design or through the personal choice of the career path (Heerkens, 2002, p. 2).

ANSI (American National Standards Institute). Private, non-profit organization that administers and coordinates the United States voluntary standardization and conformity assessment system (Bauer, 2005).

Attitude. An individual's mindset (Robertson, 2004).

Competency. An underlying characteristic of an individual that is causally related to criterion referenced effective and/or superior performance in a job or situation (Bauer, 2005). Critical skill or personality characteristic required to complete an activity or project or required for a certain position (Ward, 2000).

Craftsmanship. Absorbing the principles and techniques of something.
(Robertson, 2004)

Failure. The true definition of failure is when the final results are not what were expected, even though the original expectations may or may not have been reasonable (Kerzner, 2003, p. 64). Failing to meet client expectations.

ISO (International Standards Organization). International organization consisting of member organizations that are the national standards of authority. Responsible for the development and publication of international standards in various technical fields after developing a consensus with key stakeholders (Bauer, 2005).

Knowledge. Awareness, information, or understanding about facts, rules, principles, guidelines, concepts, theories, or processes. Knowledge may be concrete, specific, easily measurable, or more complex, abstract, and difficult to assess. Knowledge is acquired through life experiences and learning (Marrelli, Tondora, & Hoge, 2005).

Leadership. Set of processes creating an organization and helping people adapt to changing circumstances. Defines what the future vision looks like, aligns people with the vision, and inspires others to make it a reality. Leadership focuses on doing the right things (Bauer, 2005).

Management. Set of processes to keep a complicated system of people and technology running smoothly. Traditionally includes planning, budgeting, organizing, staffing, controlling, and problem-solving. Management focuses on doing things right (Bauer, 2005).

Management Competency. A key constituent of the guidance system of an organization that includes the elements of; leading, communicating, negotiating, problem-solving, and influencing the organization (PMI, 2000).

Opportunity. Is a result of observing, networking, and taking advantage of situations (Robertson, 2004).

PMBOK (Project Management Body of Knowledge). Inclusive term describing the sum of knowledge within the project management profession. It includes proven, traditional practices which are widely applied, as well as innovative and advanced ones which have seen more limited use (PMI, 2004, p. 167).

PMP (Project Management Professional).

1. An individual certified as such by the Project Management Institute (PMI). (PMI, 2004, p. 167).

2. PMP certification is a rigorous process documenting an individual's achievements in project management. Certification demonstrates proof of high standards of professional achievement and increases a confidence in performance ability (Bauer, 2005).

Population. Consists of all items of interest within a specified group (Evans & Olson, 2000, p. 12).

Portfolio Project Management. Art and science of applying a set of knowledge, skills, tools, and techniques to a collection of projects to meet or exceed the needs and expectations of an organization's investment strategy (Dye & Pennypacker, 1999).

Process. Series of actions bringing about a result. Project processes are performed by people and fall into either project management processes concerned with describing and organizing the work or product-oriented concerned with specifying and creating the end product (PMI, 2004). Steps taken to reach an end-result.

Program. Group of related projects managed in a properly coordinated way. Programs usually include an element of ongoing activities or projects (PMI, 2004).

Program Management. System under which action may be taken toward the goals of multiple projects. Group of projects managed in a coordinated way to obtain benefits not able to be obtained by managing them individually (PMI, 2000).

Project. Temporary, usually one-time, endeavor undertaken to create a unique product or service (PMI, 2004).

Projectivity. Organizational ability to achieve results using the project approach. The word is designed to provide association with effective, productivity and project (Andersen, Grude, & Haug, 2004).

Project Management.

1. Application of knowledge, skills, tool, and techniques to project activities to meet specific requirements. Accomplished through the use of processes, such as: initiating, planning, executing, controlling, and closing (PMI, 2000).

2. Application of knowledge, skills, tool, and techniques to specific project activities to meet or exceed stakeholder needs and expectations (PMI, 2004).

Project Management Success. Meeting customer/client expectations while getting the job done within time, cost, and quality constraints (Bauer, 2005).

Project Management Team. All of the members of a project who are directly involved in project management activities. On small projects, may include virtually all of the project team members. (PMI, 2004).

Project Manager. Individual directly responsible for managing the project. (PMI, 2004).

Project Success. Measure of success or a favorable/desired outcome. Success is the outcomes, the achievement of project objectives, relative to cost, schedule, and performance (Bauer, 2005).

Sample. Subset of the population (Evans & Olson, 2000, p. 12).

Skill. Capacity to perform mental or physical tasks. Like knowledge, it can range from the highly concrete and easily identifiable tasks, such as filing documents, to those less tangible and more abstract, such as managing a project or program (Marrelli et al., 2005).

Success. Meeting customer's expectations regardless of whether or not the customer is internal or external. Success includes getting the job done within the constraints of time, cost, and quality (Kerzner, 2003, p. 61).

Technical Competency. Specialized knowledge or skill related to engineering or scientific principles (Bauer, 2005).

Assumptions and Limitations

All projects have certain assumptions and limitations involved, especially research projects. The following describes the assumptions and limitations anticipated in this research project.

Assumptions

1. As this research project is an expansion of other similar research efforts as to the needed competencies of project managers it is assumed many of the

certified project managers are already familiar with the basic materials involved in the research questions.

2. Survey data will be obtainable from a multitude of project managers and project sponsors in different organizations.
3. Since this is a volunteer response survey there may be a limited number of respondents who choose to take the time to participate thus some potential bias may result.
4. The survey respondents are all volunteers and not required to respond. There will be no known coercion imposed by higher authorities within an organization for an employee to participate.
5. The survey respondents have the experience and knowledge to properly respond. Further, they will accurately complete the entire survey instrument within this research project.
6. Since the survey instrument asks for the participant's perceptions regarding certain competencies, it recognizes an indeterminate degree of bias may be inherent in the collected data.
7. Since a global call for survey respondents will be made, cultural differences may also impact some responses. As the survey is being offered globally, Rossman's writing, "Many different types of assumptions may relate to the population or sample used in the study or may be concerned with subtle differences regarding cultures or societies" (1995, p. 92) must be considered. Because of these factors, systematic variance in the survey population, due to

either known or unknown influences, could cause some data to be skewed.

Data analysis will be careful to determine if differences appear between global regions, i.e., United States vs. Europe.

8. It is believed all reference information found in the literature review was originally thoroughly researched with the information deemed accurate and sound. Numerous sources were reviewed with several creditable authors referenced. During the literature review there were many times when authors referenced other project management authors in their articles or books.
9. The actual research method may be unable to account for any conflicting responses made by survey respondents. Francis writes, “The assumptions made in a research study are often difficult to describe in a proposal because at the time the proposal is written, the study has not been fully developed” (1988, p. 47). Assumptions considered at the onset of this research project will be reviewed during the data analysis to see if they were accurate and complete.
10. Since the survey participants self-responded and their contact information has not been collected there is no means to accurately prove or disprove any responses through any type of follow-up.
11. While every effort will be made to collect as many responses as possible there will be some organizations and potential survey respondents who will not wish to participate.

12. The survey participants who do respond will do so in a truthful and responsible manner in order to further the meaningful contribution of the survey results.

Limitations

1. To gather as much data as possible this research project was completely unrestricted as to its survey population. It was not limited to any specific country, industry, or operating environment.
2. There will be survey respondents from different cultures and societies involved. There were no limitations placed on the potential survey respondent population in hopes of gathering as much meaningful and valid data as possible.
3. The survey questions are primarily closed-ended questions. As such, a respondent may be unsure of the best answer and may select one of the fixed responses randomly rather than in a thoughtful manner (Rea & Parker, 1997, p. 34). During the data analysis attention will be paid to those responses which may fail to meet the norm or appear to have been randomly selected.
4. Some survey respondents may have difficulty in understanding the actual meaning of a particular survey question. Every effort has been made to simplify the survey questions with explanations.
5. Since the survey instrument will only be available for a specific period of time, not all project managers or project sponsors will be able to respond.

6. Since the survey instrument is a one-time measurement the survey respondents may be responding on a limited knowledge and experience basis.
7. This research project cannot account for all of the complexities of project management processes and requirements existing within different organizations.

Nature of the Study

This research project is quantitative in nature. “In quantitative studies, investigators use research questions and hypothesis to shape and specifically focus the purpose of the study” (Creswell, 2003, p. 108). Researchers develop a multitude of assorted hypotheses to proof or disprove specific philosophies or predict relationships among variables (Creswell, 2003). The primary aim is to make a significant contribution to the existing project management literature by showing a relational importance of certain competencies and skills as they influence project success. The problem of an overall lack of competent project managers will be entertained. Research survey questions will ask about the current state of available project management education and training and the organizational support of it. The more specific problem of limited research involving project manager competencies needed in particular industries is addressed by asking the survey respondents targeted questions concerning industries. Further, it will identify which skills are perceived by project managers in comparison with those considered by the organizational executives as most important in regards to the Hard/Technical (Engineering/Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills.

The final results will provide organizational leaders with valuable information for use in developing accurate position descriptions for project managers, hiring the best qualified individuals, and promoting project managers. Specifically, the results will contribute research to the literature concerning project management and project manager competencies and skills needed in different industries. The significance of these findings will be more detailed analysis of the needed project manager competencies across different types of project work. The value of the research is enhanced by having both project managers and project sponsors responding.

Organization of the Remainder of the Study

This research project was driven by the problem statement identifying the need for a more current assessment of the competencies needed by project managers. A synopsis of subsequent chapters in this research project consists of a literature review; a description of the research methodology; a presentation of the data analysis and synthesis; and a final chapter containing the summary, conclusions, and recommendations.

Chapter 2. Literature Review

This chapter of the research project consists of a literature review of several project management books and articles involving project failure and success, project manager knowledge, skills, and abilities (KSAs) and competencies, and the project management tools and techniques available.

Chapter 3. Methodology

This chapter of the research project contains a description of the research methodology, followed by a description of the survey instrumentation; the sample population, data collection protocol, and data analysis procedures to be used.

Chapter 4. Presentation and Analysis of the Data

This chapter of the research project will be completed after the survey data has been collected. It will contain a comprehensive description, analysis, synthesis, and presentation of the survey data collected to include the demographics of the sample population.

Chapter 5. Summary, Conclusions, and Recommendations

This final chapter of the research project will be written after the analysis has been completed. It will include a summary of the analysis, conclusions drawn, a list of project manager key competencies and skills, and recommendations for further study.

CHAPTER 2. LITERATURE REVIEW

Introduction to the Literature

This chapter provides a review of pertinent literature relating to the key topics of this research project. The first section describes the workforce, past and present. The ‘History of Project Management’ followed by sections on ‘Project Failure and Success’ and ‘Project Manager Skills’ are an attempt to help the reader gain a basic understanding of the background of the profession and why competent project managers are so important. A section on ‘Project Management Associations’ followed by sections on the ‘Project Management Body of Knowledge (PMBOK)’ and the different levels of project management known as ‘Portfolio, Program and Project Management’ and the ‘Project Team Members’ will define important information needed to grasp the concept of project management. The final sections of ‘Professional Development’ and ‘Emerging Trends’ will close out the literature review by revealing what organizations and project managers need to do for professional development in attempting to meet the challenges ahead.

Project Failure

Success and failure are simply measurements. Variables measuring success or failure are not normally linear functions or independent (Gilbreath, 1986, p. 2). When a project exceeds a budget it is often considered a cost control failure. However, the real cause of the excess may have been poor project performance in any of the three factors of

cost, schedule, and technical performance. “These three primary project performance factors are so highly interrelated and interdependent that any change in one will almost certainly cause (or have been caused by) changes in the others. Failure is contagious” (1986, p. 3). Therefore, it is critical for a project manager to have a high degree of competence in the actual use of project management tools and techniques.

There are various consulting firms compiling data concerning the failure of projects in order to sell their services by assisting organizations in managing projects of all sizes. The international consulting firm of IT-Cortex compiled some research materials from various sources concerning project failures. In the 2001 Robbins-Gioia survey of 232 organizations, 51% considered their projects as unsuccessful. In the 2001 Conference Board Survey of 117 companies, 40% of the projects failed with average implementation costs exceeding 25% of the budget. In the 1997 KPMG survey of 176 Canadian companies, 61% of the projects were considered failures with over 75% of them exceeding their schedules by 30% or more with unbudgeted expenditures into the billions. In the 1995 British survey by the Organizational Aspects of Information Technology (OASIG) of 14,000 organizations, approximately 70% reported project failure (IT-Cortex, 2006). Such an overwhelming number of failures is indicative of a lack of project management competence.

The well-known, international Gartner Group consulting firm reports 66% of large scale projects fail to meet objectives, are delivered late, or are substantially over budget with approximately 35% of a projects total cost going for rework. Further, 75% of failed \$500,000+ projects failing to be properly tracked through a Project Management

Office (PMO) and at least 10% of IT organizations without strong risk assessment/mitigation forced to cancel at least 20% of all projects (Gartner Group, 2006). High failure rates within the IT functions and their projects can impact other activities.

In 1995 research conducted by the Standish Group estimated expenditures by companies and government agencies would approximate \$81 billion dollars for cancelled software projects with an additional \$59 billion dollars for completed projects but with a late delivery (Lewis, 2001, p. 109; The Standish Group, 1995, p. 2). Further, over 30% of projects will be cancelled before completion with over 50% costing approximately 185% of their original estimates. The average success rate for projects completed both on-time and within budget is only about 15%. In large companies, less than 10% of their projects come in on-time and within budget. And sadly, even when on-time and within budget the completed projects do not meet their original specification requirements. Approximately 40% of large company projects possess all the originally proposed features and functions. Smaller companies are much more successful with an approximate 75% of their projects possessing about 70% of the original features and functions (The Standish Group, 1995, p. 2). Billions of lost dollars in project costs means the cost(s) must be eventually passed onto the customer or stakeholder.

Causes of these failures are a topic of much debate by project management authors and theorists. One of the prevailing themes is a lack of knowledge, skills, and abilities (KSA) and competencies of the project manager and/or project team members. On the other side, many project managers will argue failure is a result of executive

decisions. In either case, organizations are being challenged to succeed and complete projects on time and within budget while meeting expectations.

Causes of Project Failures

While project failure is common, there is much debate as to the reason. “A common cause of project failure is assigning under-skilled project managers to complex projects” (General Accounting Office [GAO], 2001, p. 1). Avots writes about how some project management endeavors are doomed from the very beginning and how they probably should not have been undertaken. He lists, among seven major causes for failure of projects, management’s failure to select the correct individual to be the project manager as number two after the basis for the project not being sound (1970). This failure to select the correct individual can be avoided through a better understanding of the needed project manager competencies.

There is much debate on the issue of project failures with project managers frequently laying blame on organizational management’s failures and the client’s unreasonable expectations. Sunny and Kim Baker talk of project failure being a result of not enough resources or time allocated by organizational management to complete the project and unclear client expectations (1998, p. 22). While failures tend to be blamed on others, the Baker’s identification of project failures can be reduced through competent project management.

While the arguments are ongoing there does appear a greater need for competent project managers. The organizational challenge is to find a competent project manager capable of handling a diverse community consisting of project team members,

organizational managers and executives, shareholders, and the client. The role of this individual is complex and requires a highly competent individual to deal with the worker.

Workforce

While it is common knowledge the American workforce is changing, project managers must understand these changes. Prior to the 1970's, the average employee was a married, white male, approximately 29 years of age, with fewer than 12 years of education and worked within their region of birth (Jamieson & O'Mara, 1991, p. 15) . Today, organizations are often multinational with an extremely diverse workforce, commonly from around the globe. Formerly considered a non-traditional workforce, organizations now commonly employ people with disabilities, retirees, immigrants, minorities, and women (1991). While the United States today has the most highly educated workforce in its history, it also has an increasing number of people who are considered functionally illiterate. These people lack the basic skills to attain individual goals and societal expectations of holding a job (1991). Academic test results indicate United States school children are ranking lower than students from other developed countries. This places greater demands upon organizations to implement remedial and basic skills training for new entry employees (Mirvis, 1993, p. 3). “Among eighteen- to twenty-one-year-olds in 1988, 13.6 percent dropped out of high school. . . . For blacks, the rate was 17.5 percent; for Hispanics, 23.9 percent.” (Jamieson & O'Mara, 1991, p. 24). As a result of this high drop-out rate, the current workforce today is seriously challenged. This lack of education hinders an employee's personal development process as well as their personal self-esteem which is important to their overall skill development.

Project Management

History

Project Management is perhaps as old as the world itself. Forsberg, Mooz, and Cotterman write, “. . . the first practitioner having been God, who gave himself six days in which to turn the void into the world, then turned operations management over to Adam . . .” (2000, p. xxiv). People have been doing projects for millennia, since the earliest days of organized human activity. Prehistoric hunting parties were projects, temporary undertakings directed at the important goal of community survival by obtaining meat (Frame, 1994, 1995). Large, complex projects have existed for a long time. The pyramids, the Great Wall of China, Hadrian’s Wall, and the Roman aqueducts were all ‘projects’ in their time. As the Manhattan Project to build an atomic bomb or the Apollo Project to send men to the moon were in recent times (Frame, 1994, 1995). Project work is fundamentally an outcropping of the Industrial Age as getting the job done within a given time frame is a basic premise of both the industrialist and the project manager (Dinsmore, Martin, & Huettel, 1997). When the aforementioned structures are viewed, it is obvious a great deal of project management was involved.

Project management as it is primarily practiced today came into being after World War II as a product of many forces of the time. Operations research made us aware of decision tools to allow humans to optimize their efforts. System analysis gave a means to interconnect events and simplify the complexity of new systems (Frame, 1994).

Project Management has traditionally been carried out in the construction, architecture, and engineering professions, where there has been a need to get a

firm handle on large, complex undertakings. . . . In the past two or three decades, we have been dramatically propelled into an age where people are working less with tangible things and more with intangible information. This is reflected in statistics that show that some three-fourths of the American working population is engaged in service-sector jobs, many of which involve the manipulation of information. (Frame, 1995, p. 16)

Initially project management knowledge focused on the core skills of project budgeting, activity scheduling, and resource allocation becoming linked to key management tools, such as Gantt Charts, scheduling networks, and resource loading charts (Frame, 1994). Most of the project management tools and concepts used today originally developed in response to real-world operational problems. Unlike some popular management philosophies today, they were not conceived academically, although they have become formal explorations in the academic context. Unfortunately project management theory, while recognized by some organizations as a sophisticated profession, is still misunderstood by many organizations and people, even though practiced by them (Dobson, 2003; Howes, 2001). Since the late 1980s project management has developed into a separate and recognized career path (Taylor, 2001). Modern project management has evolved to instill acceptance across countless industries. Capabilities have been strengthened and enlarged through the development of project management tools and techniques and the implementation of a multitude of training programs (Hill, 2004; Mingus, 2002). However, this evolution must be continually monitored and reinforced to insure its success.

Throughout the latter part of the last century a variety of management techniques and offerings were available to business leaders to enable them to solve problems and manage change. Organization & Management (O&M), Total Quality Management (TQM), Added Value Analysis, and Business Process Reengineering are a few such management techniques. While all of these have significantly contributed to the success of many organizations, it is still a sad reality of many organizations failing and continuing to fail to benefit as originally promised (Buttrick, 2000). While failure is not considered an option by some people the simple reality is that project failure is a quite common occurrence.

Current Views

Project management is an area of increasing interest and importance to many individuals and organizations. Projects exist everywhere: public and private organizations, for profit and not-for-profit activities, large and small companies. Expansion into new disciplines is common today (Crawford, 2002; Krahn, 2005). Although organizational interest in project management has come about more through necessity than desire it has increased over the past several decades. Managing by projects often seems to be the best approach to tasks not effectively handled through traditional methods. The use of project management concepts and techniques is becoming more prevalent, critically important, and more heavily relied upon for organizational success (Avots, 1970; Kerzner, 2003; Krahn, 2005). Its slow growth and wide acceptance may be due to an inherent fear of the unknown and a general resistance to change, coupled with management's call for accountability by employees and stakeholders (Kerzner, 2003).

There is a belief the growth and acceptance of project management will significantly increase, especially in the area of multinational organizations (Greer, 2002; Kerzner, 2003; Wysocki & Lewis, 2001). With the large scale, international business mergers seen today this prediction is easy to accept.

Project management can be considered a management tool. A tool to better manage projects by completing activities in a timely manner, either on or ahead of schedule, and within established budget constraints, preferably below predetermined dollar amounts. And, most important, a management tool helping project teams meet the acceptable satisfaction of the client. In their 'Guide to the Project Management Body of Knowledge (PMBOK)' the internationally recognized Project Management Institute (PMI) defines project management as, “. . . the application of knowledge, skills, tools, and techniques to project activities to meet project requirements. Project management is accomplished through the use of processes, such as: initiating, planning, executing, controlling, and closing” (PMI, 2000, p. 6). This project management community, commonly accepted definition can easily be acknowledged by any management executive.

Project Failure or Success

Top management of an organization must be committed and involved at the onset of a project. Decisions involving organizational goals must be made by top management (Turtle, 1994). Although the importance of projects and project management has been acknowledged, an alarming percentage of all product failures are linked to poor project management. Project teams still continue to fail. Some succeed well, while most fail

(Bauer, 2005; Forsberg et al., 2000; LaBrosse, 2002). “The watch for potential failure is a continuous activity that must be a responsibility of everyone involved not just the project manager” Young (2000, p. 10). Most of the factors leading to the success or failure of a project are in the basic foundation of the project scope (Fleming & Koppelman, 2000). Along with the planning, organization, control, and execution of a project comes the need for the one key ingredient of having the right people on the project and properly managing them (Andersen, Grude, & Haug, Lewis, 1997). One of the primary causes of project failure appears to be the lack of complete understanding of the full scope of the work (Fleming & Koppelman, 2000) and poor project management. While evidence shows a growth in membership of project management professional organizations and the use of the project management discipline, tools, and techniques, actual project performance results has not improved and still continues to disappoint stakeholders (Bauer, 2005). The growth in the project management community does not insure success of the profession or the associated projects. Executive management and project sponsors must take on the challenge of project manager competence to insure project success which will eventually result in the success of the profession.

All organizations must make global competitiveness one of their strategic goals (Drucker, 1999) because the global marketplace has created a significant demand for better, faster, and more cost-effective and efficient projects (Philips, Bothell, & Snead, 2002). Most executives spend a considerable amount of their time in search of a competitive advantage (Lencioni, 2000). In responding to the challenges of the new century with lean organizations and increasing global competitiveness, few international

organizations are immune from failure. As such, they must address rapid, sudden, and complex changes while doing more with less and plan accordingly to avoid project failures (Brake et al., 1995; Buttrick, 2000; Drucker, 1999; Frame 1995). In doing so, they should accept the project management practice of a common set of processes and procedures and sharing of information. This will make the project and information sharing much easier, especially when working across the globe with different cultures and timeframes (Drucker, 1999; Young, 2000). Organizational executives need accurate and timely information concerning project status. Project success and sponsor support may depend upon this information. Project managers are responsible for insuring effective project communication by asking themselves what information is owed the executives and what information do they need from their project team (Drucker, 1999). Effective communication is essential in everything, not just a project.

A primary factor empowering a project team, which ultimately determines which projects fail or succeed, is the leadership brought to bear on the project at all levels within the organization (Cleland, 1994). Executives sometimes have a half-hearted attitude towards project management and choose to hold back much needed resources to insure project success. Project managers lacking the proper support of the organizational leadership are in a compromising position; therefore, it is crucial to get the appropriate level of project sponsorship (Pacelli, 2004). Krahn's research found leadership support of the project manager's role is important to project success (2005). Business success is based on the creation of value (Drucker, 1999). "All white-collar work is project work. . . . Project work is the future of the company waiting to be discovered" (Peters, 1999, p.

116). While there is a difference between daily work activities and projects there is an increasing move toward project type assignments in a lot of organizations today.

Project success has different meanings to different people. Project team members are completing their work and coming to the closure phase while the client is finally using the end result of the many activities, tasks, and milestones experienced in the conduct of the project. Recent studies of industry personnel indicate they rate project success from a global view based on the following criteria “. . . in this approximate order of perceived importance:

1. Technical Performance
2. Efficiency of Project Execution
3. Satisfactory Benchmark Achievement
4. Manufacturability
5. Business Performance
6. Project Start-Up
7. Team Technical Capabilities” (Pinkerton, 2003, p. 337).

Project success is based on whether or not the project meets its technical, time, and cost objectives (Pinkerton, 2003). Mingus believes the three measures of success are scope, time, and cost with an interrelationship among quality and resources as reflected by a circle labeled with Quality and Resources bordered by a triangle with each side labeled with a measure of success. While the Mingus graphic depicts a perception of project success, another depiction better includes the traditional management resources as shown in Figure 1.

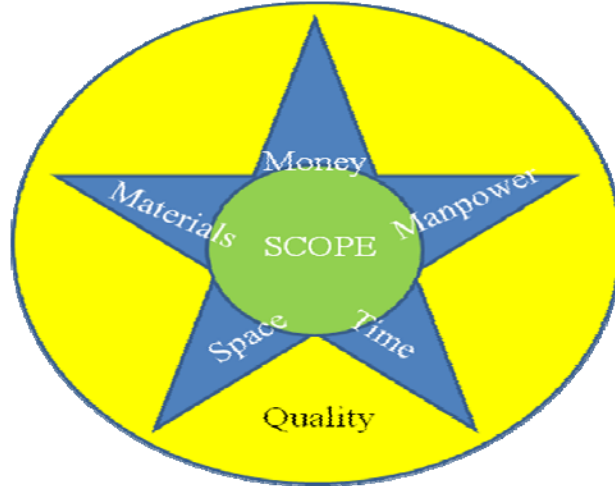


Figure 1. Project Management Scope vs. Resources. Source: McHenry Developed

Observing all of the management resources as success factors within the defined scope quality requirements is more indicative of real success. Since project success is closely linked to the project manager effectiveness, project manager competencies and skills are essential for business success and a creation of value.

Project Manager Competencies and Skills

Most employers believe it difficult for one single person to be completely proficient in the many competencies expected of project managers (Rodriquez, 2005). Since projects are becoming the essence of work, a project manager must continue to develop their skills (Randolph & Posner, 2002). Further, to be effective today, project managers have to adapt their management style to the immediate project and specific situation (George, 2003). Management is challenged in trying to encourage project managers' development by helping them to find the appropriate projects matching their talents (Wagner & Harter, 2006). Competencies are different between organizations;

however, competencies are part of an organizations very fabric (Drucker, 1995).

Competencies include more than just job-related skills.

Proper education and training prepares employees to apply integrated knowledge into a practical, job situation (Sims, 1994). The practice of project management involves many different skills, such as understanding the interdependencies among people and tasks, various technologies, detailed budgets, and documented expectations. Further, planning the project and tasks to maximize productivity; motivating others to execute the project plan; analyzing the actual results compared to the project plan are critical tasks. Reworking and fine tuning the original project plan to deal with the realities of what really happens as the project plan is executed is essential (Howes, 2001). The reality of management, especially project management, is it is multi-faceted and seldom narrowly focused.

When selecting a project manager it is important to avoid people who are not qualified or suited for the position. There are three types of people who represent a danger to the success of a project: a) bureaucrat, b) salesman, and c) technocrat. The bureaucrat regards project administration as the very essence of a project with all of the bureaucratic forms and reports. The salesman is all talk with presenting the project as a real success when very little progress is taking place. The technocrat is so preoccupied with the technical skills and working project tasks themselves rather than managing the project and using their technical skills to understand the overall process. A technocrat's real strength is in the technical area, not the management area. Skilled technical people are critical to the success of a project, however, not always as the project manager

(Andersen, Grude, & Haug, 2004). It is important for the selecting official to clearly recognize these dangers.

Effective project managers understand planning and when to stop doing it and start taking action. They use their influence and power to lead people in accomplishing the project (Randolph & Posner, 1988). Projects require project managers who can adapt to conflicting pressures, changing requirements, and unfamiliar situations (Buttrick, 2000). “Project management should be regarded as a distinct profession requiring specialized knowledge and skills” (Andersen, Grude, & Haug, 2004, p. 180). Project managers, like general management personnel, must be adept at multiple management theories and able to use them accordingly. However, as project managers, they are specialists in the use of the tools and techniques of project management.

Project Manager Skills

Modern project management is a well-understood and accepted management discipline capable of producing predictable, repeatable results. Like most disciplines, it is learned through study and practice (Howes, 2001). “The perfect project manager has strong competence in technical matters as well as a commitment to personal self-development. Technical competence involves both those areas relevant to the subject matter of the project as well as project management in general” (Dobson, 2003, p. 16). Bauer defines management competency as proficiency in the key management skills espoused by the Project Management Institute’s (PMI) Guide to the Project Management Body of Knowledge (PMBOK) which cover the nine knowledge areas and five process areas (2005). Randolph and Posner believe people want to be led by individuals who are

honest, competent, forward-looking, and inspiring (1992). As a result, there is debate and difference of opinion with the project community.

There are varying views on which skills are the most important skills for project managers to possess. The debate also includes some discussion of the need for project managers to have different traits and skills according to the type of project they are working (Avots, 1970; Baker & Baker, 1998; GAO, 2001; Kerzner, 2003; Krahn, 2005; Lewis, 2000). As early as the 1970s Avots wrote the consensus of the time was for a project manager to be a good technician with a thorough familiarity in the field the project is involved. However, he believed the project manager's emphasis should be on the overall project rather than only the project's technical details (1970). This consensus is in debate today.

Identifying competencies for achievement is a critical process in human resource management, especially those qualities of effective managers. Numerous studies have identified relevant managerial competencies with several studies focusing on the ambiguity and complexity of a manager's work with a one-size-fits-all set of competencies deemed impractical. While some researcher believe the future technical manager will experience more intense job complexity, others believe the more soft/non-technical (interpersonal/people management) skills of transformational leadership might be more relevant for a managerial position (Barber & Tietje, 2004). Topchik believes it unrealistic for an individual in most fields today to be the expert in everything. Therefore, there must be a reliance on other people (2004, p. 13). Project management is a team effort in order to capitalize on the knowledge and skills of others.

A need for a more knowledgeable and skilled workforce, as well as highly skilled and knowledgeable project managers, has been created as a result of global marketplaces, technological advances, and multifaceted projects varying in complexity due to business environments (GAO, 2001; Green-Ivey, 2002; Kerzner, 2003). However, it is believed, “. . . people want opportunities to constantly learn new skills” (Blanchard, Fowler, & Hawkins, 2005, p. xii). Experienced project managers become competent and highly skilled through working on different projects.

McKenna believes management skills must overlap in that managers will need to use a combination of skills to be effective, for example, communication skills coupled with supportive skills or coaching related skills. And, at the same time, managers need to be both ‘tough’ and ‘gentle’, production oriented and humanistic, at the same time (2004, p. 664). This blending of skills is what makes the project manager more effective and accounts for better managed projects.

As a result of varying business environments, increasing global competition, and significant technological advances it is apparent there continues to exist a need for further research into the needed skills and competencies of project managers across the globe and different industries. Kerzner’s belief there is an evolving change in needed project manager competencies is also supported by the following statement by Krahn,

As demonstrated by this investigation, the area of project manager skills and competencies and project leadership is of considerable interest to industry professionals and academics. There are many research areas that link strongly to this work and would be valuable to pursue. (2005, p. 273)

While technical skills may have been of greater importance historically, project managers appear to be increasing their reliance on better communication, more effective planning along with other people and process oriented elements for project success. Research does indicate though that many project managers have strong technical educations and experience. This may create problems for the technically focused project managers faced with diverse and unfamiliar teams, complex stakeholder communications and expectations, and business issues as well as other relatively non-technical issues. Further, research indicates there is a discrepancy between the project manager work to be accomplished and the competencies needed by project managers in the view of project managers and the project sponsors (Krahn, 2005). Project managers get things done through others and, as such, their mastery of various management skills is essential (Verma, 1995). While project managers use various management skills, not all managers are involved in project management.

As projects develop, the original project scope may change (Gilbert, 2001). Pinkerton believes, sometimes in the best interest of the project, a change in project managers should take place. Further, as the project proceeds the amount of technical expertise will decline with only management experience needing to increase in order to successfully complete the overall undertaking (Pinkerton, 2003, p. 151).

While this Pinkerton's perception is laudable it fails to take into consideration the need for potential project expertise, or different types of expertise, to be needed throughout the project life cycle. Figure 2. Project Manager Competency Change clearly indicates the potential for a change in expertise or competency during a project.

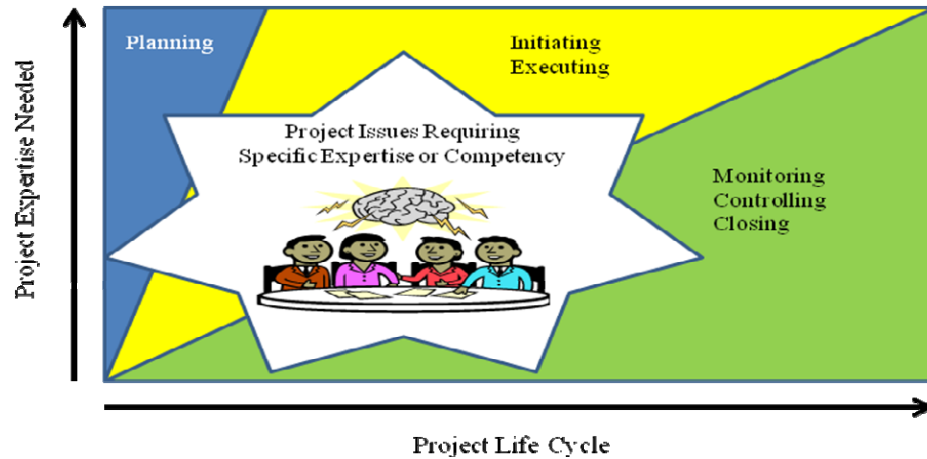


Figure 2. Project Manager Competency Change. Source: McHenry Developed

A project manager must coach, educate, and motivate team members while respecting each member as a professional expert in their own right. The project manager must be aware of how the team members are arriving at their answers and the thought processes involved. The right brain hemisphere processes intuitive, imaginative and artistic operations and the left side works primarily with analysis, computation, language, and reason. A project manager must use all of their 'brain functions' to bring to the forefront all of their personal hard/technical (engineering/ scientific) and soft/non-technical (interpersonal/people management) skills to the effective management of the project (Emerick, Round, & Joyce, 2000). The question rests with executive management as to what is the primary 'function' expected of the project manager and the skills needed to accomplish them.

For purposes of this research report, the term Engineering/Scientific will be linked with Hard/Technical Skills while the term Interpersonal/People Management will be linked with Soft/Non-Technical Skills.

Hard/Technical (Engineering/Scientific) Skills

Quite often technically skilled individuals are selected from the technical ranks to become project managers. Because they exhibited a great deal of competency on a project by being instrumental in bringing the project in on-time, within budget, and meeting stakeholder expectations they are rewarded with a promotion to project manager status. As such, they often find they must work harder to supplement their technical skills with improved people skills. This may be difficult for them because they are more technical oriented and commonly not provided any management training (Dobson, 2003; Lewis 1997). Lewis believes,

Technical people are (usually) predominantly thing-oriented rather than people-oriented. They tend to be introverted, meaning that they are oriented toward their internal world of concepts and ideas, rather than toward the external world. The problem is especially common in project management. In fact, there seems to be an inverse correlation between technical performance and management performance. (1997, p. 6)

Some engineers and accountants take pride in their specialties with little regard to human beings as they believe humans are too disorderly for a good engineering mind or the strict rules of accounting. On the other hand, Human Resources people take pride in knowing about people. Some executives accepting an overseas assignment believe their business skills are all they need to be successful. However, it is the soft or non-technical skills of dealing with people which are more important when working in a different country and

culture (Drucker, 1999). Cultural differences impact the workplace as well as the local community.

The knowledge, skills, abilities, and competencies required of project managers can be especially daunting. They are commonly expected to have professional qualifications and be highly skilled in the specialty area in which the project is involved, although there could be a few exceptions in certain large projects. A project manager unfamiliar with the professional field and issues in a project may lack the respect of the project team members (Andersen, Grude, & Haug, 2004; Angus & Gundersen, 1997; Block & Frame, 1998; Whitten, 2005). Cultural differences may surface in the project because of a project manager's lack of experience and knowledge.

Lack of specific technical competence may adversely impact a project manager's handling of complex technical projects. Frequently a technical background is required even though the project manager may not actually perform any of the technical tasks. The rationale is that only a technically trained individual can truly appreciate or understand the project staff's handling of the technical nature of the project's problems. Case in point may be the quality of the project's results. It is important for a project manager to be capable of insuring the quality of the project outcomes. To be able to do so, it is preferable a project manager have a professional background in order for them to properly judge the quality of the output. In some cases, it may be possible for team members to carry out quality control. However, project managers, who are given technical decision-making authority and possess a technical background, can use this authority to great effect. Not only because they have the authority but simply because

team members will respect their technical competence. Often a belief is that non-technical project managers lack any credibility with the project team members and will fail to be taken seriously because they lack the technical authority to manage the project. In any situation, it is important for the project manager to have a background enabling them to understand the difference between good and poor quality (Andersen, Grude, & Haug, 2004, Frame, 1995; Whitten, 2005). At the same time, there must be a clear understanding of the meaning. And standard of quality as well as the acceptable difference in quality to all involved. What is accepted in one culture may be unacceptable in another culture or industry.

Project managers must have a considerable background with practical experience so they are familiar with the intricacies of the industry (Clough & Sears, 1991). Warner believes a well-rounded technical individual should possess more than just technical skills (2001). They need communication and social skills with a dominant personality and insight to enable their working harmoniously with others (Clough & Sears, 1991; Ritz, 1990; Warner, 2001). Interesting enough is the same issues are commonly identified in job advertisements for any position.

Lientz and Rea believe a project leader should possess some technical knowledge, “. . . and at least limited experience with the systems and technology that are being employed in the project” (Lientz & Rea, 2001, p. 85). Dobson believes that no matter how technically complex or sophisticated a project, project managers will generally agree the people and the politics, which really involve soft or non-technical skills, take most of their time and energy (2003). Skinner believes a technical point of view may result in

some individuals being cut off from promotion to top management positions (1983).

While an understanding of the overall technical project tasking is important for a project manager to possess there is a critical need for the project manager to possess the necessary understanding of dealing with people to get them to do the work on schedule and within budget.

Soft/Non-Technical (Interpersonal/People Management) Skills

An increasing number of projects are becoming cross-functional and process related which means a project manager needs soft or non-technical skills in dealing with unfamiliar people and work. In addition to project management skills, project managers must possess strong personal, interpersonal, and general management skills (Bauer, 2005; Wysocki & Lewis, 2001). Perhaps more important today is for project managers to have an additional set of skills in several business functions. They are expected to understand business terminology and have a good working knowledge of the processes involved (Wysocki & Lewis, 2001). Bauer believes the key management skills include leading, communicating, negotiating, problem-solving, and influencing the organization (Bauer, 2005). Project management is a discipline involving many skills.

Krahn documents new insights into key areas related to project manager effectiveness, by revealing the importance of project manager skills and competencies change depending on the context in which the project is delivered. Soft/non-technical (interpersonal/people management) skills and competencies are more often cited as more important than are the hard/technical (engineering/scientific) skills and competencies (2005). There are many soft skills needed by an effective project manager. These skills

are not tools and cannot be easily learned in training, i.e., “reading” individual managers, or the unwritten political rules of getting things accomplished in an organization. Also to be considered are those project managers’ leadership competencies which are personal and professional attributes critical to their personal success and professional performance (GAO, 2001). Selection of project managers based primarily on technical competence may lead to satisfactory solutions to the projects stated technical needs, but lack of management ability can lead to failed projects. Costly over-runs, late critical path schedule task accomplishment, failure to properly utilize the diversity and value of the project team, and failure to meet stakeholder expectations may result (Bauer, 2005). Bill Coplin writes about a 2002 National Association of Colleges and Employers (NACE) survey which studied 457 employers in the United States. The survey found soft/non-technical skills were the predominant area of interest when hiring new college graduates with communication skills (oral and written) as number one followed by honesty/integrity and teamwork skills (works well with others) (2003). Communication is the key to success in any type endeavor but more importantly as part of project management. Lack of effective communication can result in costly budget overruns due to project scope creep as well as slipped time schedules.

Evolving Skill Sets

Kerzner believes needed skill sets change over time. Kerzner addressed a change in the needed skills of project managers in just a short period of time between 1985 and 2003 when he wrote, “The skills needed to be an effective, 21st century project manager have changed from those needed during the 1980’s” (2003, p. 157). In the 2005

dissertation research conducted by Krahn it was discovered, “The perceived importance of project manager skills and competencies is relatively consistent among participant groups. . .” (2005, p. 261). Project management tools and techniques have expanded over time with the project management skills needed somewhat changing. The evolution of technology necessitates a change of skill sets.

Kerzner believed there was a change in skills needed by project managers during the period of 1985 and 2003. There were two significant changes involving the ‘Technical Skills’ and ‘Business Conceptual Skills’. Initially technical skills were believed to be more important than business conceptual skills. However, over time the importance of specific technical skills reduced while the need for business skills increased. This can also be seen in the normal business environment with the advent of the general managers possessing many skills other than just the hard/technical skills of their occupation. Today, employees have more options available to them and managers must take the time to properly develop their personal soft/non-technical skills to be able to better manage their human resources.

In the 1980s the belief was for project managers to possess a high degree of technical knowledge in order to make technical decisions. However, as projects became larger and much more complex it became obvious project managers needed only an understanding rather than a command of technology to be able to lead a project to success. Expertise could be captured from the workforce resident in the organizations (Kerzner, 2003, p. 158). In 1985 Kerzner believed technical skills were more important

than business conceptual skills but reversed his position in his 2003 writings as reflected in Figure 3. Proposed Differences in Needed Project Manager Competencies.

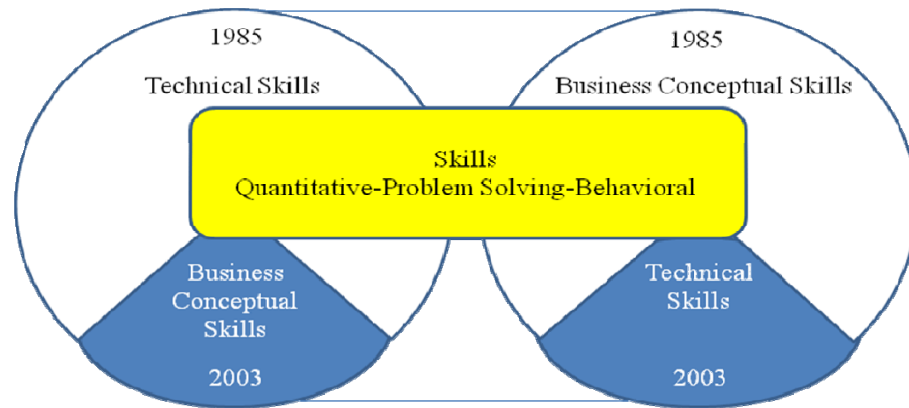


Figure 3. Proposed Difference in Needed Project Manager Competencies.
Source: McHenry Developed

Krahn’s 2005 doctoral research revealed, “In general, ‘soft’ skills and competencies are more often cited as very important than are ‘harder’ or more technically focused skills and competencies.” (2005, p. iv). Another interesting finding was a difference in the views of the project managers from the project sponsors as to the needed project manager skills and competencies considered critical for the work being accomplished (Krahn, 2005). While experience is often considered the best teacher, organizations must recognize the need to improve and enhance on-the-job project management training with more formal education and training (Carbone & Gholston, 2004). In attempting to improve their staff organizations can take advantage of various professional project management associations which are oriented to the training and

development of people in the field of project management. Further, professional relationships and information exchanges can enhance an individual's knowledge.

Project Management Associations

Many associations and conferences are dedicated to furthering project management development and recognition. The growth of project management's professional status and number of practitioners is reflected by international associations such as the Project Management Institute (PMI), and the International Project Management Association (IPMA) (Forsberg et al., 2000). Four major project management associations are reflected in Appendix A. Project Management Associations.

Project Management Body of Knowledge (PMBOK)

The main purpose of '*A Guide to the Project Management Body of Knowledge*' is to identify the generally accepted subset of the total body of knowledge and provide a common vocabulary within the profession. It is not comprehensive or all-inclusive (PMI, 2004). However, it is considered by most project managers and project practitioners to be the 'bible of project management'.

The Project Management Body of Knowledge (PMBOK) is an inclusive term that describes the sum of knowledge within the profession or project management. As with other professions such as law, medicine, and accounting, the body of knowledge rests with the practitioners and academics that apply and advance it.

The full PMBOK includes knowledge of proven, traditional practices which are

widely applied as well as knowledge of innovative and advanced practices which have seen more limited use. (PMI, 2004, p. 3)

The three primary topics reflected within the PMBOK are a) General Management Principles, b) Nine Knowledge Areas, and c) Five Process Areas. These topics are essential for any individual to learn and fully understand to be successful in the field of project management. Appendix B. Project Management Body of Knowledge (PMBOK) provides more detail.

General Management Principles

PMI states, “General management skills provide much of the foundation for building project management skills. They are often essential for the project manager. On any given project, skill in any number of general management areas may be required” (PMI, 2004, p. 20). Greer writes, “General management encompasses planning, organizing, staffing, executing, and controlling the operations of an ongoing enterprise” (2002, p. 3). However, managing projects differs from routine management in the workplace environment (Gimpel & Gray, 1994; Kerzner, 2003). While some believe there is a difference in the management disciplines, the basic general management skills are just as important to a project manager as to any manager.

Practice of an application normally involves those activities undertaken by professionals working in a particular field or industry sector. Project management is such an application with use of a general knowledge of management along with specialized knowledge, skills, methods, and techniques applied to specific project activities in order to meet or exceed stakeholder needs and expectations (Andersen, Grude, & Haug, 2004;

Cleland, 1994; Frame, 1994, 1995; Gido & Clements, 1999; Greer, 2002; Heerkens, 2002; Howes, 2001; Kerzner, 2003; Lewis, 1997, 2001; Portnoy, 2001; PMI, 2000, 2004, 2006; Thomsett, 2002; Wysocki et al., 2000; Wysocki & Lewis, 2001; Young, 2000). As such, project management is different from general management and demands other skills (Andersen, Grude, & Haug, 2004; Kerzner, 2003; Lewis, 1997, 2001). It could be said the knowledge of the commonly accepted project management tools and techniques are the hard/technical skills necessary in a project environment while the routine or general management skills are the soft/non-technical skills expected of any project manager to be successful in the work environment.

Drucker believes the effective management of knowledge and knowledge workers are important factors in which highly developed organizations become and remain competitive. Further, knowledge work is not defined by cost or quantity but in the results (2002). “Succinctly, the project management process means planning the work and working the plan” (Gido & Clements, 1999, p. 11). Drucker’s results are the end-state of the effective use of the project management processes.

Intertwining Management Relationships

PMI depicts an intertwining relationship which the successful project manager should understand and work with when conducting project management activities. The graphic normally portrays three overlapping circles labeled PMBOK, which stands for the generally accepted project management knowledge and practice, general management knowledge and practice, and then application of knowledge and practice. It is simple to understand the overlapping ‘knowledge & practice’ areas reflecting commonality of the

different disciplines (PMI, 2004, p. 9). This relationship is the Project Management Institute's formal position.

The universal and common acceptance of the specific knowledge, known as the Nine Knowledge Areas and Five Processes of Project Management, is expected of all certified Project Management Professionals (PMP). The Project Management Institute (PMI) declaration of a General Management Area to include planning, organizing, staffing, executing, and controlling is commonly accepted as those areas needed by any manager.

Figure 4. Relationship of Project Management to Other Issues depicts the world of work as a puzzle comprised of a multitude of various parts. While the PMI PMBOK is an issue there are other disciplines and issues to be considered by a project manager when managing a project. A project manager involved with the construction of a building is going to involve the architecture and engineering disciplines while observing local building laws and regulations.



Figure 4. Relationship of PM to Other Issues. Source: McHenry Developed

This research project will include questions involving the ‘soft/non-technical’ (interpersonal/people management) skills and the ‘hard/technical’ (engineering/scientific) skills expected of project managers. These questions will include a rank-ordering. Figure 5 reflects the four components or quadrants of these two competency areas.

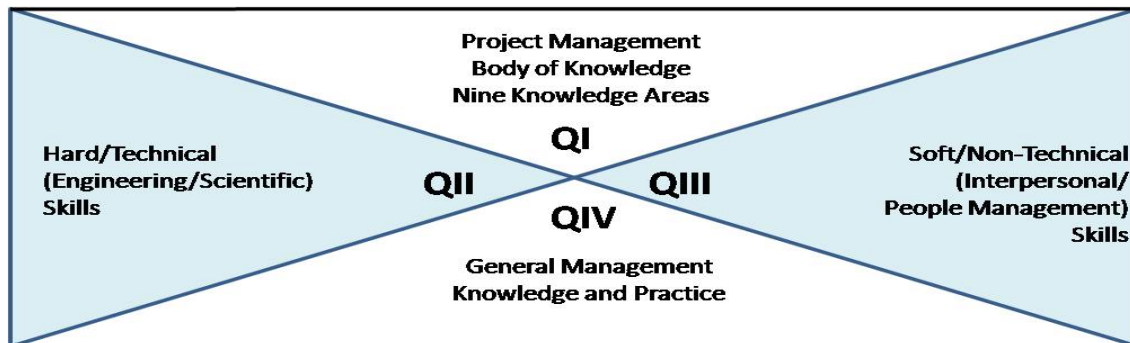


Figure 5. Research Project Competencies and Skills Area. Source: McHenry Developed

Rationale

Project manager competencies and skills have been identified in various writings with some authors agreeing while others identifying different competencies and skills needed by project managers to be successful (Bauer, 2005; Crawford, 2002; Frame, 1994; Kerzner, 2003; Krahn, 2005; Lientz & Rea, 2002; Thomsett, 2002). PMI states, “General management skills provide much of the foundation for building project management skills. They are often essential for the project manager. On any given project, skill in any number of general management areas may be required” (PMI, 2004, p. 20). As a result, rank ordering will be used to prioritize the general management and nine knowledge area competencies in this research project.

Portfolio, Program, and Project Management

Many individuals unfamiliar with project management will use the terms of ‘program management’ and ‘project management’ interchangeably without really understanding what the terms really mean. At the same time, most people will think of ‘portfolio management’ as the management of their personal investments. “The successful practice of project management involves areas of conflict that can only be resolved with clearly defined terms” (Forsberg, Mooz, & Cotterman, 2000, p. 49). While the PMBOK is clear about Portfolio, Program and Project Management, a bit of confusion still continues, especially with the use of ‘Program’ and ‘Project’ Management. Portfolio Management is a more recent term and there is some confusion between it and Program Management. This confusion is further accentuated by different organizations using the term and definitions interchangeably. One organization may define Project Management one way while another organization uses the same definition for Program Management.

When individuals first think of project management in a business enterprise they may think of it as only pertaining to one project, when, in fact, the project team may have, “. . . several and perhaps many projects . . . underway, each having its own life-cycle phases” (Cleland, 1999, p. 7). “Project portfolios come in many different shapes and sizes” (Frame, 1995, p. 210). Portfolio management is where competing projects are evaluated as to potential profit with the greatest return for the least investment and the lowest risk of failure to ensure the long-run survival of the organization (Hill & Jones, 2004; Meredith & Mantel Jr, 2000). There is some speculation the term ‘portfolio’ is

taken from the financial investment arena where an individual's portfolio is diversified. These three topics are independent but closely related as the following explains.

Project Management

PMI defines project management as, "The application of knowledge, skills, tool, and techniques to project activities to meet or exceed stakeholder needs and expectations from a project" (PMI, 2004, p. 167). Project management is about change with projects carried out over a finite period of time, and often breaking new ground and stepping into the unknown (Buttrick, 2000). Organizations survive today by pursuing opportunity within this spectrum of uncertainty with projects typically launched to take advantage of these opportunities (Wideman, 1992). "Projectivity is an organization's ability to achieve results using the project approach. The word is designed to provide associations with the words effective, productivity and project" (Andersen et al., 2004, p. 189). If the organization is to improve its productivity, it must work consciously toward this goal.

Program Management

PMI defines a program as, "A group of related projects managed in a coordinated way. Programs usually include an element of ongoing activity" (PMI, 2004, p. 167). Programs are a closely aligned grouping of multiple projects and their goals. They are managed in a closely coordinated manner to obtain maximum benefits overall whereas individual management would fail to obtain as many benefits (Bauer, 2005; Buttrick, 2000). Project management methods optimize the use of resources to accomplish a specific project (Irwin, 1999). Program Management is often considered the second tier

of Project Management and managed within the organizational project management office or at least at a higher management level with the organization.

Portfolio Project Management

Executive or managerial decision-making, especially relating to organizational investments and projects, requires organized information (Drucker, 1965). Dye and Pennypacker defines portfolio project management as, “. . . the art and science of applying a set of knowledge, skills, tools, and techniques to a collection of projects in order to meet or exceed the needs and expectations of an organization’s investment strategy” (1999, p. xii). Portfolio Project Management is often considered the third tier of Project Management and more involved in the decision-making rather than any real actual hands-on accomplishment of specific project management taskings. Here the executive level makes the decisions as to the projects to be undertaken at the lower levels of the organization and quite often within which program area, sometimes based more on the personal qualifications and abilities of the actual program manager than on functional specialization.

Most organizations have a portfolio of aggressive projects with changing priorities and requirements which should be closely monitored and balanced with respect to risk (Buttrick, 2000; Wysocki, Beck, & Crane, 2000). Projects are the most basic element with many projects combining to become a program. Using Figure 6 as an example, a fictitious automobile company manufactures cars and truck with several models of each category. Constant research and development must take place to keep them competitive in the global marketplace. Each vehicle development effort is assigned

a project manager reporting to a program manager. The two program managers, in turn, reports to the portfolio management manager and must justify their research and development efforts under the company portfolio project management to insure the risk of investment is offset by the potential rewards of a new car or truck product in the highly competitive world marketplace.

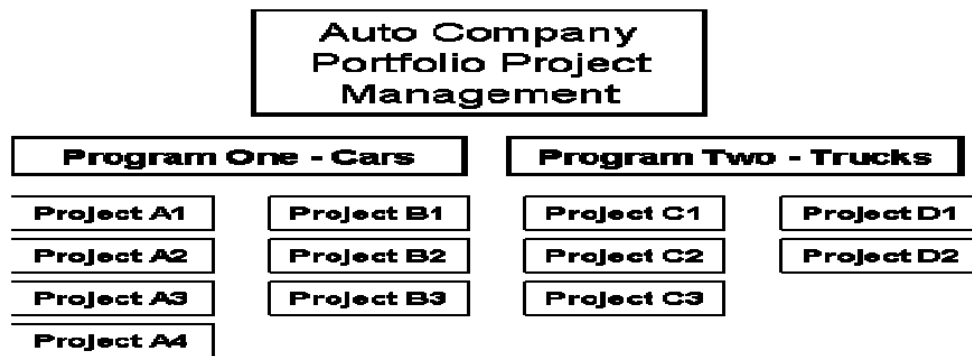


Figure 6. Example of Portfolio Project Management. Source: McHenry Developed

Project portfolio management has become a major consideration in a project-oriented organization's long-term strategy. The growth and common acceptance of it as a management practice is attributable to its link to organizational policies and strategies. Current interest in project portfolio management may lead a new project manager to think it is a recent theory; however, there have been many articles on this topic in the last 25 years (Dye & Pennypacker, 1999). The term is just more recognized today than in the past.

Portfolio management has three primary goals. First is maximizing the portfolio value against an objective or goal, such profitability. Second is to balance a portfolio so the risk versus rewards is acceptable. Last is to link projects to organizational strategy

(Cooper, Edgett, & Kleinschmidt, 1999). Today, portfolios are more complex administratively since they are monitoring multiple projects of varying values and importance (Frame, 1995). Involvement in organizational strategies and policies makes portfolio project management a significantly important 'management theory and practice'. One which must be closely monitored with competent individuals selected, developed, and promoted to insure continued organizational success in today's global marketplace.

Project Teams

Temporary in nature, many projects bring together people from disparate functions and locations and unknown to each other (Buttrick, 2000; Forsberg et al., 2000). This newly formed group may include specialists motivated by the very work itself and their perceived individual contributions. Realistically, teams of highly skilled technicians make costly errors simply because they fail to fully understand or follow the disciplined, systematic approach of project management (Forsberg et al., 2000). A project team consists of individuals whose work is needed to get the project accomplished. A project team normally consists of a few people who are in the project from start-to-finish with others who have specific technical roles to play which, when completed, normally depart the project team. The team members may or may not be the staff who normally report to the project manager in the traditional supervisory sense with some team members possibly having higher organizational rank than the project manager (Dobson, 2003; Frame, 1995; Kerzner, 2003; Miller, Catt, & Carlson, 1996). The project

manager must often exercise a great deal of political correctness as a result of this occasional assignment.

In most organizations, individuals are assigned to a project because they are available, not necessarily because they are the best or right individual for the project. Any Human Resource manager knows staffing should always be done by first analyzing the job requirements, then recruiting the best qualified individual who meets the requirements. Newly formed project teams need considerable structure and leadership or they may fail (Lewis, 1997). Rather than the assignment of any 'available' individual to a project team, the project team really needs a highly productive and qualified member who can work in a constantly changing task environment.

Leadership

Project managers are normally appointed by executive management and assume the project leadership role and maintain it throughout the duration of the project (Pierce, 1998). In organizations where lower level managers are appointed by upper level management with higher authority their ability to influence is based on the formal authority given them as a result of the managerial position they encumber. While leaders may also be appointed they may also emerge from within the organization with their influence bringing about higher performance levels (Springer, 2001). In project management, project leadership represents the opportunity for the project manager to inspire and motivate the project team members to succeed and with the confidence of the customer (Forsberg et al., 2000; Gido & Clement, 1999). Learning what customer/clients want and value is essential to project success (Pyzdek, 2003). These needs and wants,

established by specific acceptance criteria, are paramount to the success of the project. Like any product or service, it is important for the project leader to always consider the Customer Acceptance Criteria (CAC) (Martin & Tate, 2001, p. 89). However, they portray a graphic where a box indicating a customer need is followed by a box indicating a final deliverable which is followed by a circle depicting the acceptance criteria. Above the customer need box is the statement, “Final deliverable must help to resolve the customer’s problems while a statement above the customer acceptance criteria states, “Final deliverable must satisfy the customer’s criteria for acceptance” (Martin & Tate, 2001, p. 89).

While this is their depiction of a project and customer acceptance, Figure 7.

Customer Acceptance Requirement portrays a more realistic graphic. Some customers need something accomplished within a project while other customers may have more of a want than a real need. Further, issuance of a project deliverable is based on it meeting the customer project requirements or criteria. If a project deliverable fails to meet the project requirements it needs to be reworked as indicated in the graphic.

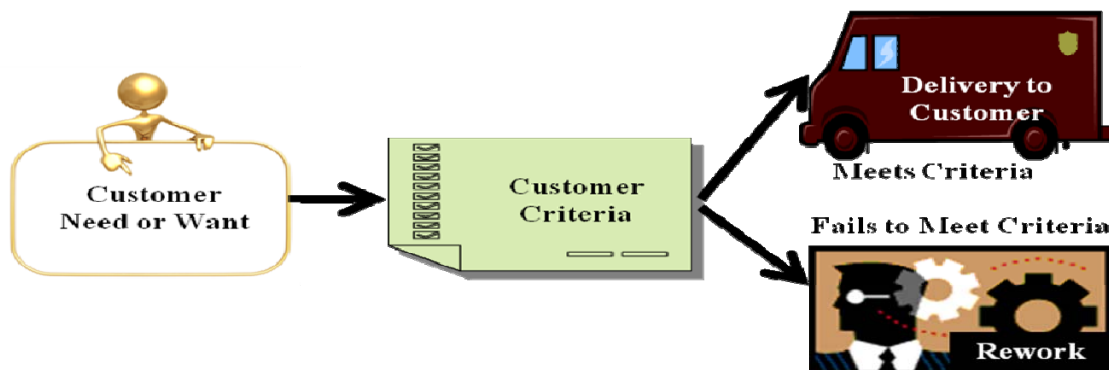


Figure 7. Customer Acceptance Requirement. Source: McHenry Developed

Leader success is about developing others to be the best they can be (Rainey, Bradford, & Martin, 1992; Welch & Welch, 2005). Effective project managers must have strong leadership skills and the ability to develop others. Effective project leaders use a participative and consultative leadership style, in which they provide guidance and coaching to the team members (Gido & Clements, 1999; Krahn, 2005). Effective leadership emphasizes results through people rather than management philosophies of being over people as reflected in most organizational charts (Verma, 1996). Effective leaders are role models who lead by example and gain the respect and trust of their staff because they practice what they preach and live their personal values daily (Drucker, 1999; Lewis, 2001). “The factor that empowers the project team and ultimately determines which projects fail or succeed is the leadership brought to bear on the project at all levels in the enterprise” (Cleland, 1994, p. 343). Project team members are looking to the project manager for most everything, but primarily effective leadership (Pinto & Kharbanda, 1995). Leadership is important to the project team as many team members are operating in a new work environment and using project management tools and techniques they may be unfamiliar with initially. Organizations with fully trained project management team members can operate with less dependence upon the project manager’s leadership.

A significant challenge for project leaders is the very nature of project management, which includes different types of work thus requiring a mix of both technical and people skills, and the actual project itself (Krahn, 2005). Another major challenge for a project manager is the management of large sums of money. Since the

project manager is the overall manager they must be constantly vigilant in managing projects resources, especially the distribution of capital funds (Ritz, 1990). While the overall project manager may not actually disburse all expenditures the project manager must insure they monitor expenses to insure the project is kept within budget.

For project managers to be effective and successful, they must lead in addition to manage, with their quality of leadership most essential (Cleland, 1994; Pinto & Kharbanda, 1995). Leadership should be appropriate to the situation because leadership is a continuous and flexible process (Cleland, 1994). A problem may exist within a project-oriented organization utilizing multiple project teams. An example would be when two project teams operate within an organization. One team may be a highly talented project group with wide ranging responsibilities and priding itself on the highest level of stakeholder service but fails to meet all of their schedule and budget requirements. The second team could be a less talented group with a more focused range of responsibility who consistently meets schedule and budget constraints and always succeeds. A serious paradox exists in that the highly talented team is more prone to make a large number of mistakes which are more highly visible to the stakeholders than the more focused but less talented group. Because of this visibility to the outside world the organization may experience a loss of credibility and resultant revenues causing it to eventually cease existence (Tobias & Tobias, 2002). Therefore, it is imperative project managers be highly skilled and competent.

Project Managers

The title of project manager is widely used. “Project management is a hybrid occupation” (Dobson, 2003, p. 15). Project managers must constantly balance the big picture against the details and plan and schedule the project tasks and day-to-day management of the project (Frame, 1994; Harvard, 2004). Today, since most project managers are like a firefighter going from one ‘fire’ to another ‘fire’ (Pinto & Kharbanda, 1995), adaptability and flexibility is one of the most valuable, if not the most valuable, skill sets a project manager can possess (Heerkens, 2002). As a result of her research, Krahn writes in her dissertation, “Various parts of a project manager’s role are identified as important to project success” (Krahn, 2005, p. 11). Effective project managers exhibit results-oriented attitudes and lead the project team to success in completing a quality project within time, budget, and scope constraints (Gillard & Price, 2005; Oberlender, 1993). Oberlender believes quality is essential throughout a project (1993, p. i). Figure 8. Project Management and Quality Relationship portrays the need for a continuing need for quality throughout the project within emphasis on the scope, budget, and schedule as these factors are where issues getting out-of-control will result in cost overruns.

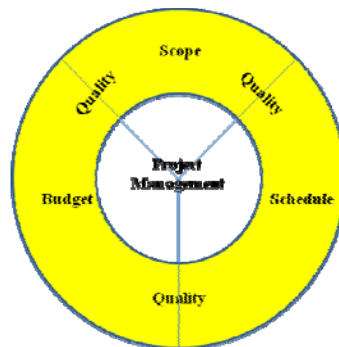


Figure 8. Project Management and Quality Relationship. Source: McHenry Developed

The scope, budget, and schedule facets are often compared to a three-legged stool where each component is a critical element.

The title of project manager is bestowed quite often. “It seems to be a prevalent paradigm in the United States that anyone who is good at a technical job can manage” (Lewis, 1997, p. 5). It must be remembered and considered by management in selecting and promoting an individual to project manager status that while the individual may have the needed core competencies their degree of competence may differ, and most likely will differ, from other individuals. Further, the competencies expected by one industry may also differ from industry-to-industry and company-to-company even within the same industry (Drucker, 1965, 1999). This same promotion philosophy can be seen in any industry with the promotion of a competent individual into a supervisory or management role.

If pushed to choose one skill, above all others, most people would say communication is a challenge in most organizations but a particular challenge when working a project. And the good project manager must have the ability to communicate well (Friedlein, 2001; Martin & Tate, 2001). Project managers must be good communicators, both orally and in writing, as communicating the right information to the right individuals increases the potential for project success. The way an individual communicates can vary enormously, and there are no completely right or wrong ways of doing it (Friedlein, 2001; Gido & Clements, 1999; Heerkens, 2002; Heldman, 2003; Lewis, 2003). A project manager’s skills must include an ability to effectively communicate with team members, clients, and other managers while balancing a variety

of priorities presented by others (Angus & Gundersen, 1997; Pinto & Kharbanda, 1995). Project managers can be likened to CEOs of small organizations. They manage on a day-to-day basis by planning work, organizing it and ensuring corrective steps are in place to insure quality and timeliness. They must have skills in a broad range of business areas, from finance and marketing to customer satisfaction (Andersen, Grude, & Haug, 2004; Block & Frame, 1998). Project management is a step up from routine general management and often one step down from executive management.

Project Team Members

Selection of project team members should be based upon the size and complexity of the project and the skills needed to successfully accomplish the project (Harvard, 2004; Heerkens, 2002; Heldman, 2003). Project team members should also be trained in project management principles to better meet the challenges of a project. In addition, team members serve as the resource pool for the selection and promotion of future project managers.

Professional Development

It is believed by some individuals eventually there will no longer be ‘accidental project managers’, rather, project management will continue to grow and be recognized as a profession in its own right. There will be dedicated project managers with their own special career development program with some speculation it is a proving ground for future CEOs (Lewis, 2001). Before becoming a project manager, success is about developing oneself (Welch & Welch, 2005). Achieving competitive success involves altering how an organization thinks about its people and the employment relationship. It

means working with people to develop their skills (Pfeffer, 1994, p. 16). Professional development of staff is essential in all organizations and perhaps more so with project management team members since they are so involved in the management of valuable resources such as funds and labor hours.

It is imperative for organizations to keep the skill profile of its project managers in line with the demand for their skills by the various organizational business units. Strategies for accomplishing this will differ depending upon the type of organization (Drucker, 1999; Wysocki & Lewis, 2001, p. 9). A primary goal of every organization is to develop the specific strengths and knowledge of each employee (Drucker, 1999). Competency-based approaches to training and staff development are increasingly viewed as a strategy for improving worker effectiveness. Identification and application of competencies required for effective job performance has become a complex and sophisticated effort (Marrelli et al., 2005). Determination of the competencies needed allows management to focus on the proper knowledge, skills, and abilities having the most impact upon effectiveness. Further, it ensures training and development opportunities are properly aligned with organizational strategies, values, and goals.

Determination of and development of competencies makes the best use of limited training dollars and provides a basis for ongoing mentoring or coaching and effective feedback (Golob, 2002). While effective development of competencies results in the best use of training dollars it will also mean better project management of the budget and schedule where even more fiscal savings can be realized.

Achievement of project management as a profession is primarily due to the nurturing by the leading society of project professional known as the Project Management Institute (PMI) (Block & Frame, 1998). The increased focus on technical and people-oriented skills may be responsible for the recent increased interest in project management and project manager training (Krahn, 2005). Organizations wanting to develop a strong group of project managers must commit significant resources to their education and training (Block & Frame, 1998). This same commitment can be expected for any staff member.

Properly identified competencies can provide a better picture of the best candidate to be selected for both hire and promotion. It can minimize the cost of investing in unqualified people and increase the likelihood of selecting for hire and promotion the best qualified individual(s) (Golob, 2002). “Finally, competencies help distinguish between competencies that are trainable and those that are more difficult to develop” (2002, p. 5). Hiring decisions can depend upon the skills and capabilities of the potential candidate for future education and training.

Career paths depend on the availability of both formal education and training (Forsberg, Mooz, & Cotterman, 2000). Due to the widely recognized acceptance of project management as a fundamental management process with specific professional competence and knowledge criteria, there are both undergraduate and graduate programs at several universities. At the same time there are many consulting firms offering both general and specific courses and seminars (Forsberg et al., 2000; Heldman, 2003). “As organizations devote more resources and energy to conducting their work on a project

basis, the need for project management training grows” (Block & Frame, 1998, p. 37). Education and training serves an organization best by updating employee skills so their job performance increases (Sims, 1994). Project managers are trained, not born, with their skills developed through experience and education (Murch, 2001). While on-the-job experience is a valuable training tool, the potential errors can be extremely costly, especially in the project management arena. Effective career development paths can alleviate many potential problems.

Project management coaching and mentoring are important organizational considerations. “Developing the self-esteem of others and creating high performance expectations that become self-fulfilling prophecies are a natural result of a mentor-apprentice relationship” (Hill, 1984, p. 150). This coaching and mentoring is especially important with matrixed project team members as they may be functioning outside of their area of expertise and experiencing problems with new issues such as the project management tools and techniques.

Project management is perhaps one of the most challenging of disciplines today with requisite abilities and skills differing from the more traditional management skills (Pinto & Kharbanda, 1995). Unfortunately, often individuals are selected and promoted to project manager positions based on their being good at their technical discipline. Further, the situation is aggravated even more by failing to provide them with any management training. This appears to be a common belief and occurrence in the United States where anyone who is good in a technical job can manage and are promoted (Lewis,

1997). “I personally believe that this failure to train managers is one of the principle causes of business failures in the United States” (1997, p. 5).

In general, too little effort goes into developing good project managers. Project management is often more difficult than line management (e.g. unknown tasks and unfamiliar people). One would expect higher requirements for project manager than for line managers regarding training and experience. The project manager should be educated in the field of project management. It is now possible to acquire basic professional skills through courses and training programmes [*sic*]. Experience as a ‘rank and file’ project member is also necessary. An organization should spend time and money training its project managers. One cannot become a line manager without a solid background – but some believe that anybody can be a project manager. (Andersen, Grude, & Haug, 2004, p. 180)

The Project Management Institute (PMI) certifies those who have passed a rigorous exam as a Project Management Professional (PMP) (Block & Frame, 1998; Forsberg et al., 2000; Frame, 1995; Heldman, 2003). The PMI exam and Project Management Professional (PMP) certification is recognized worldwide. The PMP certification is a statement of success in that the individual has shown a high degree of proficiency in the nine knowledge areas and five processes outlined in the PMBOK. Further, they must have a certain amount of actual hands-on experience in the project management arena. This recognition is becoming much more prevalent today with a distinct upward trend in test taking and actual certifications.

Emerging Trends

Emerging trends are sometimes difficult to detect. However, one trend easy to see today is the change in the work force and their expectations.

Today's work force has expectations that have increased geometrically during the past few years. This rise of expectations as well as subsequent civil rights legislation has meant more opportunity for groups such as blacks and women. Racial and sexual integration has confronted contemporary managers with problems undreamed of two decades ago. (Hill, 1984, p. 119)

As the following section explains, the practice of project management is a strong consideration for implementation by organizations competing in the future global marketplace. While a slower economy and extensive downsizing over the years has lessened the labor shortage problems for some organizations, a skills deficient continues (Mirvis, 1993, p. 17). Although the PMP test taking and certifications is increasing the failure rates are not decreasing. The future of project management as a recognized discipline lies in how the current PMPs meet future challenges and executive management sees the demand for certified project managers.

Future Challenges

The American landscape is littered with the decaying remains of office buildings and factories previously occupied by once very successful companies. These defunct organizations were unable to properly align their vision and strategies to compete under the new rules of globalization and significant increases in competition (Abernathy, Clark, & Kantrow, 1983). From a global viewpoint, profound and challenging changes are

taking place in country and regional demographics, philosophy, politics, and society, and technology overall which are challenging the new century's organizations. Especially those organizations failing to recognize and accept these changes by believing future tomorrows will continue to be like the past yesterdays. College graduates, as well as others, are having difficulties finding jobs commensurate with their perceived skills. American employees have to be more flexible and mobile when facing frequent changes in employment (Wegmann, Chapman, & Johnson, 1989). Employment opportunities exist but the need may be in areas of expertise and geographical locations other than individuals would like.

America's greatest export is not a product or service, rather it is its management thoughts and practices which contribute to the global community's betterment (Stayer & Belasco, 1994). Future managers will be dealing with a different work force employee and work environment. They will have to learn important lessons about recruiting and retaining the best people (Hampton, 1994). With the increasing skills shortage, organizations may reconsider their position on older workers with downsizing and forced retirements (Barth, McNaught, & Rizzi, 1993, p. 167). Economic conditions are such the older, more experienced employee, although typically earning more, may be the best choice.

Work is requiring a new approach. "New competitive challenges call for rethinking supporting systems" (Peters, 1991). White-collar work has become project work and needs to be reinvented. After years of management neglect, organizations are beginning to realize the productivity of the white-collar worker is low and needs to be

better organized. The old ways are too slow, too convoluted, and too hard to determine the value of white-collar employee. Coincidentally, white-collar employees are just beginning to understand they need to rethink the very nature of their work and output. If the white-collar employee is going to survive and continue to be employed in their current organizational workplace in the future, the white-collar employee must be able to clearly demonstrate how they add value to their organization. Further, if the organization is to survive in the increasingly challenging marketplace they must improve white-collar productivity. Tom Peters believes the answer to white-collar productivity is the use of 'projects'. He writes about more than 90% of white-collars positions are currently in jeopardy of extinction. He proposes distinguished project work is the future of work and project work is the future of the organization waiting to be discovered (1999). This philosophy is evident today with the hiring and release of so many IT professionals.

Another major challenge is the global workforce. In developed countries the quantity and quality of educated and trained knowledge workers will continue to increase with a co-relational decrease in the quantity of the manual labor workforce (Brake et al., 1995; Drucker, 1999; Green-Ivey, 2002). While the educated knowledge workforce increases the manual labor pool will continue to exhibit an inability to meet the reading, writing, or computational skills needed in many American businesses which has become a serious economic and competitive issue (Carnevale, Gainer, & Meltzer, 1990). Improving knowledge worker productivity in order to increase output will necessitate a different approach to workplace improvements than Frederick W. Taylor's scientific engineering methods did with the work of a manual workforce in the late 1800s and early

1900s. To maintain the current high standards of living, developed countries, such as the United States, Japan, and Germany, will need to do much more work on significantly improving work methodologies in the knowledge work arena. Further, there will be a shifting or realignment of responsibility for career management by going from the previous organizational responsibility to a worker's self-responsibility (Drucker, 1995, 1999; Peters, 1999). Personal accountability and career management are important to the future employee's personal career management and success.

Modern business culture expects project managers and teams to be more knowledge related participants in multiple activities spanning organizational lines involving personnel, support groups, contractors, vendors, project partners, government agencies, and shareholders (Drucker, 2002; Thaimhain, 2004). Denove and Power believe every company establishes their own criteria when it comes to hiring and that it is impossible to offer a formula for hiring which will work across multiple industries and companies (2006). While this belief may be prevalent in the majority of situations and occupations the discipline of project management is so well structured by the use of the PMI PMBOK's nine knowledge areas and five processes there does appear to be a significant potential for the area of project management to have very similar, even universal criteria used when developing a job description, and when hiring and promoting project management staff.

Demand for Project Managers

Finding competent, motivated lower- and middle-management employees is difficult (Stidger, 1980, p. 101). Finding competent project managers can be more

difficult. “The demand for project managers exceeds the supply” (Wysocki & Lewis, 2001, p. 1). Project managers are a different and special breed which is much in demand today and more so in the future (Murch, 2001). Mirvis writes, “Indeed, some 37% of the companies studied report that they have had trouble recruiting technical staff the past few years. And 30% have had difficulties recruiting skilled labor” (1993, p. 17). This shortage is constantly seen in the classified ads and frequent job fairs.

Project management currently appears to be the ‘in’ thing with college degrees and certificate programs in project management being offered throughout the country (Wysocki & Lewis, 2001). “Project management is ‘the wave of the future,’ says an in-house newsletter from General Motors’ technology and training group, which exhorts, ‘We need to raise the visibility and clout of this job responsibility!’” (Forsberg et al., 2000), p. xxiii). Successful project managers earn a great deal of money by competently and skillfully putting together the multitude of pieces of a project puzzle for complicated projects (Mintzer, 2002). Project management is a management discipline any individual can easily study and learn. Passing the PMP examination and gaining the actual PMP certification may be more difficult but is available to everyone.

Project management appears to be moving from a specialty to the mainstream, from a management or organizational option, like a task force, to the way the enterprise is run. The potential impact is just beginning with the wave building as a result of many synergistic currents and between the stages of broad consciousness and professional formalization. Project management is not just a single idea or campaign; it incorporates several management concepts, such as quality management which is perhaps the most

important one. It offers both significant short-term and long-term bottom-line performance improvements (Forsberg et al., 2000). While some believe project management is still evolving, Greer believes project management has already emerged as a distinct profession within recent years. A profession which has consolidated a set of recommended standards and practices anyone can learn and implement with any project (Greer, 2002). As more and more organizations accomplish their activities through projects, the demand for project managers has increased. This increase is expected to continue on for a long time as organizations evolve in meeting future competition. Selecting, hiring, or promoting the right person for the job is critical, especially as a project manager. Candidates must have a proper blend of general and project management skills with technical insights (Block & Frame, 1998). As aforementioned, the PMP certification is available to everyone. The credential enhances an individual's resume and can be a tie-breaker in a higher situation.

External Influences on Project Management

Like the CEO of an organization with outside or external influences, project managers are faced with external influences which impact their project and activities (Angus & Gunderson, 1997, p. 5). While the following graphic depicts the external influences on a project it is easy to see the similarities to the external influences impacting a CEO and an organization. Figure 9. External Influences Impacting Projects portrays how a project can be easily impacted by external forces.

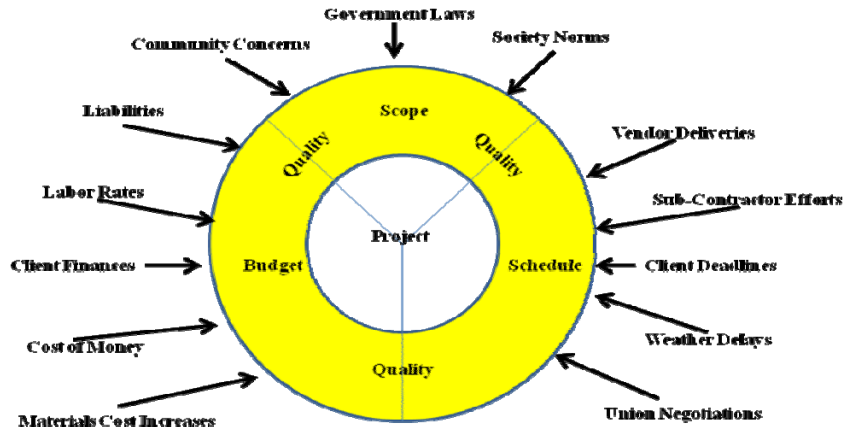


Figure 9. External Influences Impacting Projects. Source: McHenry Developed

Organizations are impacted by external influences outside of their control. Robert B. Reich, author, professor, and former Secretary of the Department of Labor under President Clinton, writes, “Business is constantly changing. Competition is constantly changing. Technology is constantly changing” (Reich, 2000, p. 140). Today, experience suggests that, to an unprecedented degree, success in most industries requires organizational commitment to compete in the global marketplace on technological grounds (Hayes & Abernathy, 1983). We live in a world today unparalleled in history. Technological advancements have created a multitude of opportunities which far outnumber the capacity of many organizations to integrate into their portfolios. And regardless of the many innovative uses one organization may find for a technological application to any given problem, another organization will discover a better one tomorrow. There can be no resting on past accomplishments and accolades in today’s business environment. The business community has changed and continues to change at an ever increasing rate with the world as a project manager changing as well (Wysocki &

Lewis, 2001). Although Reich, as well as Wysocki and Lewis, writes almost 20 years later than Hayes and Abernathy, the issue of technology remains of paramount significance.

As part of the societal issues and public concerns the skills gap is a significant contributing factor for a project manager, as well as a CEO, to consider. “A 1991 Harris poll reveals that the American public is extremely concerned about the current state of the education poll” (Mirvis, 1993, p. 23). “A closer looks . . . reveals that 25% of the nation’s high school graduates read at the eighth-grade level . . .” (Mirvis, 1993, p. 22). These high school graduates are the current workforce in organizations today.

Sponsored Research

In May 2005, the Project Management Institute awarded a grant of \$1.14 million dollars (US) to Athabasca University (AU), in Alberta, Saskatchewan, Canada to conduct a joint research project on ‘Understanding the Value of Implementing Project Management.’ The total joint value of the three-year research study exceeds \$2.5 million (US) which includes in-kind time and material contributions of all of the participating universities and organizations (PMI, 21 March 2006, p. 28).

Summary of the Literature Review

Project management is the wave of the future in any organization attempting to compete in the future workplace environment, whether it is a public or private; for profit or not-for-profit; large or small; local, national, or international organization. As such, the need for highly competent managers, especially project managers possessing a high degree of competencies and skills will continue to increase. Change is favoring project

management. Organizations are scrambling to keep up and project management is the best tool to manage the need for change. These changes are dictating the requirement for proper tools and techniques to manage the change efforts (Verzuh, 1999). Those organizations adapting change and managing it rather than allowing it to overcome them will excel.

From a review of the literature there is evidence of a correlation between a project manager's competence and the potential for success of a project. Further, while hard/technical (engineering/scientific) skills are important to project management, recent research is starting to show soft/non-technical (interpersonal/people management) skills are considered to be more important today for the successful completion of a project. Since future organizational work is expected to be more project-oriented there will be an increasing need for dedicated, motivated, and highly competent project team members and project managers.

This change over time in the competencies and skills expected of project managers is supported by the doctoral dissertations of Bauer, 2005; Golob, 2002; Krahn, 2005; and Rodriguez, 2005, as well as the writings of some project management authors. It indicates the original philosophy of project managers primarily needing only hard/technical (engineering/ scientific) skills is no longer true. Rather, there is a new philosophy wherein soft/non-technical (interpersonal/people management) skills are just as important and, in most instances more important.

PMI has developed their own PMBOK wherein there are nine knowledge areas and five processes with much discussion concerning the inputs, tools, and techniques to

be used within the specific knowledge areas. While the PMBOK is a superb document, there still exists a need for more exploration and discussion of the needed project manager competencies from a broader perspective. Satisfactory completion of the PMI administered PMP certification examination may not insure project manager competencies. Many other factors are involved in the development of a highly competent project manager. Factors, such as formal education, appropriate training, professional development, and progressive work experience are important. Personal characteristics involving the ability to operate in a demanding, often stressful, environment; ethics and trustworthiness; managerial and leadership abilities for motivating and leading others; and decision-making skills are critical.

Project management is a universal discipline applicable to most every business or industry. The discipline of project management is a very effective and proven management tool available globally and across industries. As such it is critical for executives of any type of organization anywhere in the world to better understand more about project management and the competencies needed by members of the project management team, especially the project manager. Executive acceptance, understanding, and implementation of it will be one of the critical factors in the future organization.

Project manager possession of skills is a critical factor.

CHAPTER 3. METHODOLOGY

Introduction

This chapter will present the research methods; discussion of the population and sample; instrumentation, to include the components, validity, reliability, and cover letter; data collection process; protection of human subjects in compliance with Capella University Institutional Review Board (IRB) guidelines; and data analysis procedures.

This research project will make a meaningful contribution to the literature involving project management by revealing the importance of certain project manager competencies and skills as they influence project success. The general problem of an overall lack of competent project managers will be addressed. The research survey questions will ask survey respondents about their personal perceptions concerning the current state of available project management education and training and their organization's support for it. Today it is commonplace to ask questions to gather facts in order to expand knowledge (Cisneros-Puebla, Faux, & Mey, 2004). The survey questions will focus on the discovery of the most important skills a project manager should possess as perceived by project managers. Further, the study will identify which skills are considered by organizational executives and project sponsors as the most important skills.

The three research questions and five hypotheses will guide the study to completion.

1. Which skills are most important, as perceived by project managers or project sponsors and used by organizations, when:
 - a. developing job descriptions for a project manager?
 - b. selecting and hiring an individual as a project manager?
 - c. selecting and promoting an internal organizational individual as a project manager?
2. Which skills are more important to the overall success of project management in specific businesses or industries?
3. Which skill sets are most important between Hard/Technical (Engineering/Scientific) and Soft/Non-Technical (Interpersonal/People Management)?

Final results will provide information organizational leaders can use in developing accurate position descriptions for project managers, hiring the best qualified individuals, and promoting project managers. Specifically, the results will contribute meaningful research to the literature concerning needed project manager competencies and skills. In their doctoral dissertations, Bauer, Golob, Krahn and Rodriquez all recommended further study of the topic of project manager competencies (Bauer, 2005; Golob, 2002; Krahn, 2005; Rodriquez, 2005). The significance of these findings will be the continuation of the recommended research and more importantly, the detailed analysis of the needed project manager competencies across the spectrum of different types of project work.

Research Methods

This research project will use a quantitative, quasi-experimental survey instrument to determine the most important project manager competencies and skills. The study will identify the differences in perceived competencies and skills needed between actual project managers' viewpoints and their organizational viewpoints. These competencies will deal with competencies and skills needed when developing job descriptions for project managers, conducting initial job interviews, and considering internal candidates/individuals for promotion to project manager.

Keegan believes academia needs to learn from industry and understand the point of research is not the actual research methodology but how the results can help one better understand the future. She believes whatever bit of the world or issue being researched can be more clearly understood through research and thus help in planning for the future (2007, p. 10). While Keegan believes a two-way exchange of information can enhance both academia and industry the fact is the academic must more closely adhere to strict guidelines to insure accuracy.

Population and Sample

The new survey will be initially administered to determine survey reliability and validity. An e-mail announcing the availability of the survey instrument at an online survey Web site will be forwarded to a small population of approximately 25 individuals. Based upon a review of the pilot research survey respondents' data the research survey instrument will be appropriately revised. Once the initial pilot survey results are analyzed, a revised research project survey instrument will be made available to a larger

population of 300 project managers and project sponsors. It is anticipated approximately 250 individuals will respond. For a total population of 300 individuals a recommended sample size of only 169 is required (Patten, 2002, p. 141).

Members of the Center for Business Practices (CBP) Survey Research Network will be invited to participate in this research project. The CBP Survey Research Network is a volunteer benchmarking group with thorough knowledge of their organizations' project management practices and business results (CBP, 2004, p. 5). Personal e-mails will be sent to approximately 300 project management practitioners inviting them to participate in the survey. By offering the survey to all members in the population, the sample becomes a simple random sample (Patten, 2002, p. 41). This population normally responds to surveys in order to further the project management discipline. In both instances, potential research respondents will be asked to rate a list of defined project management competencies in relation to each competency's importance when writing job descriptions for project manager positions and the hiring and promoting of project managers.

Instrumentation

This research project survey instrumentation was generated from reviewing several other survey instruments and writings. During the literature review, attention was focused on the issue of project manager competencies and skills. A table was designed to compile the competencies identified. This information is reflected in Appendix C. Project Manager Competencies Developed from Literature Review. Recently completed dissertations (Bauer, 2005; Golob, 2002; Krahn, 2005; Rodriquez, 2005) containing their

validated survey instruments were reviewed. In addition, there were various lists and questionnaires concerning project manager competencies and skills from project management authors (Baker & Baker, 1998; Kerzner, 2003; Lewis, 2000; Lewis, 2003; Portnoy, 2001) used as a basis for the initial pilot research survey instrument.

Included in the research survey instrument were demographic questions. These questions involved personal information, such as education, training, certifications, and experience. It included questions concerning the respondents' occupational and national information, such as type of industry and location in the world for both current employment and involvement in project management.

An electronic survey questionnaire was used. While Bauer, Golob, Krahn, and Rodriquez developed paper survey instruments for their research (Bauer, 2005; Golob, 2002; Krahn, 2005; Rodriquez, 2005), this research project will develop a new pilot electronic research survey instrument. Although electronic surveys are often criticized, “. . . they often offer more security and more likelihood of a response than regular mail surveys” (Nesbary, 2000, p. 52). The electronic survey instrument offered the most efficient means of collecting a large sample of the project management community population. Additionally, it did so at a lower cost per survey respondent. Further, the electronic software is the most efficient means to handle a large amount of data collection. It would take months and a large amount of money to collect survey data from respondents in a qualitative type interview process.

During the literature review several research instruments were evaluated. Using the writings of two organizations (PMI and GAO), seven project management authors

(Cleland, Frame, Heerkens, Kerzner, Lewis, Shtub, and Wysocki) and four doctoral learners (Bauer, Golob, Krahn, Rodriguez) the predominant project manager skills were determined. Fully recognizing some differences exist in the lexicon and vocabulary among individuals as much standardization as possible was made. The aforementioned writings were used to develop a common list of project manager competencies as reflected in Appendix C. Project Manager Competencies from Literature Review. This list of competencies was then used to develop the list of survey questions. The survey questionnaire list of questions was narrowly focused to obtain responses to very specific issues. As a self-administered survey with the questions in an online response modality there was expectation of obtaining the information. The desire and expectation was to obtain responses to a narrowly focused set of questions pertaining to the skills needed by project managers to successfully complete a project within the required time and financial constraints while meeting and, hopefully, exceeding the client needs and expectations. The survey instrument was a newly designed survey questionnaire.

Two PMI certified PMPs participated in this research project as Subject Matter Experts (SME). Their biographies are reflected in Appendix D. Subject Matter Expert Bios. Well-known in the project management community these SMEs will bring a great deal of expertise to the development of the survey instrumentation. Their efforts in validating the survey questions and making recommendations were invaluable. Their review provided constructive assistance in bringing accuracy and clarity to some important issues and questions. The initial survey instrument reflected at Appendix E. Initial Proposed Survey Instrument was revised as a result of the SME comments.

The survey instrumentation in this research project was comprised of two major parts which are the demographics and the competency questions. The primary purpose of this survey instrument was to collect data concerning the perceptions of project managers and project sponsors across various industries around the world and how an organization may apply information about a project manager's competency, knowledge, skill, or ability for:

1. inclusion in a project manager's job description;
2. hiring a project manager;
3. promoting an internal candidate to a higher level.

Topchik recommends giving individuals the necessary skills before promoting them to managerial positions, making managing a priority and promoting the managerial role, assessing potential managers, holding managers accountable, and recognizing managers (2004, p. 160). The results of this research project will make better and more current data available for executive management to consider in developing their project managers' skills.

Components

In the demographics section there were personal questions about Gender, Age, Education, Experience, Training, Number of Team Members, and the Value of their Current Project, Project Management Related Memberships and Certifications, the Industry in which they work, and the country in which they were born, currently work in, and where the organization in which they work may have facilities located. The questions

dealing with actual competencies involve their perceptions of specific competencies and how their employing organization applies them.

The questions developed for use within the survey questionnaire were designed to collect responses to very specific issues. As such, they were structured (Trochim, 2001, p. 113). They were specifically targeted to the development of a position description for a project manager, used for initially hiring a project manager, and the selection criteria for promotion of a project manager. “As a rule, a question should ask about one issue, thought, or event at a time” (Royse, 1999, p. 183). Throughout the survey instrument, a two part response on a topic was used and involved the survey respondent’s Personal Viewpoint and their employer’s Organizational Use of the issue in question.

A Likert-type scale was used to collect information from individuals about their ‘Personal Viewpoint’ on an issue using five choices with an instruction to ‘Please mark only one response’:

1. *Strongly Agree*
2. *Agree*
3. *No Opinion*
4. *Disagree*
5. *Strongly Disagree*

Another Likert-type scale was used to collect information from individuals about the ‘Organizational Use’ of the issue using a three choice response with an instruction to ‘Please mark all appropriate responses’:

1. *Always*
2. *Frequently*
3. *Seldom*
4. *Never*

Use of such Likert-type scales is common. “A scale is a cluster or group of statements or questions (items) that are designed to measure a single concept” (Royse, 1999, p. 29). The response design using two different scales within an issue was used to collect accurate data concerning the different viewpoints.

The survey instrument was both valid and reliable. “To be useful, an instrument must be both reasonably valid and reasonably reliable” (Patten, 2000, p. 66). The survey instrument was made available for two calendar weeks to afford adequate time for potential survey respondents to respond.

Validity

Validation of the survey questions was be initially accomplished through the SME review. “Validity refers to the extent to which a test measures what we actually wish to measure” (Cooper & Schindler, 2003, p. 231). Validation of a survey questionnaire can be gained through distribution of a field pre-test to a small sample survey population of individuals with similar characteristics and backgrounds as the larger sample survey population (Cooper & Schindler, 2003). A sample size consisting of 25 survey respondents was accomplished initially to further validate the questionnaire.

Validity is important as it involves questions which mean the same thing to the entire potential respondent population and provides for a survey schedule which is

sufficient enough to allow respondents ample time to properly complete the survey instrument. Further, validity means the survey instrument is sufficiently engaging so respondents want to give appropriate responses, and finally, it gathers the information the researcher is seeking (Nesbary, 2000, p. 11). When there is any potential for misunderstanding the questions or there is insufficient time allotted for taking the survey the validity of the instrument is reduced. If the respondents lack the desire to properly answer the survey questions, the value of the information can be adversely and significantly impacted.

Specific tests will be accomplished to validate the responses. Descriptive statistics, correlation analysis, and a test of the internal consistency of the data sets was used. The results were analyzed to insure validity.

Reliability

In addition to the validity of the questions the reliability is critical to the overall research project to insure success. “Reliability has to do with the accuracy and precision of a measurement procedure” (Cooper & Schindler, 2003, p. 231). A survey is said “. . . to be reliable if it yields consistent results” (Patten, 2002, p. 65). Reliability for this research project survey questionnaire was obtained through the use of SMEs and the initial pilot survey.

Since the survey was comprised of closed-ended questions there are some disadvantages which could impact reliability. Some respondents may not fully understand the question or the supplied responses and, as a result, simply choose a response randomly rather than thoughtfully (Rea & Parker, 1997, p. 34). To limit the amount of

random selections the survey instrument was carefully designed with clearly worded instructions and questions.

Cover Letter

The cover letter (introduction section) explained the overall survey to the potential respondents with a clear description of the purpose of the survey. Further, it provided applicable information as to the law involving human research and survey respondents. It carefully explained about the confidentiality involved and the anonymity of all responses. Safeguarding of personal information was insured with ethics of research uppermost in mind.

Data Collection

Data collection was bias free with protection of human subjects strictly observed and enforced.

Bias

Bias is a concern for obtaining a representative sample of the population and insuring all members of a population have an equal opportunity for selection as anyone (Pyrzczak, 2001, p. 9). This research project survey was being offered to PMI members throughout the world to participate in answering. It was expected people would respond from the PMI community, thus making the sample bias free. The data collected was analyzed as to their source and their relationship to the percent of the overall PMI membership as well as the number of members by region. In the event there was a disparity, another request would have been made to reach a more representative sample of the region.

Protection of Human Subjects

In compliance with Capella guidelines on confidentiality the anonymity of the survey respondents was maintained by e-mail announcements of the availability of the survey instrument. The survey instrument was in an online modality with a front page explanation of the purpose of the survey and the confidentiality of survey respondents. Further, individuals did not provide their names or contact information in response to any questions contained within the actual survey questionnaire. While it would be nice to have the contact information of a survey respondent to conduct any follow-up questions the survey questionnaire collected responses to very specifically worded questions which will lessen the requirement for any follow-up. In cases where respondents have failed to fully complete the survey instrument their incomplete survey was eliminated from data analysis. It was expected this will be a low number since the survey population is accustomed to responding to surveys concerning project management.

Data Analysis Procedures

The purpose of the data analysis is to convert the raw data obtained during the data collection into a comprehensive summary (Royse, 1999, p. 226). Samples provide information about larger populations. "Statistics are summary measures of sample data used to draw inferences about population characteristics" (Evans & Olson, 2000, p. 12). As such, various statistical tools were used to analyze the collected data. The SPSS Graduate Package software was used. Both descriptive and inferential analysis were used to develop response frequencies, percentages, and the normal means, standard deviations, and ranges of response scales. Appropriate charts, graphs, and tables were

developed to portray the responses collected for each question contained within the survey questionnaire instrument.

Data responses differing due to industry differences were to be shown to identify any potential disparity of perceptions and organizational practices. This data was to be reflected in separate charts, graphs, and tables. It was anticipated there will be some differences as to the responses due to industry viewpoints. While collectively reported the data was also reflected in regional differences around the world. Statistical inference were made when making conclusions about the characteristics of the population based on this sample data (Evans & Olson, 2000, p. 12). The data was analyzed and reflected in great detail in order for easy review.

Every effort was made to portray and explain the data in an accurate and complete manner. However, it must be considered, “No matter how we sample, it is always possible that the statistics we obtain do not accurately reflect the population parameters that we would have obtained if we had studied the entire population” (Pyrzczak, 2001, p. 9). Having said this, the SMEs involved in this research project believe the data collected was accurate and representative of the overall population as there is much concern for the topic of needed project manager competencies and skills by the project management community.

CHAPTER 4. PRESENTATION AND ANALYSIS OF RESEARCH DATA

Introduction to Analysis of Data

This chapter's purpose is to present the findings of the research study and provide answers to the study's three research questions and five hypotheses reflected in Table 1. Research Questions and Hypotheses Relationship.

This chapter provides extensive demographic data of the survey group in order to better understand their background and experience in project management. Additional tables and figures, reflected in Appendix G. Demographics, are used to portray this information. Significant problems in the management of projects identified in the literature review clearly indicate the need for competent project management staff. These tables and figures identify the demographics and competencies of the survey group.

Table 1. Research Questions and Hypotheses Relationship

Research Questions	Hypotheses
1. Which skills are most important when:	H1 _O - There is no perceived difference concerning various competencies needed by project managers when management is developing a project manager job description
a. developing job descriptions for a project manager?	H1 _A - There is a perceived difference concerning various competencies needed by project managers when management is developing a project manager job description
b. selecting and hiring an individual as a project manager?	H2 _O - There is no perceived difference concerning the various competencies a project manager needs when management is selecting and hiring an individual as a project manager H2 _A - There is a perceived difference concerning the various competencies a project manager needs when management is selecting and hiring an individual as a project manager
c. selecting and promoting an internal organizational individual as a project manager?	H3 _O - There is no perceived difference concerning the various competencies a project manager needs when management is selecting and promoting an internal candidate to project manager H3 _A - There is a perceived difference concerning the various competencies a project manager needs when management is selecting and promoting an internal candidate to project manager
2. Which skills are more important to the overall success of project management in specific businesses or industries?	H4 _O - There is no perceived difference between the various competencies a project manager needs to be successful in different industries H4 _A - There is a perceived difference between the various competencies a project manager needs to be successful in different industries
3. Which skill sets are most important between Hard/Technical (Engineering/Scientific) and Soft/Non-Technical (Interpersonal/People Management)?	H5 _O - There is no perceived difference concerning the importance between the Hard/Technical (Engineering/Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills H5 _A - There is a perceived difference concerning the importance between the Hard/Technical (Engineering/Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills

Data Cleaning

The data cleaning was minimal. Surveys involve directly asking the participant a series of questions (Donnelly, 2007, p. 20). “In every survey, there are some people who agree to be respondents who do not answer every question. Although nonresponse to individual questions is usually low, occasionally it can be high . . .” (Fowler, 2002, p. 39).

Fowler goes on to say, “The key problem is that we usually lack good data about when nonresponse is and is not likely to be biased with respect to the content of the survey” (2002, p. 56). “Another problem for self-administered approaches is getting people to return a completed questionnaire” (Fowler, 2002, p. 61). The anticipated return for this research project was much higher. In discussions with Jim Pennypacker, the return rate was significantly lower than normal. It is believed the stress of many projects, long work hours, and critical timelines were the cause of the low response rate. Further, the approaching winter holiday season may have impacted the time people believed they had available for answering a non-compensated effort and one outside their billable work related requirements.

In an earlier book, Fowler discusses survey questions. “One standard for a good question is that all the people answering it should understand it in a consistent way and in a way that is consistent with what the researcher expected it to meet” (1995, p. 2). The survey was reviewed by three Subject Matter Experts (SMEs) who believed the questions were valid. Fowler believes,

One basic part of having people accurately report factual or objective information is ensuring that all respondents have the same understanding of what is to be reported, so that the researcher is sure that the same definitions have been used across the respondents. (1995, p. 13)

The survey was carefully reviewed by three Subject Matter Experts who determined the questions should be clearly understandable by any individual involved in project management whether they are certified or not. Naturally, certified project

managers would be more knowledgeable but experienced project staff should be easily capable of providing responses.

Nesbary writes, “Survey research is the process of collecting representative sample data from a larger population and using the sample to infer attributes of the population” (2000, p. 10). When discussing research, specifically interviews or surveys, Carey and Greenberg believe, “. . . there is often disagreement over some of the details . . .” (1983, p. 3). They go on to say, “. . . there are at least two sides to every issue” (Carey & Greenberg, 1983, p. 20). In reviewing the survey respondents’ input it was determined only three individuals had failed to complete more than a few demographic questions. Additionally, there were times when less than the remaining 53 participants responded to a survey question. Since there were only 18 certified Project Management Professionals (PMPs) and two individuals with degrees in Project Management it appears there may have been some individuals who lacked confidence in completing all of the survey questions.

As the survey did involve respondents answering questions about their organization’s actual use of specific competencies some respondents may have felt uncomfortable in responding believing they lacked sufficient knowledge of the issue. Given this fact, an option of ‘Do not know’ in the Organizational Use Likert Response Scale may have resulted in a higher response rate to more questions. However, it was deemed acceptable for individuals to not respond to all of the questions as it is common for employees to lack a complete understanding of their organization’s actual policies and practices. In reviewing the data responses it was discovered there were three survey

participants who responded to only five or six questions. As a result, their inputs were completely eliminated since there was little valuable input.

Demographics of the Survey Sample

Descriptive data of the respondents include gender, age, years of experience in the workforce and project management experience, education and training, project management certification, experience with project failures, country where survey respondent currently resides. This information, as well as other organizational information, is revealed in the following pages and Appendix G. Demographics. The SPSS Graduate Package Version 16 statistical software tool was used to analyze the survey results.

Respondent Gender and Age

The survey respondents were asked questions about their gender and age which resulted in 53 responses. The question asking the gender of the respondent(s) revealed males comprised 77% of the respondents. The survey group did not have anyone less than 30 years of age or older than 65 years of age. The majority were between 40 and 64 years of age with a bi-modal rise in the 40-44 age group and 55-59/60-64 age groups.

Years of Work Experience

A survey two part question, “What is the approximate number of years you have been working and involved with project management?” generated two demographic data points showing valuable information pertaining to the respondent(s) experience levels in the world of work and their years of work experience involving project management activities.

Overall the years of experience in the workforce were relatively consistent with a peak in the 25-29/30-34 year groups for males and 25-29 year group for females while the years involving project management revealed males had far more project management experience. Males were relatively consistent throughout with a majority in the 15-19 year group followed by a rise in the 10-14 year group. Females were consistently low in years of experience with a rise in the 5-9 and 20-24 year group, thus indicating project management is a male dominant profession.

The years of experience in project management question has fewer responses which is not surprising. Again, the 'accidental profession' (Crawford, 2002; Heerkens, 2002; Young, 2000) philosophy surfaces. It is normal to expect individuals to have fewer years of actual project management experience than years in the workforce. Keeping with this thought, the survey participants, both males and females, also have fewer years.

From the tables and figures reflected in Appendix G. Demographics, it can be seen the female subset of the survey respondents have both less years in the workforce and less years experience involving project management than the male subset. The years in the workforce would most likely exceed the years of experience involving project management as the discipline is typically entered years after joining the workforce. This would also account for the number of females having both less work experience and years of experience involving project management.

Blomquist and Muller believe organizations are increasingly using project management as a means to achieve business objectives which is increasing the number of projects in organizations and creating the need for more project management staff (2006,

p. 52). As a result, the more experienced, tenured employee is likely to be offered the opportunity to move into project management. And, again, is consistent with the term of ‘accidental profession’ (Crawford, 2002; Heerkens, 2002; Young, 2000). Individual’s best meeting a project timeline and budget are often offered the opportunity to move into project management.

To better understand the survey respondents in this survey project, additional demographic questions were asked in relation to their experiences with project values and failures, and organizational information, as well as regions of the world where the respondents were born, educated and currently reside. These findings are discussed here and in the appendix.

Respondent Personal Demographics

One survey question involving the demographic about the country where survey respondents currently live revealed the majority (84%) reside in the United States. Another multi-part survey question was designed around the six regions used by the premier world Project Management Institute (PMI) organization. The six regions are:

1. North America
2. Asia Pacific
3. Europe
4. Middle East
5. Africa
6. Latin America-Caribbean

A question was used to determine the demographics about the regions of the world where survey respondents were born, attended their early education, attended college, and had been/were employed. The survey responses revealed 64% were born in the North American region and 67% received their early education in the North American region while 73% received their college education in the North American region.

Regions of Employment. Responses involving employment indicate 73% had both past and current employment in the North American region. Within this survey respondent group there does not appear to be a change in regions from the past employment to the current employment. The personal demographics data involving regions of the world indicates project management is more prevalent in the highly industrialized nations of North America followed by the Asia Pacific region and Europe region countries. Less industrialized nations and regions of Latin America – Caribbean, Africa, and the Middle East appear to lag behind. Another important fact is the number of females, or lack of, in the Middle East and Africa regions. This may be a result of the cultural role of women in the workplace in some of these region's countries.

Level of Education and Training. Education and training are important factors within the project management profession. The survey findings revealed 66% had some form of a higher educational degree. An interesting finding was that while the male subset was higher than the female subset at 3% vs. 0% for some 'Doctoral level work but no degree' and 1% vs. 0% for 'ABD' status, a reversal occurs for an actual 'PhD' with 1% male vs. 2% female possessing the terminal degree.

The survey respondents developed their project management expertise through various training activities. The predominant method of development was reading materials and online courses with 100% participation by the survey respondent group. Employer training was 83% with commercial vendor training at 76%. Project Management Association events involving training was 83% with luncheon/dinner training meetings at 73% and monthly meetings at 71%. In addition, respondents were provided an opportunity to use an Other – Explain category with a 17% participation. Their responses were:

1. Personal self-development through application of social science theory to analysis of org. & project needs.
2. Certification through the Department of Defense.
3. PMI Board Member.
4. Working with government organisations [sic] gives one ample opportunity.
5. Masters in Civil Engineering / Construction and Project Management Degree.
6. I have authored and delivered PM classes and PMP Exam classes for several organizations and PMI Chapters.
7. On the job, self-taught.

Current Organizational Position. To ascertain more about the demographics of the survey respondents, a survey question was asked about their current position within their organization. The survey respondent group was, for the most part, spread across the full range of potential positions. Project Team Leader was highest at 49% followed by Portfolio Manager over multiple Programs and Projects at 34%. An important note is the

result of individuals, both male and female, responding to more than one position. This certainly could be common in a workplace environment where project management individuals are multi-tasked within a project and between projects (Frame, 1994; Kerzner, 2003; Lewis, 2003). This is supported with the finding where 100% of the survey group said they performed other work in addition to project work.

Skills and Qualifications. A multi-part survey question was asked about the survey respondents' use of hard vs. soft skills and their educational/training qualifications. Interesting is their response about relatively equal performance of Hard/Technical (Engineering/ Scientific) Skills related work at 57% and Soft/Non-Technical (Interpersonal/People Management) Skills related work at 55%. Only 32% believe they have the educational background for the type of projects they are working. However, 81% believe they have the necessary training to meet the project requirements.

Industry of Employment. A survey question involving the survey respondents' industries was asked. At 19% each, Engineering, Financial Services, and Transportation & Storage industries were the highest occurring industries using project management principles.

Soft/Non-Technical (Interpersonal/People Management) Skills

Soft/Non-Technical Skills are those interpersonal/people management skills expected to be the competencies found in most industries, disciplines, and levels of leadership, management, and supervision. Golob believes, “. . . generally soft skill competencies are more important than hard skill competencies. However, both types of competencies are required for a project manager to be successful in his/her job” (2002, p.

114). Cowie writes, “. . . project management is taught as a set of hard skills – how to create Gant [sic] charts, how to split up a complex project and so on – and the softer, people skills essential to success are overlooked” (2003, p. 256). Recognizing there has been much written about the Hard/Technical (Engineering/Scientific) Skills, this survey project focused on the soft/non-technical skills needed by project managers.

The twelve Soft/Non-Technical (Interpersonal/People Management Skills) competencies identified within this survey are:

1. Communication Skills
2. Basic Computer Skills
3. Conflict Resolution Skills
4. Decision-Making Skills
5. Delegation Skills
6. Management Support Building Skills
7. Motivation Skills
8. Negotiation Skills
9. Organizational Skills
10. Organizational Politics Skills
11. Problem-Solving Skills
12. Team-Building Skills

Patota, et al, believe each organization has unique competency needs based on their specific situations (2007, p. 5). This belief is supported by the 2003 Association for the Advancement of Computing in Education (AACE) report which talks about

competencies and many facets involved in the success of any project. Brill, Bishop and Walker state, “. . . a project manager must possess problem-solving expertise, leadership skills, context knowledge, and analytical, people, and communication expertise in addition to the more commonly emphasized project administration expertise (i.e., setting and managing scope, timelines, and budgets) (2006, p. 129). Again, communication, people, and problem-solving skills are identified as needed by project managers.

Lee, Yen, Havelka, & Koh write, “Some types of non-technical skills are perceived by IS professionals as more important than technical expertise” (2001, p. 27). Project Manager competencies are prevalent in other project management writings (Cleland, 1994; Frame, 1995; Heerkens, 2002; Kerzner, 2003; Lewis, 2000; PMI, 2000; Shtub, et al, 1994; Wysocki, et al, 2000) and research studies (Bauer, 2005; GAO, 2001; Golob, 2002; Krahn, 2005; Rodriguez, 2005). The degree to which specific competencies are identified depends upon the survey respondents’ background, experiences, and knowledge.

Format of Data Presented within Chapter 4

In all twelve Project Manager Soft/Non-Technical (Interpersonal/People Management Skills) competencies the same Likert-type format was used to determine the ‘Personal Viewpoint’ (PV) versus ‘Organizational Use’ (OU) with the same standard responses throughout. The PV responses involved the respondent’s personal views of the competency as to whether the organization should identify it in the position description, use it in initial hiring, and use it for internal promotions. The OU respondent’s observation of how the organization actually used the competency in the position

description, used it in the initial hiring process, and used it for internal promotions is also queried through a Likert-type response. What is important to note here is the fact the response involving actual organizational use is based on the respondent's observations which may be somewhat inaccurate due to organizational communications and politics.

As a means of clarity, the following figure reflects the PV responses down the first column with the OU responses across the rows. This figure also displays the basic format used in the following pages to reflect the responses in a crosstabulation format.

Table 2. Likert Responses and Crosstabulation Example

Personal Viewpoint (PV)	Organizational Use (OU)			
	Always	Frequently	Seldom	Never
Strongly Agree				
Agree				
No Opinion				
Disagree				
Strongly Disagree				

Each of the 12 competencies is explained in this same basic format. After the crosstabulation table there is a figure to graphically reflect the crosstabulation.

Survey respondents were asked to provide their personal viewpoint about the competency for use within the position description, for initial hiring selections, and for internal promotions within the organization. Further, they were queried as to how their organizations' actually used the specific competency in respect to the position description (PD), initial hiring (IH), and internal promotion (IP). A Project Management (PM) Competency Value Grid is shown for each competency and a closing statement is made to discuss the specific data and its overall acceptance for the position description, initial

hiring, and internal promotion. Each competency area is in the same format within the chapter with additional supporting data reflected in the appropriate appendix.

Format of the Project Management (PM) Competency Value Grid

The PM Competency Value Grid is similar to the well-known Managerial Grid. It uses a four quadrant arrangement to identify personal viewpoints (concern for people) vs. organizational use (concern for production). The three issues of position description (D), initial hiring (H), and internal promotion (P) are plotted against the x-axis which represents the organizational use and the y-axis which represents the personal viewpoint. Each quadrant identifies agreement or lack of it.

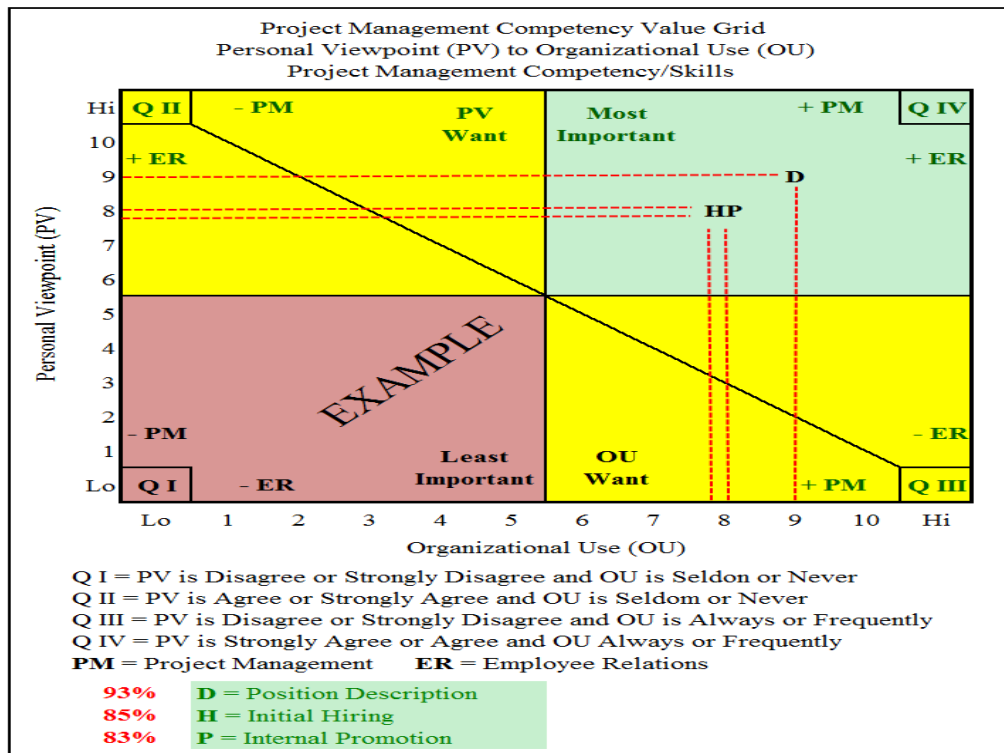


Figure 10. Example of PM Competency Value Grid. Source: McHenry Developed

Format of Data Presented within Appropriate Appendix

Each competency appendix area contains an initial table portraying the number of survey respondents in a crosstabulation format followed by the corresponding percentages in the same crosstabulation format. There are three statistical tables, to include a Chi-Square Test, taken from the SPSS Graduate Package 16 to further explain the data.

Hypotheses 1-2-3

The first three hypotheses involve the competencies project managers need when management is developing a position description, when management is selecting and hiring an individual as a project manager, or when management is selecting and promoting an internal candidate to project manager.

H1_O - There is no perceived difference concerning various competencies needed by project managers when management is developing a project manager job description

H1_A - There is a perceived difference concerning various competencies needed by project managers when management is developing a project manager job description

H2_O - There is no perceived difference concerning the various competencies a project manager needs when management is selecting and hiring an individual as a project manager

H2_A - There is a perceived difference concerning the various competencies a project manager needs when management is selecting and hiring an individual as a project manager

H3_O - There is no perceived difference concerning the various competencies a project manager needs when management is selecting and promoting an internal candidate to project manager

H3_A - There is a perceived difference concerning the various competencies a project manager needs when management is selecting and promoting an internal candidate to project manager

The following 12 competencies all reflect information involving the position description, initial hiring, and internal promotion.

Communication Skills

Effective communication skills, both written and oral, are essential competencies needed by project managers. Research reveals business individuals require strong speaking and writing skills to manage multifaceted and rapidly changing environments (Stevens, 2005, p. 3). Good communication contributes to mutual understanding and advancement (Coplin, 2003, p. 31). This is supported by a 2006 Society for Human Resource Management (SHRM) writing, where poor communication skills were identified as a key deficiency among new employees. Good writing and oral skills were competencies sought by managers (Dillon, 2006, p. 22). Brill, et al, write, “. . . a project manager must possess . . . communication expertise . . .” (2006, p. 129). Interestingly enough, as much as 14 years earlier, Clairborne identified older supervisors place more

emphasis on interacting with people through communication than their younger counterparts (1992, p. 168). The topic of effective communications appears to be a cross-generational issue.

The competency of ‘communication’ skills needed by a project manager is prevalent in other project management writings (Cleland, 1994; Heerkens, 2002; Lewis, 2000; PMI, 2000; Shtub, et al, 1994) and research studies (Bauer, 2005; GAO, 2001; Golob, 2002; Krahn, 2005; Rodriquez, 2005). Brill, Bishop, & Walker identify communication expertise as one of the top 10 competencies needed by a project manager (2006, p. 127). Carnevale, et al, write, “Communication is central to the smooth operation of a competitive venture. . . . Without communication, an organization cannot function” (1990, p. 125). Effective communication skills are essential for any manager to convey the necessary information needed to meet organizational taskings and overall goals in attaining and maintaining competitiveness.

Communications and the Position Description

Following tables and figures involve communications and the position description:

Table 3. Crosstabulation of Communications for PD in Percentages

PERSONAL VIEWPOINT (PV) about Communication Skills: Project Manager must possess effective oral and written communication skills: Identify in Position Description (PD)					
ORGANIZATIONAL USE (OU) of Communication Skills: Requires project management staff to have effective oral and written communication skills: Identified in Position Description (PD)					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	50.0%	32.5%	2.5%	2.5%	87.5%
Agree	2.5%	7.5%	2.5%	0.0%	12.5%
No Opinion	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	52.5%	40.0%	5.0%	2.5%	100.0%

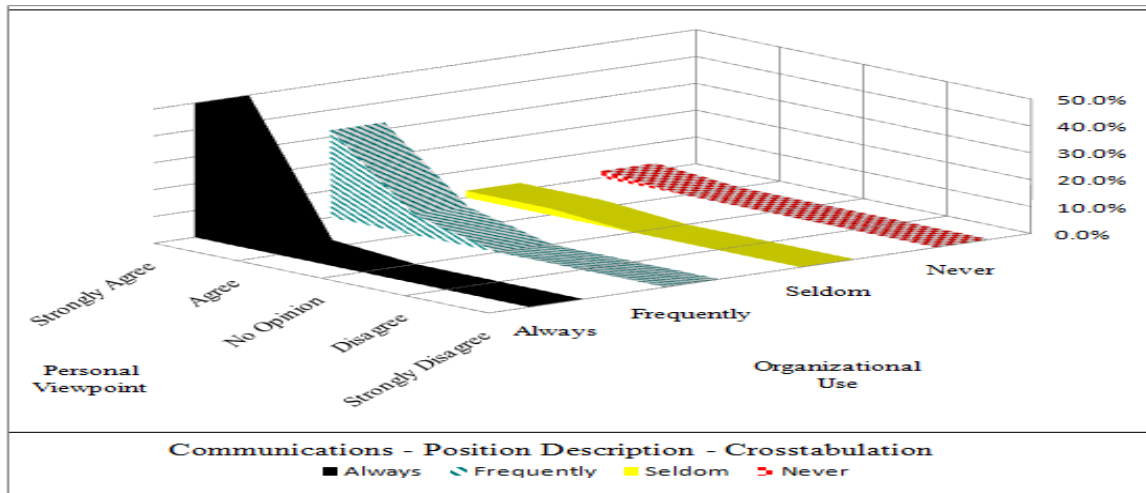


Figure 11. Crosstabulation of Communication Skills for PD.

Table 3 and Figure 11, along with the information in Appendix I. Communication Skills, indicate the PV and OU concerning the competency of communication skills are in very strong agreement. Approximately 93% of the survey participants believe the

competency of effective communication skills should be identified for inclusion in the position description and their organization does use the competency when developing position descriptions.

Communications and Initial Hiring

Following tables and figures involve communications and initial hiring:

Table 4. Crosstabulation of Communications for IH in Percentages

PERSONAL VIEWPOINT (PV) about Communication Skills: Project Manager must possess effective oral and written communication skills: Use for Hiring (IH)					
ORGANIZATIONAL USE (OU) of Communication Skills: Requires project management staff to have effective oral and written communication skills: Used for Hiring (IH)					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	41.0%	28.2%	7.7%	2.6%	79.5%
Agree	0.0%	15.4%	5.1%	0.0%	20.5%
No Opinion	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	41.0%	43.6%	12.8%	2.6%	100.0%

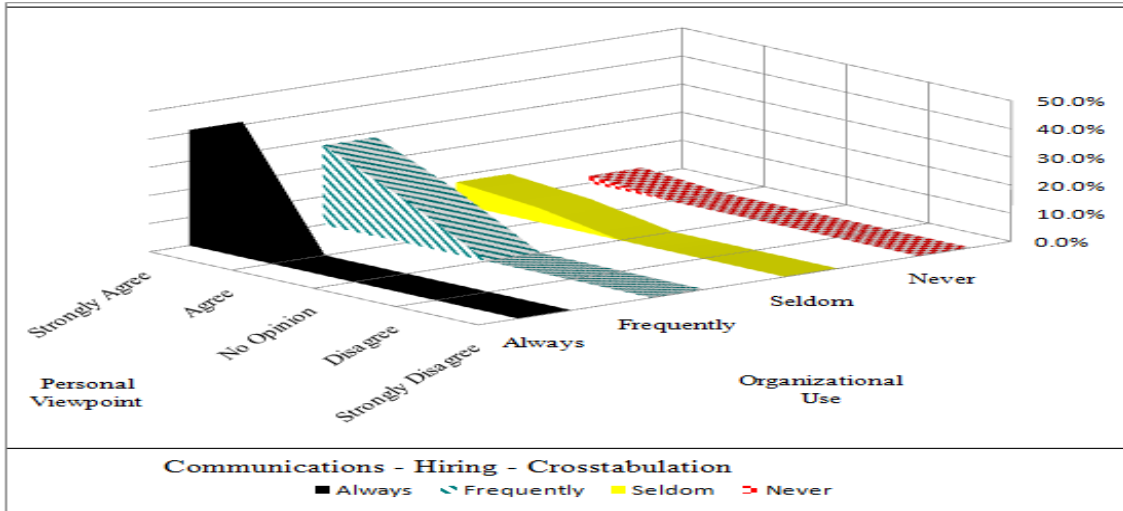


Figure 10. Crosstabulation of Communication Skills for IH.

Table 4 and Figure 12, along with the information in Appendix I. Communication Skills, indicate the PV and OU concerning the competency of communication skills are in very strong agreement. Approximately 85% of the survey participants believe the competency of effective communication skills should be identified for initial hiring and their organization does use the competency when making initial hiring selections.

Communications and Internal Promotions

Following tables and figures involve communications and internal promotions:

Table 5. Crosstabulation of Communications for IH in Percentages

PERSONAL VIEWPOINT (PV) about Communication Skills: Project Manager must possess effective oral and written communication skills: Use for Promotion (IP)					
ORGANIZATIONAL USE (OU) of Communication Skills: Requires project management staff to have effective oral and written communication skills: Used for Promotion (IP)					
Strongly Agree	43.6%	28.2%	5.1%	2.6%	79.5%
Agree	0.0%	15.4%	5.1%	0.0%	20.5%
No Opinion	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	43.6%	43.6%	10.3%	2.6%	100.0%

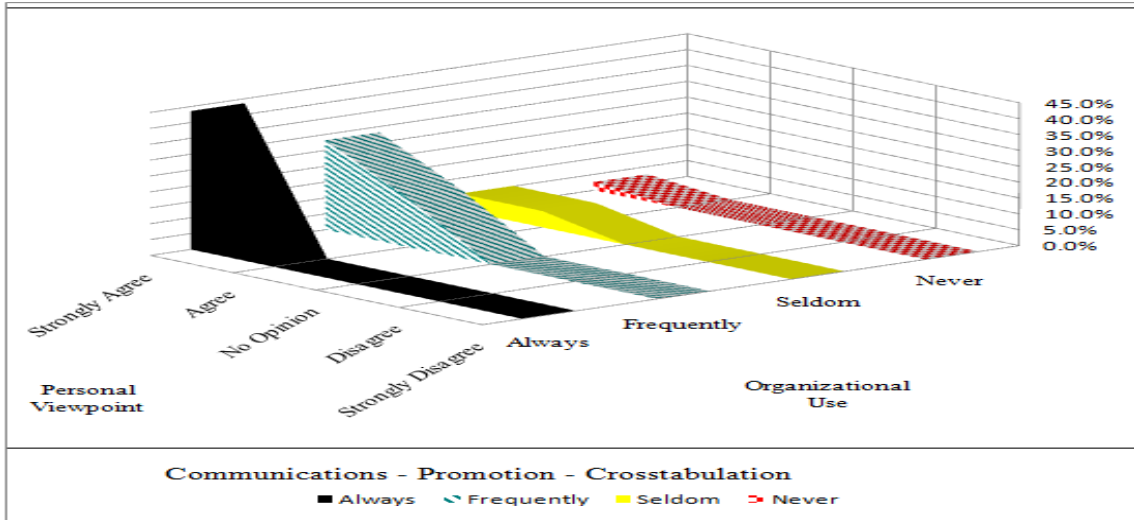


Figure 11. Crosstabulation of Communication Skills for IP

Table 5 and Figure 13, along with the information in Appendix I. Communication Skills, indicate the PV and OU concerning the competency of communication skills are

in very strong agreement. Approximately 87% of the survey participants believe the competency of effective communication skills should be identified for internal promotion and their organization does use the competency when making internal promotions.

Communications and the PM Competency Value Grid

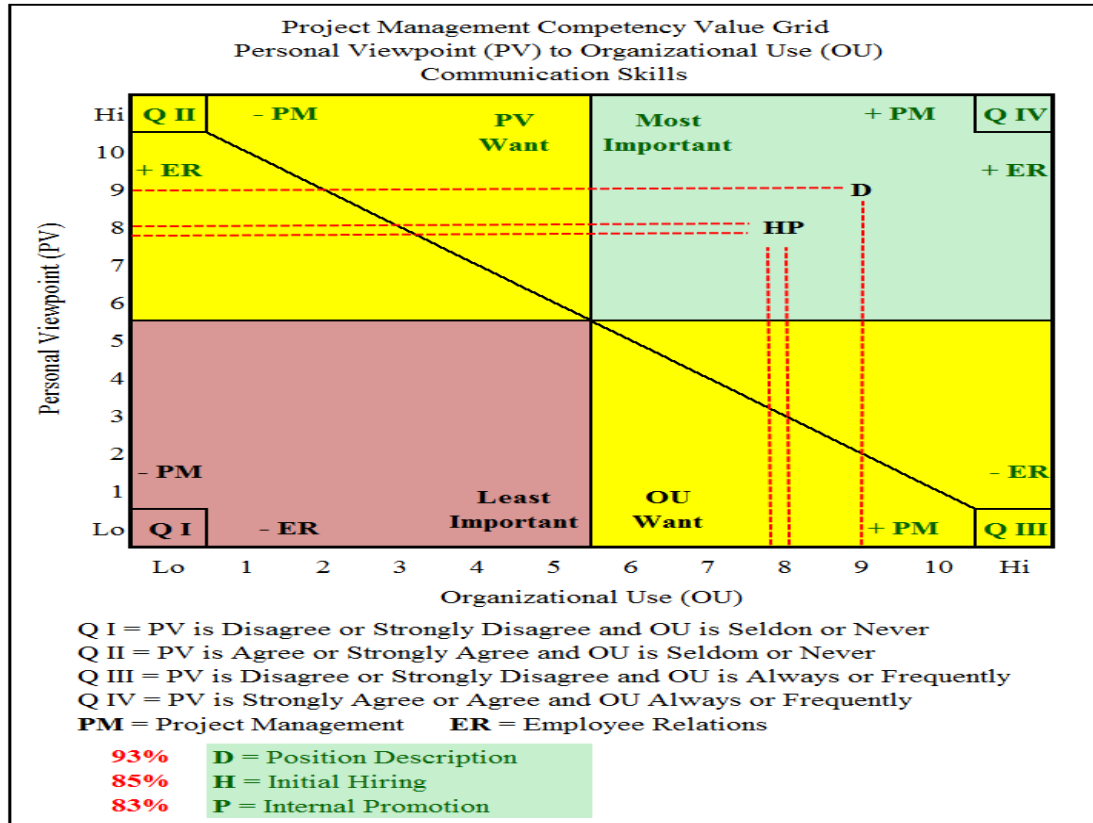


Figure 14. PM Competency Value Grid for Communication Skills

Figure 14 reveals an interesting fact: a 93% crosstabulation rating for effective communication skills to be identified in the position description is high with less than 8% of organizations seldom or never using the competency in their position descriptions. However, the actual use for initial hiring selections or internal promotions is only 85%

and 83% respectively. While this is not statistically significant, it does indicate some lack of using a position description for hiring and promoting.

Computer Skills

Today, computer skills are commonplace. Coplin believes basic computer skills are an essential competency employers want employees to have (2003). While personal computers have existed for over two decades now and we expect the younger generation to be more receptive of them, Clairborne writes, “Older supervisors place more emphasis on interacting with technology and interacting with people through communication than do their younger counterparts” (1992, p. 168). This is supported by the high ratings of the survey respondents’ in their personal viewpoint about basic computer skills and also their organizations’ usage.

As the following pages reveal, the issue of basic computer skills is the only competency, besides communications, which rated high at the 80 to 89% range in all three of the areas (position description, initial hiring, and internal promotion).

Decision- Making Skills is the only other competency which resulted in an 80% rating and this was in only one area.

Computer Skills and Position Description

Table 6. Crosstabulation of Computer Skills in Percentages for PD

PERSONAL VIEWPOINT (PV) about Basic Computer Skills: Project Manager must possess basic computer skills (word processing, spreadsheets, databases) to manage any type of project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Basic Computer Skills: Requires project management staff to possess basic computer skills (word processing, spreadsheets, databases) to manage any type of project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	42.5%	17.5%	2.5%	0.0%	62.5%
Agree	5.0%	17.5%	5.0%	0.0%	27.5%
No Opinion	0.0%	0.0%	2.5%	2.5%	5.0%
Disagree	0.0%	5.0%	0.0%	0.0%	5.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	47.5%	40.0%	10.0%	2.5%	100.0%

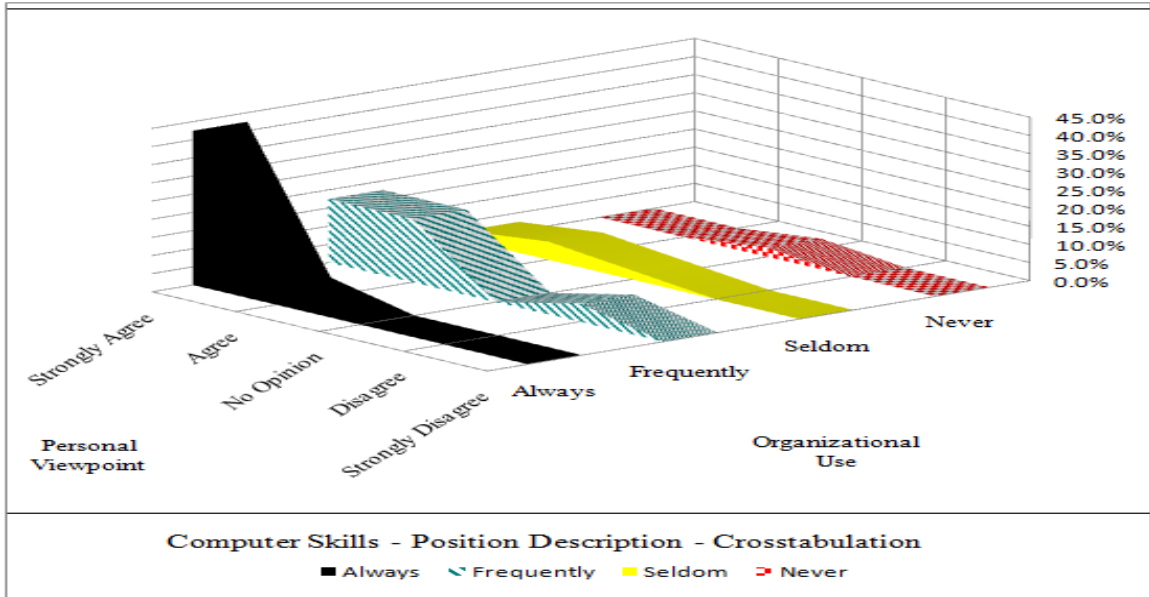


Figure 15. Crosstabulation of Computer Skills for PD

Figure 15 and Table 6, along with the information in Appendix J. Computer Skills, indicate the PV and OU concerning the competency of computer skills are in very strong agreement. Approximately 83% of the survey participants believe the competency of computer skills should be identified in the position description and their organization does use the competency in the position description.

Computer Skills and Initial Hiring

Table 7. Crosstabulation of Computer Skills in Percentages for IH

PERSONAL VIEWPOINT (PV) about Basic Computer Skills: Project Manager must possess basic computer skills (word processing, spreadsheets, databases) to manage any type of project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Basic Computer Skills: Requires project management staff to possess basic computer skills (word processing, spreadsheets, databases) to manage any type of project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	43.6%	28.2%	5.1%	2.6%	79.5%
Agree	0.0%	15.4%	5.1%	0.0%	20.5%
No Opinion	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	43.6%	43.6%	10.3%	2.6%	100.0%

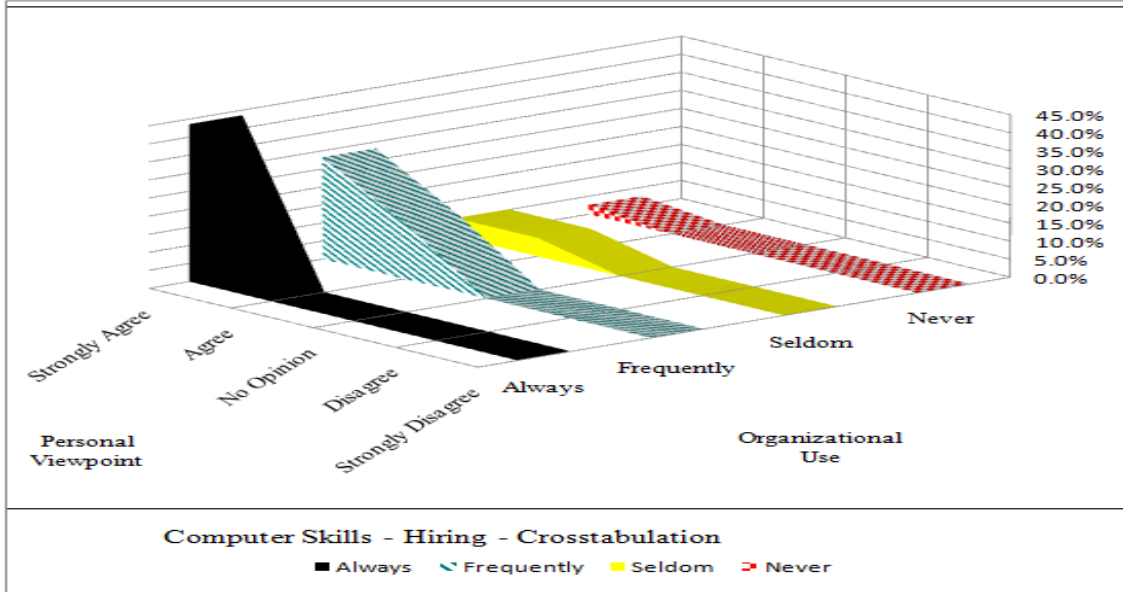


Figure 16. Crosstabulation of Computer Skills for IH

Table 7 and Figure 16, along with the information in Appendix J. Computer Skills, indicate the PV and OU concerning the competency of computer skills are in very strong agreement. Approximately 87% of the survey participants believe the competency of computer skills should be identified for initial hiring and their organization does use the competency when making initial hiring selections.

Computer Skills and Internal Promotions

Table 8. Crosstabulation of Computer Skills in Percentages for IP

PERSONAL VIEWPOINT (PV) about Basic Computer Skills: Project Manager must possess basic computer skills (word processing, spreadsheets, databases) to manage any type of project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Basic Computer Skills: Requires project management staff to possess basic computer skills (word processing, spreadsheets, databases) to manage any type of project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	42.5%	17.5%	2.5%	0.0%	62.5%
Agree	5.0%	17.5%	5.0%	0.0%	27.5%
No Opinion	0.0%	0.0%	2.5%	2.5%	5.0%
Disagree	0.0%	5.0%	0.0%	0.0%	5.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	47.5%	40.0%	10.0%	2.5%	100.0%

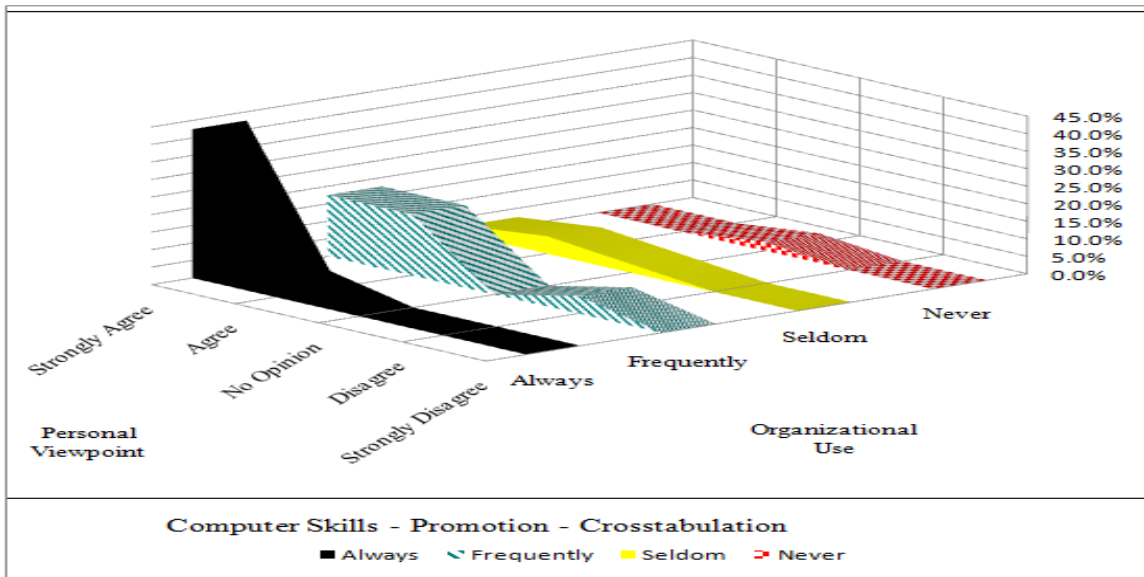


Figure 12. Crosstabulation of Computer Skills for IP

Table 8 and Figure 17, along with the information in Appendix J. Computer Skills, indicate the PV and OU concerning the competency of computer skills are in very

strong agreement. Approximately 83% of the survey participants believe the competency of computer skills should be used for internal promotion and their organization does use the competency for internal promotions.

As the second highest rated competency, basic computer skills still showed a difference between the position description (83%), initial hiring (87%), and internal promotion (83%) issues. The 87% rating is also the highest crosstabulation rating for initial hiring among the 12 competencies, higher even than the first place Communication Skills Competency at 85% for the initial hiring. With the 80% range for the three issues indicates a very strong agreement among the survey respondents' personal viewpoints and their organizations' use of the competency.

Computer Skills and PM Competency Value Grid

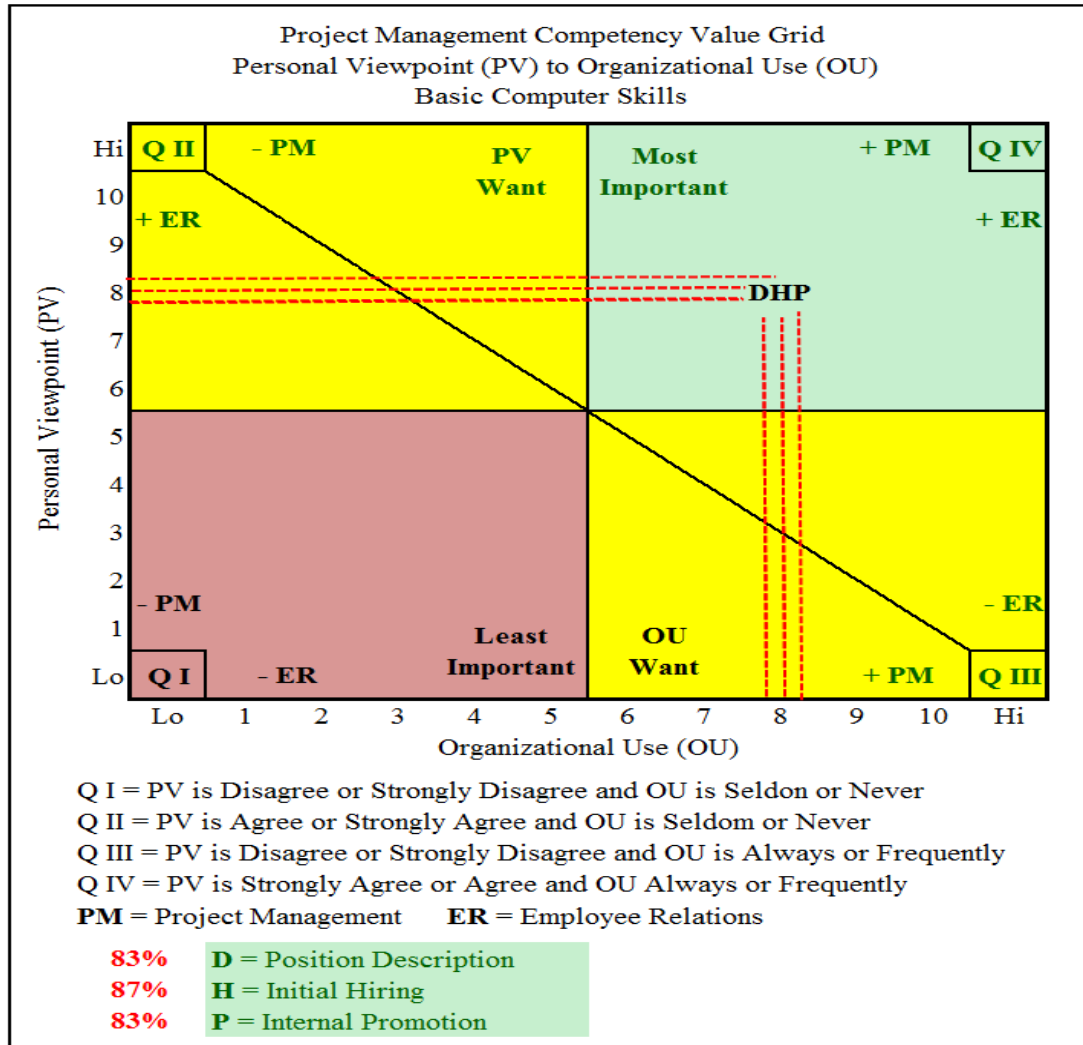


Figure 18. PM Competency Value Grid for Computer Skills

Figure 18 reveals strong agreement for basic computer skills in the three issues of inclusion in the position description, initial hiring, and internal promotion.

Conflict Resolution Skills

Conflict is a normal workplace issue which all managers face. Conflict exists within any relationship and the key is to learn how to best manage it (Coplin, 2003; Kerzner, 2003). The competency of 'conflict resolution' skills needed by a project manager exists in other project management writings (Kerzner, 2003; Shtub, et al, 1994) and research studies (Golob, 2002; Krahn, 2005). The need for effective conflict management is essential in the regular workplace and probably more so in the project environment where time delays can be costly.

Although conflict resolution skills are a competency which can be used in any workplace environment it was actually found to be one of the mid-scale or mid-range competencies for position description (65%), initial hiring (55%), and internal promotion (55%). Unlike the other competencies it showed a 10 point difference between the position description and the initial hiring and internal promotion rating.

Conflict Resolution Skills and Position Description

Table 9. Crosstabulation of Conflict Resolution Skills in Percentages for PD

PERSONAL VIEWPOINT (PV) about Conflict Resolution Skills: Project Manager must possess effective conflict resolution skills for resolving team and organizational conflicts: Use in Position Description					
ORGANIZATIONAL USE (OU) of Conflict Resolution Skills: Requires project management staff to have effective conflict resolution skills for resolving team and organizational conflicts: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	15.0%	25.0%	5.0%	2.5%	47.5%
Agree	5.0%	20.0%	17.5%	0.0%	42.5%
No Opinion	0.0%	2.5%	5.0%	2.5%	10.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	20.0%	47.5%	27.5%	5.0%	100.0%

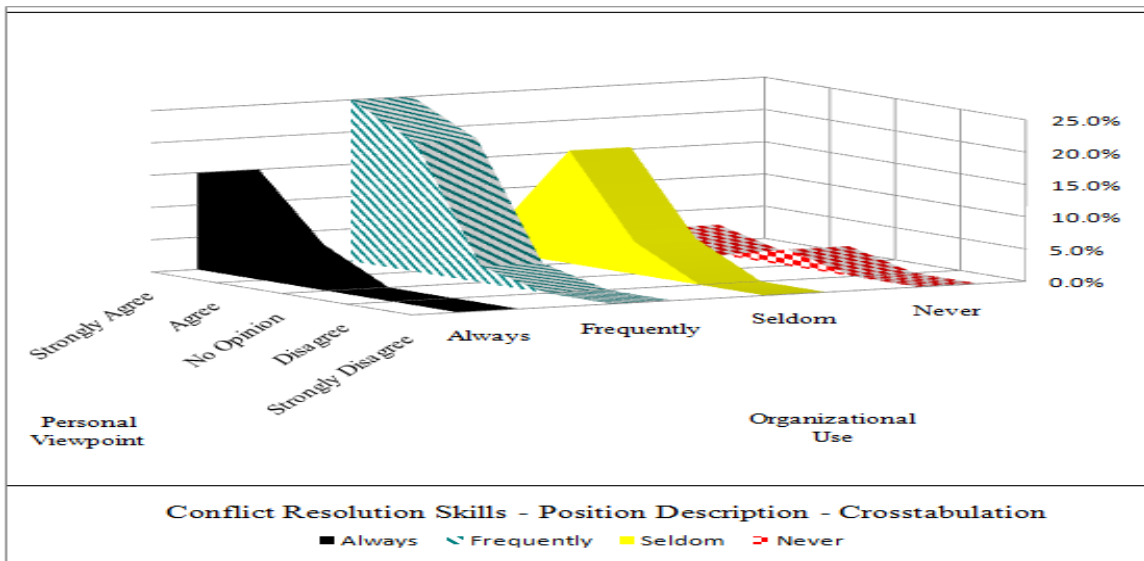


Figure 13. Crosstabulation of Conflict Resolution Skills for PD

Table 9 and Figure 19, along with the information in Appendix K. Conflict Resolution Skills, indicate the PV and OU concerning the competency of conflict resolution skills are in some agreement. Approximately 65% of the survey participants believe the competency of effective conflict resolution skills should be identified in the position description and their organizations do use them when writing position descriptions. However, approximately 25% of the survey respondents' organizations seldom or never identify the competency in their position descriptions. Since conflicts are a constant potential within a project environment with the number of involved stakeholders and the many competing factors this number appears to be somewhat high. Further, conflicts can result in delays which can adversely impact the schedule and thus the budget with possible costly penalties.

Conflict Resolution Skills and Initial Hiring

Table 10. Crosstabulation of Conflict Resolution Skills in Percentages for IH

PERSONAL VIEWPOINT (PV) about Conflict Resolution Skills: Project Manager must possess effective conflict resolution skills for resolving team and organizational conflicts: Use in Hiring					
ORGANIZATIONAL USE (OU) of Conflict Resolution Skills: Requires project management staff to have effective conflict resolution skills for resolving team and organizational conflicts: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	10.0%	15.0%	5.0%	5.0%	35.0%
Agree	5.0%	27.5%	15.0%	2.5%	50.0%
No Opinion	0.0%	0.0%	10.0%	0.0%	10.0%
Disagree	0.0%	2.5%	0.0%	2.5%	5.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	15.0%	45.0%	30.0%	10.0%	100.0%

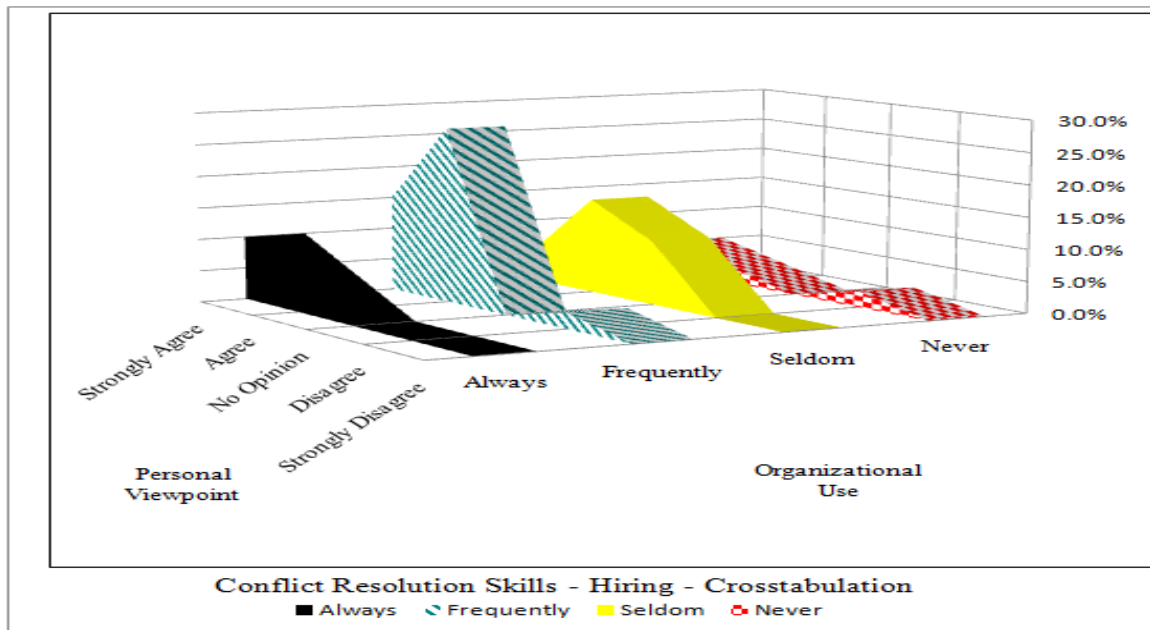


Figure 20. Crosstabulation of Conflict Resolution Skills for IH

Figure 20 and Table 10, along with the information in Appendix K. Conflict Resolution Skills, indicate the PV and OU concerning the competency of conflict resolution skills are in weak agreement. Approximately 58% of the survey participants believe the competency of effective conflict resolution skills should be identified for initial hiring and their organizations do use them when making initial hiring selections. Approximately 28% of the survey respondents' organizations do not use the competency for initial hiring selections.

Conflict Resolution Skills and Internal Promotion

Table 11. Crosstabulation of Conflict Resolution Skills in Percentages for IP

PERSONAL VIEWPOINT (PV) about Conflict Resolution Skills: Project Manager must possess effective conflict resolution skills for resolving team and organizational conflicts: Use in Promotion					
ORGANIZATIONAL USE (OU) of Conflict Resolution Skills: Requires project management staff to have effective conflict resolution skills for resolving team and organizational conflicts: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	12.5%	12.5%	7.5%	5.0%	37.5%
Agree	10.0%	20.0%	15.0%	0.0%	45.0%
No Opinion	0.0%	2.5%	7.5%	2.5%	12.5%
Disagree	0.0%	2.5%	0.0%	2.5%	5.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	22.5%	37.5%	30.0%	10.0%	100.0%

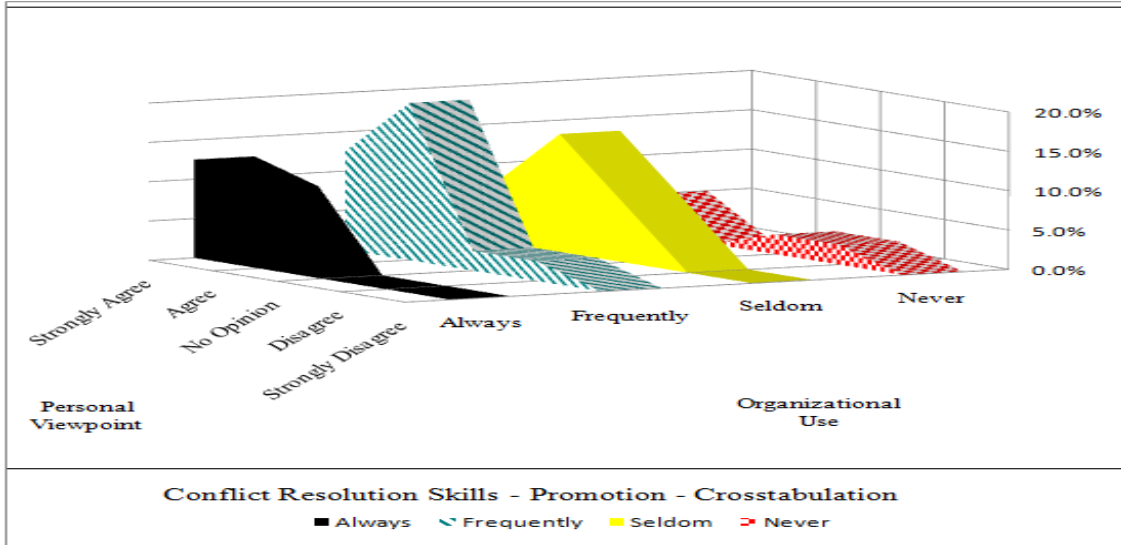


Figure 21. Crosstabulation of Conflict Resolution Skills for IP

Table 11 and Figure 21, along with the information in Appendix K. Conflict Resolution Skills, indicate the PV and OU concerning the competency of conflict resolution skills are in weak agreement. Approximately 55% of the survey participants believe the competency of effective conflict resolution skills should be identified for internal promotions and their organizations do use them when promoting from within. Like initial hiring selections, approximately 28% of the survey respondents' organizations do not use the competency for internal promotions.

Conflict Resolution Skills are a much needed competency within the normal workplace, much less the project environment. To have just 55% of the survey respondents' organizations using the competency as an initial hiring and internal promotion factor indicates a weak agreement between the project management staff and

the organizational leadership as to its value in preventing costly delays or interruptions while trying to resolve a conflict.

Conflict Resolution Skills and PM Competency Value Grid

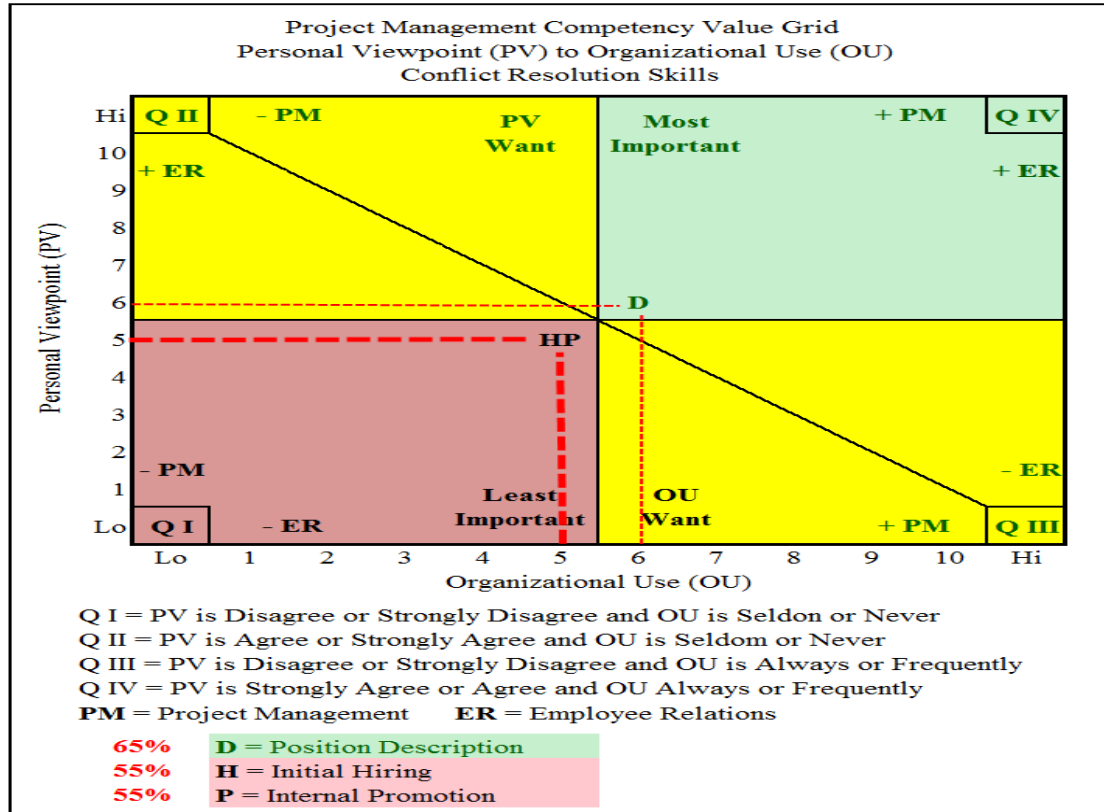


Figure 22. PM Competency Value Grid for Conflict Resolution Skills

Figure 22 reveals little agreement for conflict resolution skills in the three issues of inclusion in the position description, initial hiring, and internal promotion.

Decision-Making Skills

Decision-making skills are needed in all workplaces. “. . . a project manager must possess . . . analytical . . . expertise in addition to the more commonly emphasized project administration expertise (i.e., setting and managing scope, timelines, and budgets)” (Brill, Bishop, & Walker, 2006, p. 129). The competency of decision-making skills needed by a project manager is prevalent in other project management writings (Cleland, 1994; Heerkens, 2002; PMI, 2000; Shtub, et al, 1994) and research studies (GAO, 2001; Golob, 2002; Krahn, 2005). The ability to make effective decisions is essential to keeping a project on schedule and within time constraints. Poor decision-making is perhaps one of the leading causes of business failures.

Decision-Making Skills and Position Description

Table 12. Crosstabulation of Decision-Making Skills in Percentages for PD

PERSONAL VIEWPOINT (PV) about Decision-Making Skills: Project Manager must possess effective decision-making skills for making good choices in managing a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Decision-Making Skills: Requires project management staff to have effective decision-making skills for making good choices in managing a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	32.5%	22.5%	5.0%	5.0%	65.0%
Agree	0.0%	25.0%	7.5%	0.0%	32.5%
No Opinion	0.0%	0.0%	2.5%	0.0%	2.5%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	32.5%	47.5%	15.0%	5.0%	100.0%

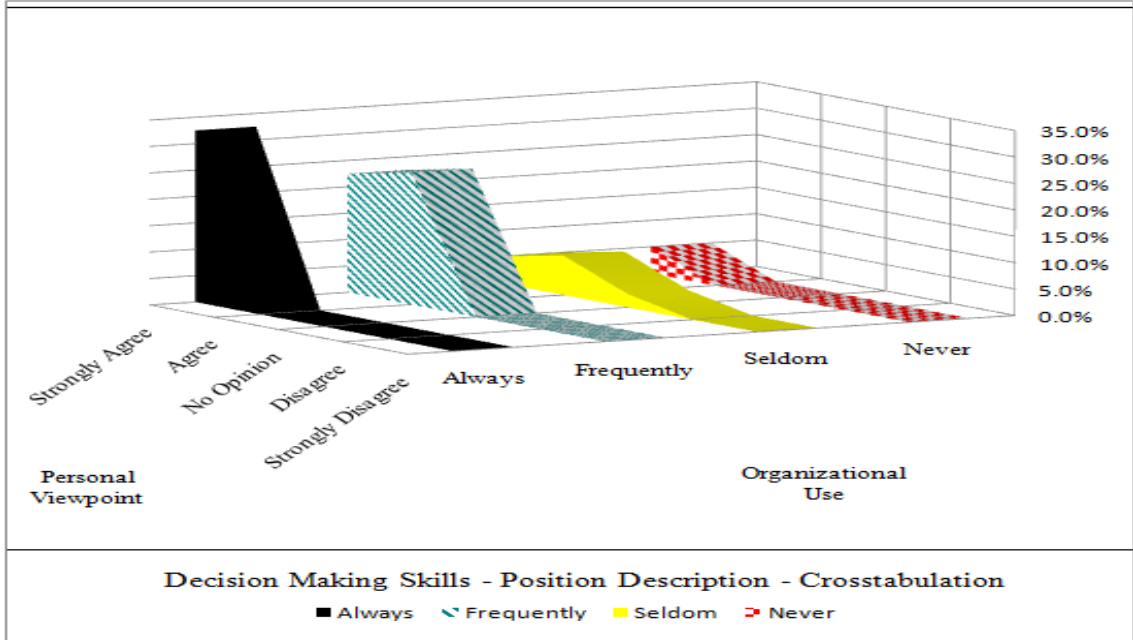


Figure 23. Crosstabulation of Decision-Making Skills for PD

Table 12 and Figure 23, along with the information in Appendix L. Decision-Making Skills, indicate the PV and OU concerning the competency of decision-making skills are in very strong agreement. Approximately 80% of the survey participants believe the competency of effective decision-making skills should be identified in the position description and their organizations do use them when writing position descriptions.

While 80% of the survey respondents' organizations identify decision-making skills in their position descriptions, only 67% consider the competency when initially hiring. Only 72% of the organizations consider decision-making skills for making internal promotion decisions.

Decision-Making Skills and Initial Hiring

Table 13. Crosstabulation of Decision-Making Skills in Percentages for IH

PERSONAL VIEWPOINT (PV) about Decision-Making Skills: Project Manager must possess effective decision-making skills for making good choices in managing a project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Decision-Making Skills: Requires project management staff to have effective decision-making skills for making good choices in managing a project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	25.6%	17.9%	7.7%	2.6%	53.8%
Agree	0.0%	23.1%	12.8%	2.6%	38.5%
No Opinion	0.0%	2.6%	2.6%	0.0%	5.1%
Disagree	0.0%	0.0%	2.6%	0.0%	2.6%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	25.6%	43.6%	25.6%	5.1%	100.0%

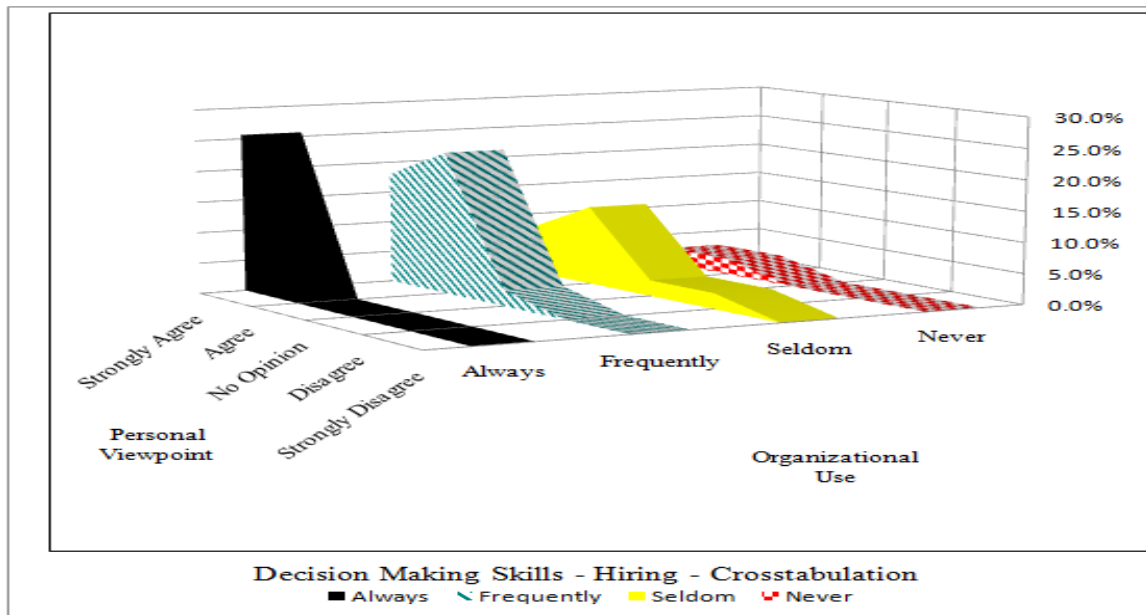


Figure 24. Crosstabulation of Decision-Making Skills for IH

Table 13 and Figure 24, along with the information in Appendix L. Decision-Making Skills, indicate the PV and OU concerning the competency of decision-making skills are in some agreement. Approximately 67% of the survey participants believe the competency of effective decision-making skills should be identified for initial hiring and their organizations do use them when making initial hiring selections. Although this competency is considered important when writing a position description, the factor appears to be considered less important in making initial hiring selections.

Decision-Making Skills and Internal Promotion

Table 14. Crosstabulation of Decision-Making Skills in Percentages for IP

PERSONAL VIEWPOINT (PV) about Decision-Making Skills: Project Manager must possess effective decision-making skills for making good choices in managing a project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Decision-Making Skills: Requires project management staff to have effective decision-making skills for making good choices in managing a project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	30.8%	17.9%	10.3%	2.6%	61.5%
Agree	2.6%	20.5%	10.3%	5.1%	38.5%
No Opinion	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	33.3%	38.5%	20.5%	7.7%	100.0%

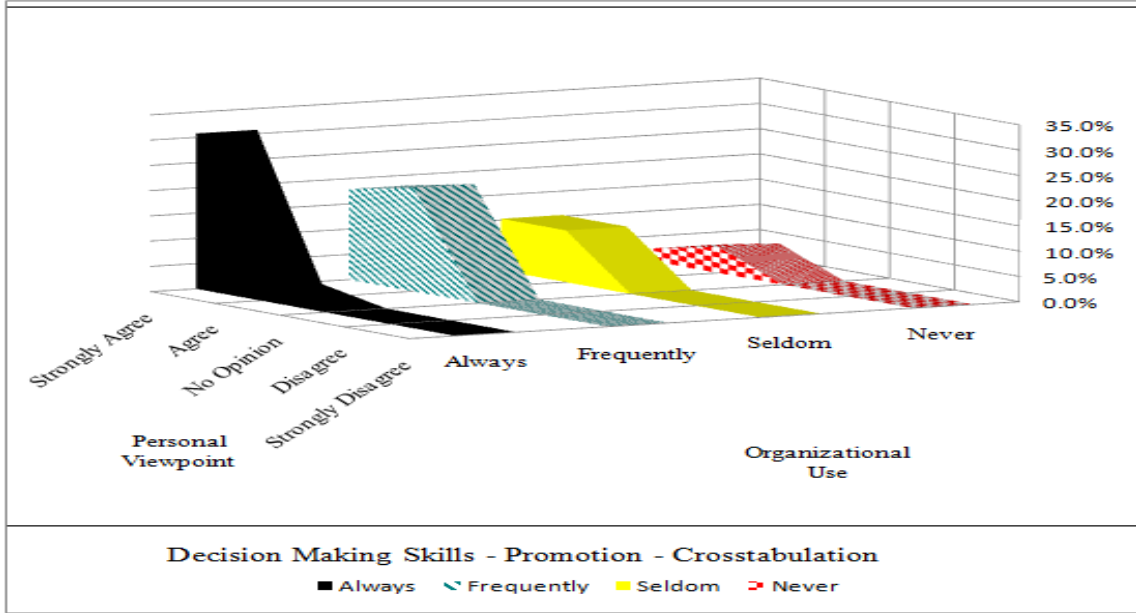


Figure 25. Crosstabulation of Decision-Making for IP

Table 14 and Figure 25, along with the information in Appendix L. Decision-Making Skills, indicate the PV and OU concerning the competency of decision-making skills are in strong agreement. Approximately 72% of the survey participants believe the competency of effective decision-making skills should be identified for internal promotion and their organizations do use them when promoting from within. However, this is greater than the 67% who use it for initial hiring selections.

Decision-Making Skills and PM Competency Value Grid

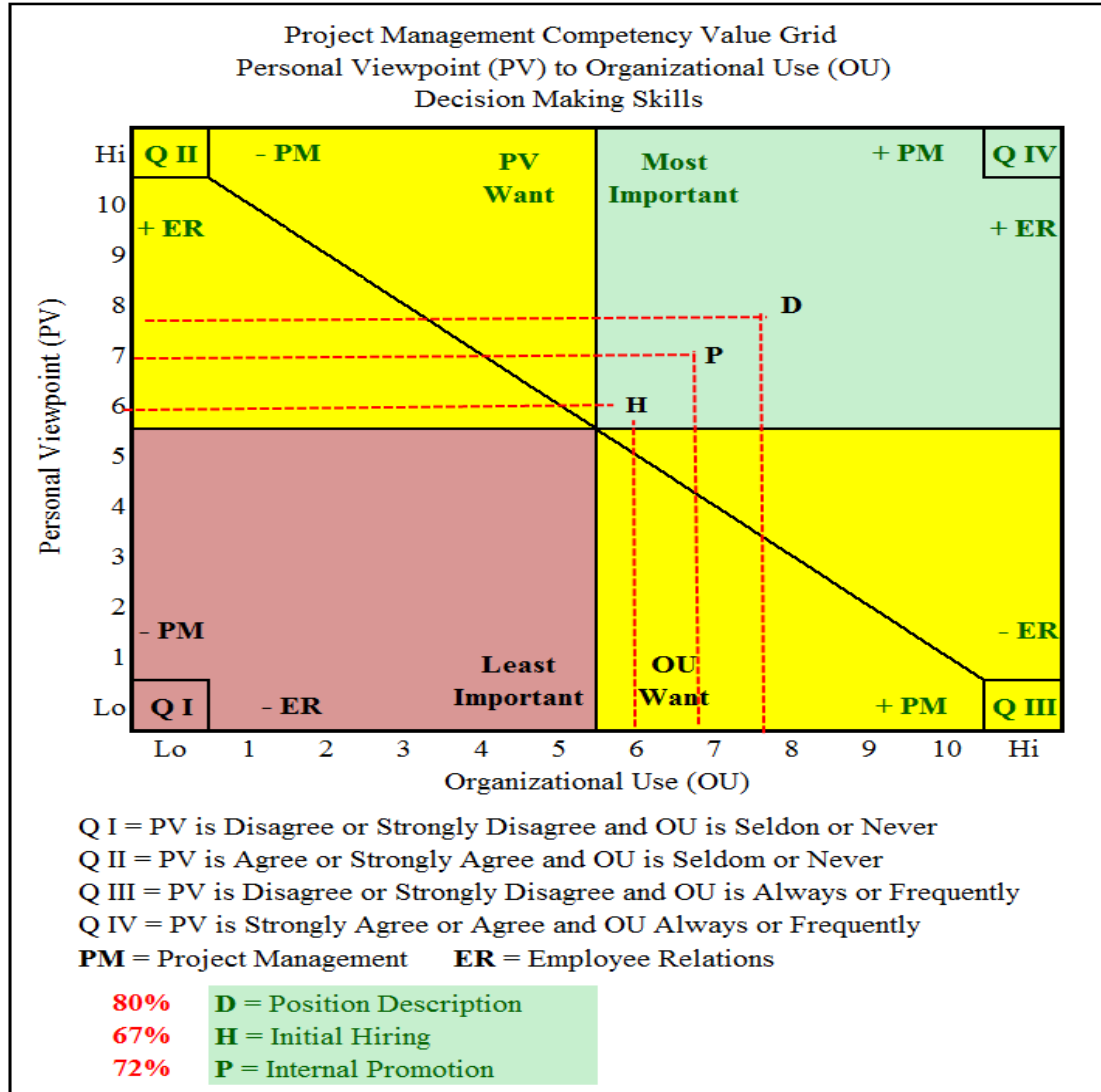


Figure 26. PM Competency Value Grid for Decision-Making Skills

Figure 26 reveals strong agreement for decision-making skills in the three issues of inclusion in the position description, initial hiring, and internal promotion.

Delegation Skills

Delegation is a normal activity within the workplace. However, delegating can sometimes be difficult with managers believing they may be giving up their influence (Carlzon, 2000, p. 357). The competency of 'delegation' skills needed by a project manager is identified in other project management writings (Cleland, 1994; Lewis, 2000; Wysocki, et al, 2000). It is impossible for any project manager to do all of the project work themselves. The work involved in a project environment must be delegated downward to other project management staff or subject matter experts involved in the conduct of the project. In an organization using a project management office the project manager and staff will perform very little, if any, actual project work, rather specializing on the reporting of the current status of the tasks.

While the delegation skills are not the lowest rated competency for position description (55%), initial hiring (48%), and internal promotions (45%), they are in the lower half of the 12 competencies. The 55% position description rating indicates a weak agreement with the other ratings in the 40% range an issue with little agreement.

Delegation Skills and Position Description

Table 15. Crosstabulation of Delegation Skills in Percentages for PD

PERSONAL VIEWPOINT (PV) about Delegation Skills: Project Manager must possess effective delegation skills in delegating work among team members in managing a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Delegation Skills: Requires project management staff to have effective delegation skills in delegating work among team members in managing a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	16.7%	11.9%	7.1%	2.4%	38.1%
Agree	0.0%	26.2%	16.7%	2.4%	45.2%
No Opinion	0.0%	0.0%	4.8%	7.1%	11.9%
Disagree	0.0%	0.0%	0.0%	4.8%	4.8%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	16.7%	38.1%	28.6%	16.7%	100.0%

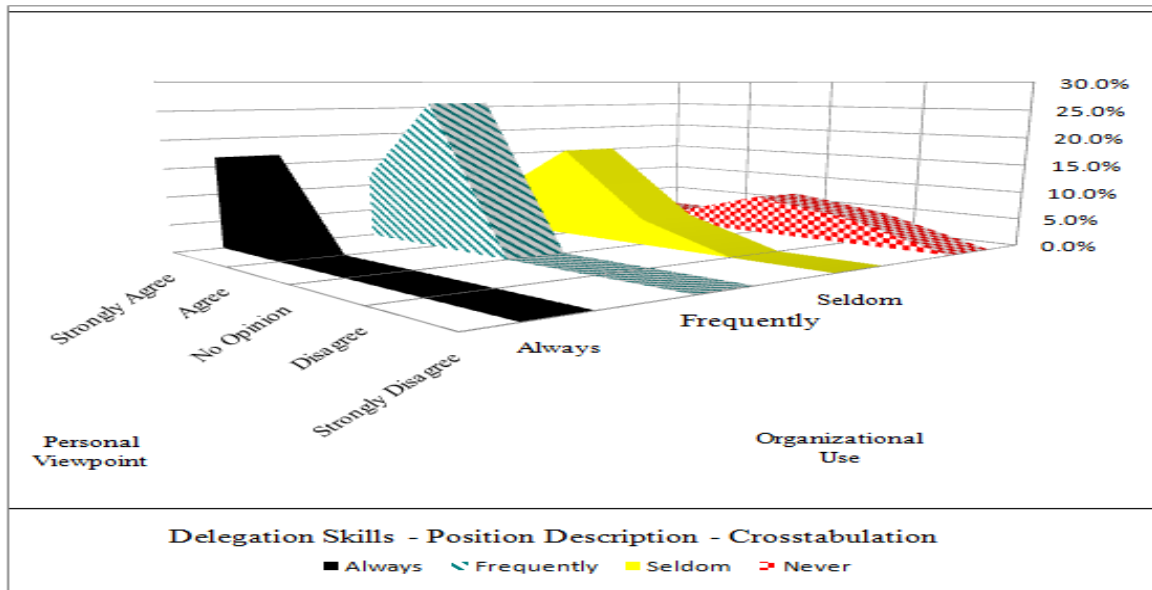


Figure 27. Crosstabulation of Delegation Skills for PD

Table 15 and Figure 27, along with the information in Appendix M. Delegation Skills, indicate the PV and OU concerning the competency of delegation skills are in weak agreement. Approximately 55% of the survey participants believe the competency of effective delegation skills should be identified in the position description and their organizations do use them when writing position descriptions.

Delegation Skills and Initial Hiring

Table 16. Crosstabulation of Delegation Skills in Percentages for IH

PERSONAL VIEWPOINT (PV) about Delegation Skills: Project Manager must possess effective delegation skills in delegating work among team members in managing a project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Delegation Skills: Requires project management staff to have effective delegation skills in delegating work among team members in managing a project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	12.5%	10.0%	7.5%	2.5%	32.5%
Agree	0.0%	25.0%	15.0%	2.5%	42.5%
No Opinion	0.0%	2.5%	10.0%	7.5%	20.0%
Disagree	0.0%	0.0%	0.0%	5.0%	5.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	12.5%	37.5%	32.5%	17.5%	100.0%

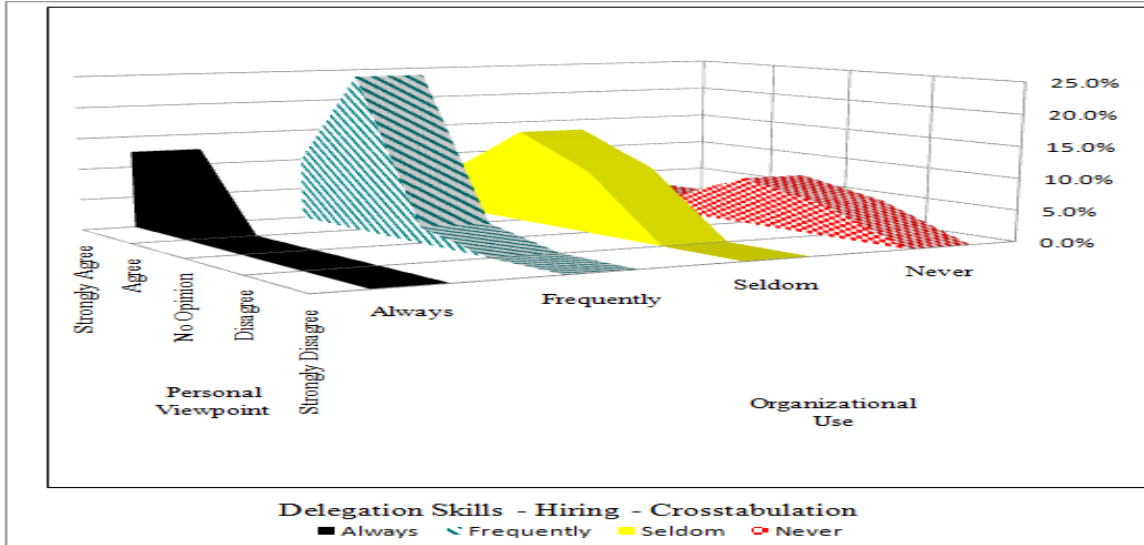


Figure 28. Crosstabulation of Delegation Skills for IH

Table 16 and Figure 28, along with the information in Appendix M. Delegation Skills, indicate the PV and OU concerning the competency of delegation skills are in little agreement. Approximately 48% of the survey participants believe the competency of effective delegation skills should be identified for initial hiring and their organizations do use them when making initial hiring selections.

Delegation Skills and Internal Promotion

Table 17. Crosstabulation of Delegation Skills in Percentages for IP

PERSONAL VIEWPOINT (PV) about Delegation Skills: Project Manager must possess effective delegation skills in delegating work among team members in managing a project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Delegation Skills: Requires project management staff to have effective delegation skills in delegating work among team members in managing a project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	12.5%	10.0%	10.0%	2.5%	35.0%
Agree	0.0%	22.5%	20.0%	2.5%	45.0%
No Opinion	0.0%	2.5%	5.0%	2.5%	10.0%
Disagree	0.0%	0.0%	5.0%	5.0%	10.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	12.5%	35.0%	40.0%	12.5%	100.0%

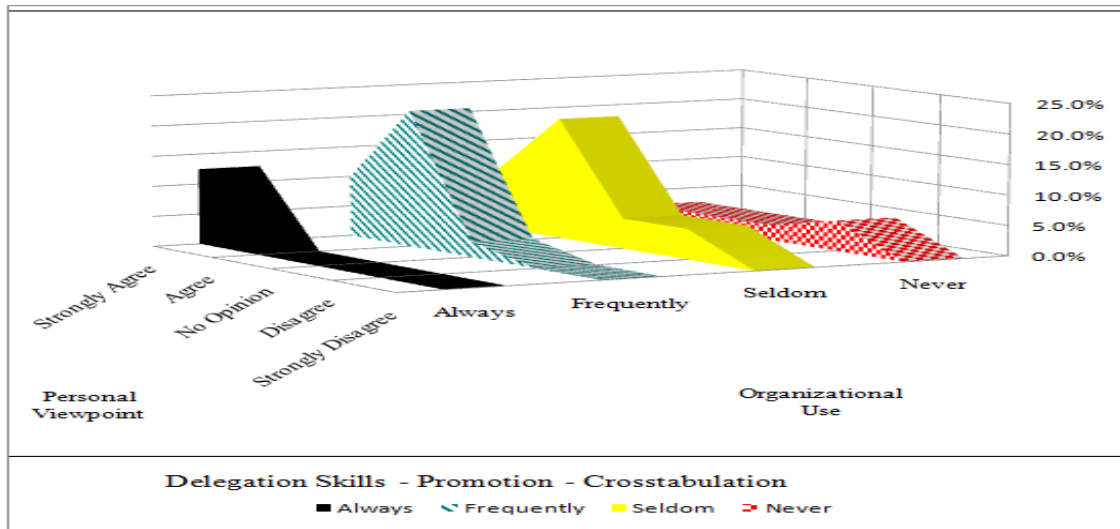


Figure 29. Crosstabulation of Delegation Skills for IP

Table 17 and Figure 29, along with the information in Appendix M. Delegation Skills, indicate the PV and OU concerning the competency of delegation skills are in

little agreement. Approximately 45% of the survey participants believe the competency of effective delegation skills should be identified for internal promotions and their organizations do use them when promoting from within.

With approximately 29% of the survey respondents' organizations seldom or never using delegation skills as a factor in their position descriptions, 28% of the organizations seldom or never using as a factor for initial hiring selections, and 35% of the organizations not using for internal promotions, it appears delegation skills are not an organizational priority.

Delegation Skills and PM Competency Value Grid

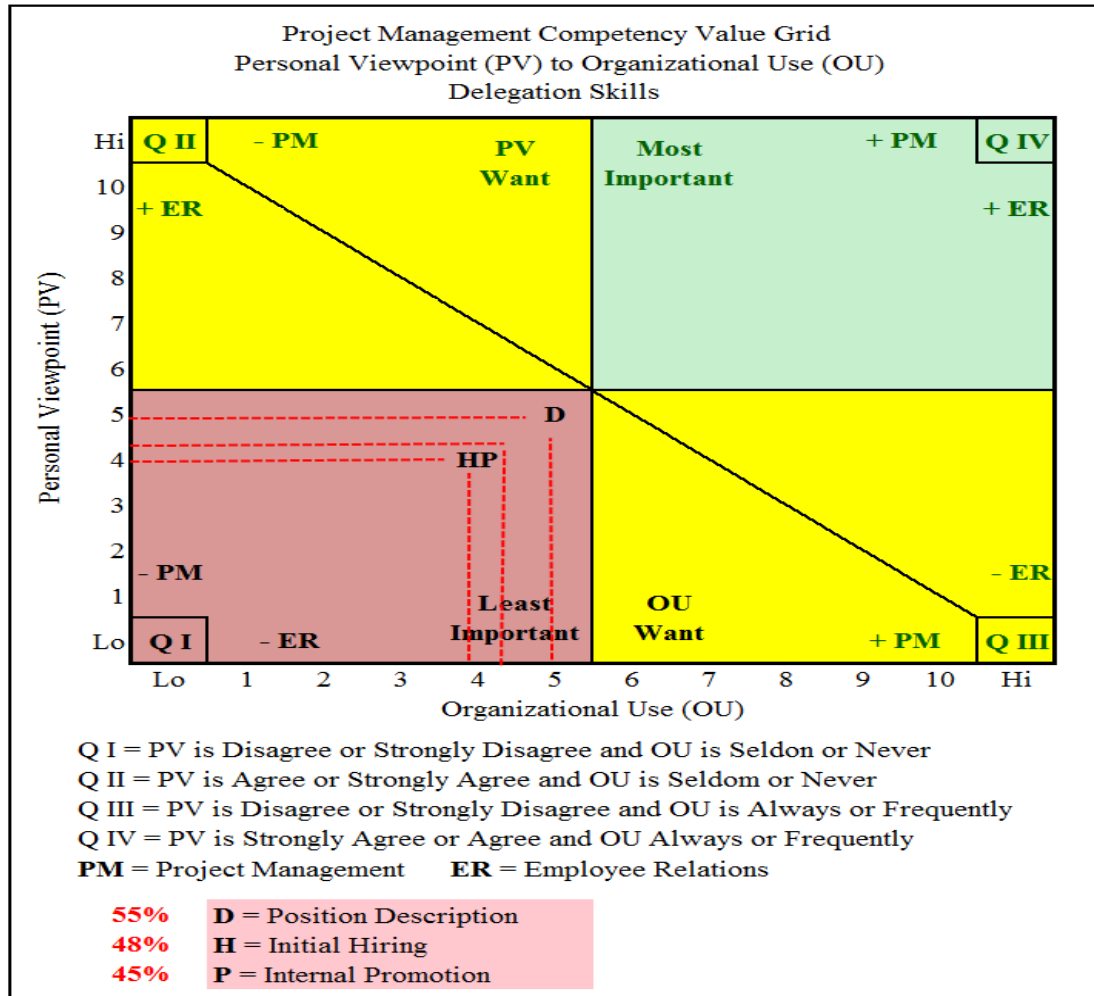


Figure 30. PM Competency Value Grid for Delegation Skills

Figure 30 reveals little agreement for delegation skills in the three issues of inclusion in the position description, initial hiring, and internal promotion.

Management Support Building Skills

Management support building is a critical competency for a project manager to possess because upper management is responsible for the prioritization of organizational goals and allocation of valuable resources (Kerzner, 2003). The competency of ‘management support building’ skills needed by a project manager is prevalent in other project management writings (Cleland, 1994; Lewis, 2000; PMI, 2000; Wysocki, et al, 2000). While some employees and managers may believe this is unimportant, the basic fact is executive management holds the keys to the resources needed for project success.

Management Support Building Skills and Position Description

Table 18. Crosstabulation of Mgmt Support Building Skills in Percentages for PD

PERSONAL VIEWPOINT (PV) about Management Support Building Skills: Project Manager must possess effective skills for building management support among the organizational executive/leadership staff to manage a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Management Support Building Skills: Requires project management staff to have effective skills for building management support among the organizational executive/leadership staff to manage a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	20.0%	20.0%	17.5%	2.5%	60.0%
Agree	0.0%	22.5%	10.0%	0.0%	32.5%
No Opinion	0.0%	0.0%	0.0%	5.0%	5.0%
Disagree	0.0%	0.0%	2.5%	0.0%	2.5%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	20.0%	42.5%	30.0%	7.5%	100.0%

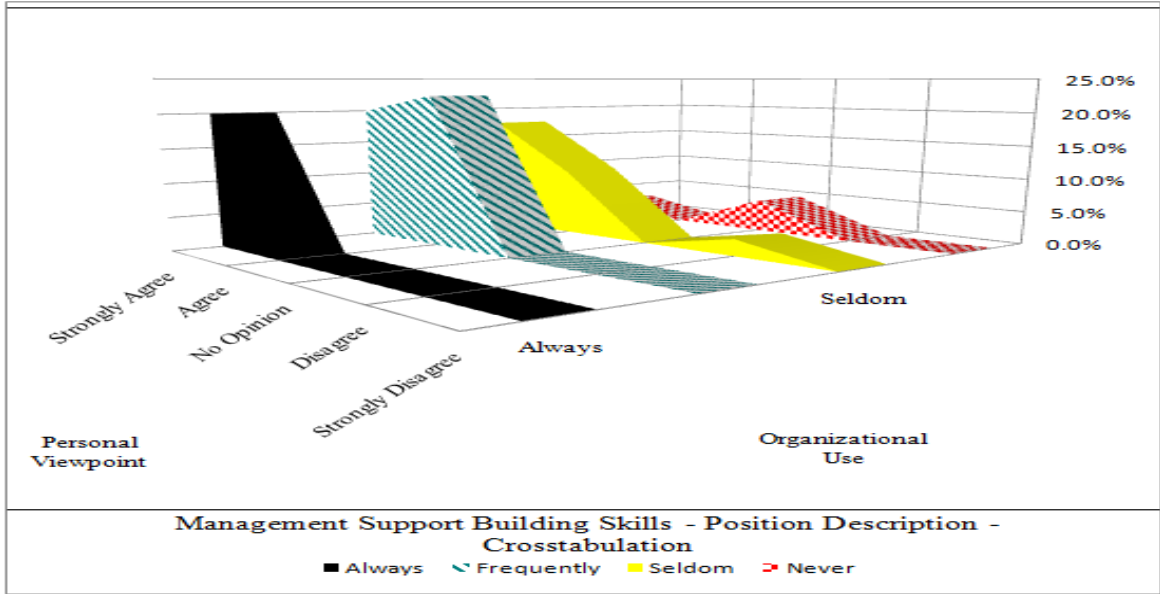


Figure 31. Crosstabulation of Mgmt Support Building Skills for PD

Table 18 and Figure 31, along with the information in Appendix N. Management Support Building Skills, indicate the PV and OU concerning the competency of management support building skills are in some agreement. Approximately 63% of the survey participants believe the competency of effective management support building skills should be identified in the position description and their organizations do use them when writing position descriptions.

Management Support Building Skills and Initial Hiring

Table 19. Crosstabulation of Mgmt Support Building Skills in Percentages for IH

PERSONAL VIEWPOINT (PV) about Management Support Building Skills: Project Manager must possess effective skills for building management support among the organizational executive/leadership staff to manage a project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Management Support Building Skills: Requires project management staff to have effective skills for building management support among the organizational executive/leadership staff to manage a project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	15.0%	17.5%	12.5%	5.0%	50.0%
Agree	0.0%	20.0%	10.0%	0.0%	30.0%
No Opinion	0.0%	5.0%	2.5%	2.5%	10.0%
Disagree	0.0%	0.0%	7.5%	2.5%	10.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	15.0%	42.5%	32.5%	10.0%	100.0%

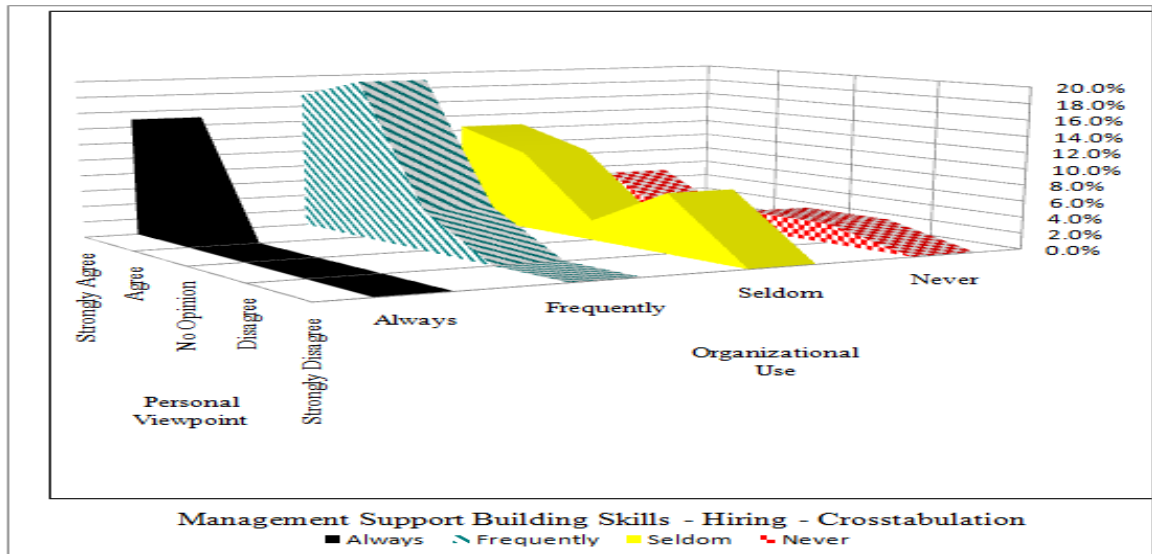


Figure 32. Crosstabulation of Mgmt Support Building Skills for IH

Table 19 and Figure 32, along with the information in Appendix N. Management Support Building Skills, indicate the PV and OU concerning the competency of

management support building skills are in weak agreement. Approximately 53% of the survey participants believe the competency of effective management support building skills should be identified for initial hiring and their organizations do use them when making initial hiring selections.

Management Support Building Skills and Internal Promotion

Table 20. Crosstabulation of Mgmt Support Building Skills in Percentages for IP

PERSONAL VIEWPOINT (PV) about Management Support Building Skills: Project Manager must possess effective skills for building management support among the organizational executive/leadership staff to manage a project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Management Support Building Skills: Requires project management staff to have effective skills for building management support among the organizational executive/leadership staff to manage a project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	25.0%	22.5%	10.0%	5.0%	62.5%
Agree	0.0%	20.0%	2.5%	0.0%	22.5%
No Opinion	0.0%	2.5%	0.0%	2.5%	5.0%
Disagree	0.0%	2.5%	7.5%	0.0%	10.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	25.0%	47.5%	20.0%	7.5%	100.0%

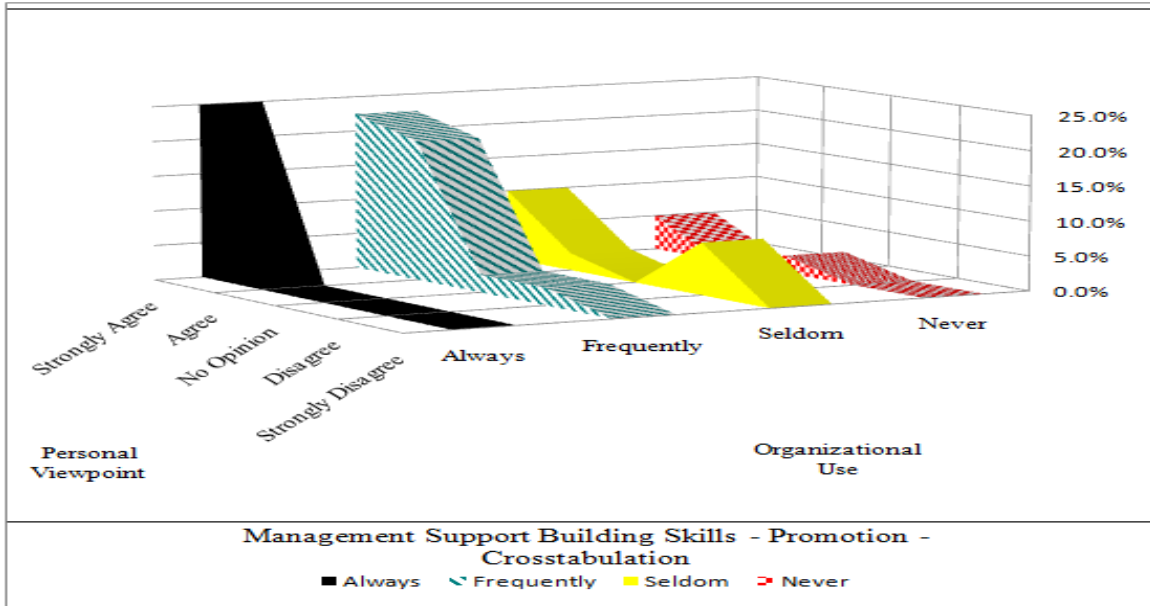


Figure 33. Crosstabulation of Mgmt Support Building Skills for IP

Table 20 and Figure 33, along with the information in Appendix N. Management Support Building Skills, indicate the PV and OU concerning the competency of management support building skills are in some agreement. Approximately 68% of the survey participants believe the competency of effective management support building skills should be identified for internal promotions and their organizations do use them when promoting from within.

Organizations seldom or never using the competency when writing a position description (30%), making initial hiring selections (28%), and promoting from within (18%) appear to value the competency on a limited basis.

Management Support Building Skills and PM Competency Value Grid

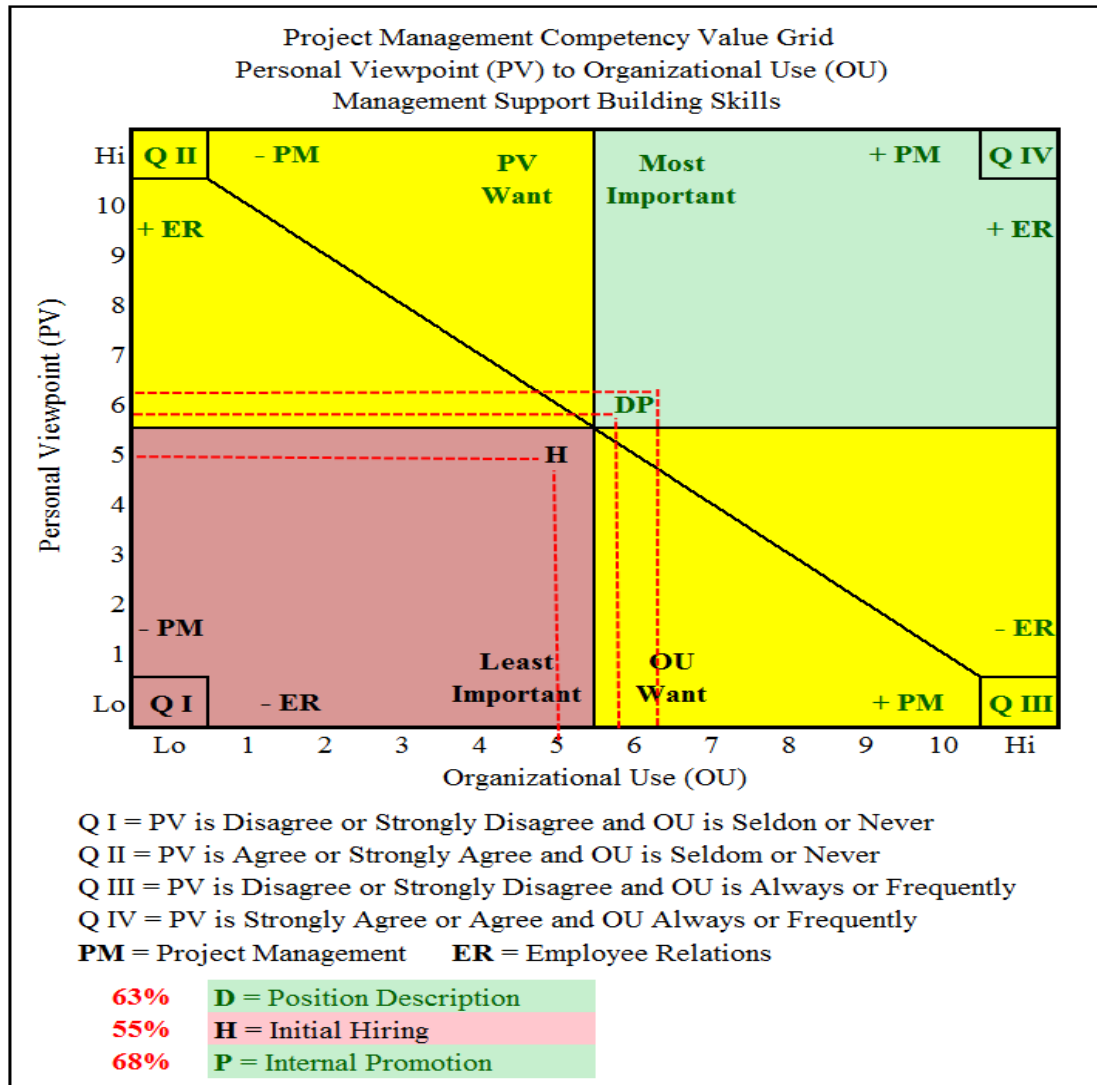


Figure 34. PM Competency Value Grid for Mgmt Support Building Skills

Figure 34 reveals strong agreement for management support building skills for inclusion in the position description and internal promotion with little agreement for initial hiring.

Motivation Skills

Motivation is a common workplace skill every manager needs to possess. In the 2002 Every Manager's Desk Reference, “One of the biggest mistakes managers and supervisors makes is to assume what motivates them is what motivates their employees” (p. 2006). The competency of ‘motivation’ skills needed by a project manager exists in other project management writings (Heerkens, 2002; Lewis, 2000; Wysocki, et al, 2000) and a research study (Bauer, 2005). What is important for motivation and to the project manager is the continuing need for the project manager to remember each stakeholder is an individual with different interests and motivations.

Motivation Skills and Position Description

Table 21. Crosstabulation of Motivation Skills in Percentages for PD

PERSONAL VIEWPOINT (PV) about Motivation Skills: Project Manager must possess effective skills for motivating a diverse, possibly global, staff to manage a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Motivation Skills: Requires project management staff to have effective skills for motivating a diverse, possibly global, staff to manage a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	27.5%	5.0%	12.5%	2.5%	47.5%
Agree	2.5%	20.0%	25.0%	0.0%	47.5%
No Opinion	0.0%	0.0%	2.5%	0.0%	2.5%
Disagree	0.0%	0.0%	0.0%	2.5%	2.5%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	30.0%	25.0%	40.0%	5.0%	100.0%

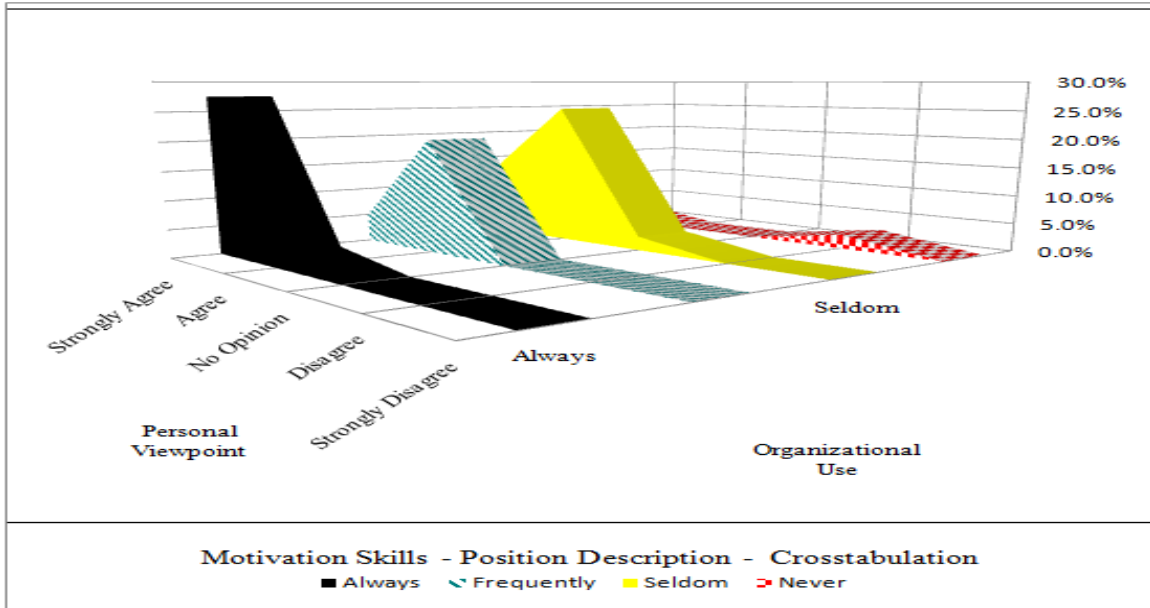


Figure 35. Crosstabulation of Motivation Skills for PD

Table 21 and Figure 35, along with the information in Appendix O. Motivation Skills, indicate the PV and OU concerning the competency of motivation skills are in weak agreement. Approximately 55% of the survey participants believe the competency of effective motivation skills should be identified in the position description and their organizations do use them when writing position descriptions.

Motivation Skills and Initial Hiring

Table 22. Crosstabulation of Motivation Skills in Percentages for IH

PERSONAL VIEWPOINT (PV) about Motivation Skills: Project Manager must possess effective skills for motivating a diverse, possibly global, staff to manage a project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Motivation Skills: Requires project management staff to have effective skills for motivating a diverse, possibly global, staff to manage a project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	20.0%	7.5%	12.5%	2.5%	42.5%
Agree	0.0%	17.5%	20.0%	0.0%	37.5%
No Opinion	0.0%	5.0%	5.0%	2.5%	12.5%
Disagree	0.0%	0.0%	2.5%	5.0%	7.5%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	20.0%	30.0%	40.0%	10.0%	100.0%

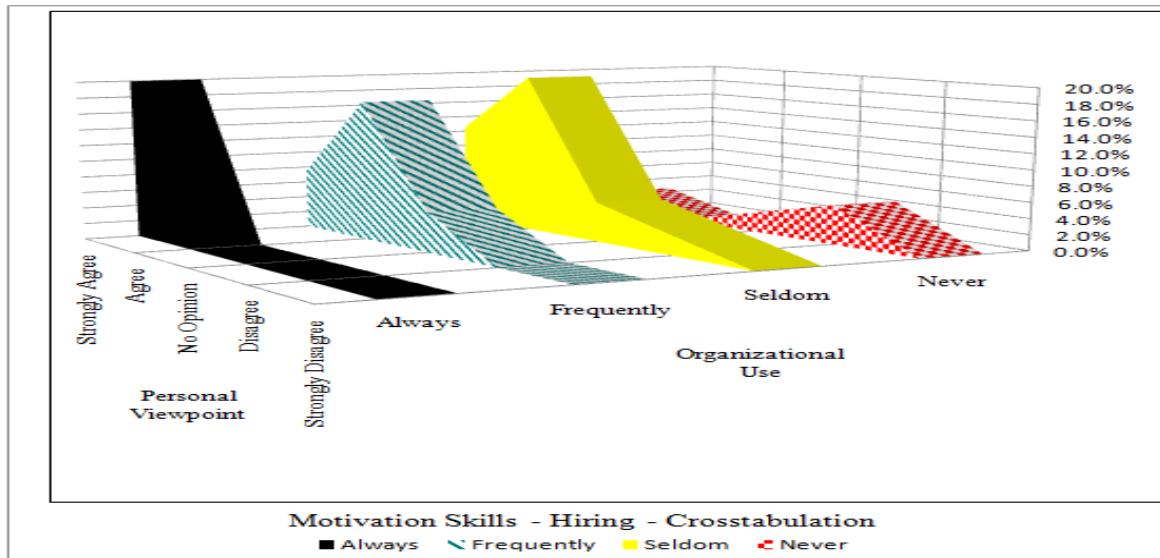


Figure 36. Crosstabulation of Motivation Skills for IH

Table 22 and Figure 36, along with the information in Appendix O. Motivation Skills, indicate the PV and OU concerning the competency of motivation skills are in

little agreement. Approximately 45% of the survey participants believe the competency of effective motivation skills should be identified for initial hiring and their organizations do use them when making initial hiring selections.

Motivation Skills and Internal Promotion

Table 23. Crosstabulation of Motivation Skills in Percentages for IP

PERSONAL VIEWPOINT (PV) about Motivation Skills: Project Manager must possess effective skills for motivating a diverse, possibly global, staff to manage a project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Motivation Skills: Requires project management staff to have effective skills for motivating a diverse, possibly global, staff to manage a project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	22.5%	12.5%	10.0%	2.5%	47.5%
Agree	5.0%	12.5%	17.5%	2.5%	37.5%
No Opinion	0.0%	5.0%	2.5%	0.0%	7.5%
Disagree	0.0%	2.5%	2.5%	2.5%	7.5%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	27.5%	32.5%	32.5%	7.5%	100.0%

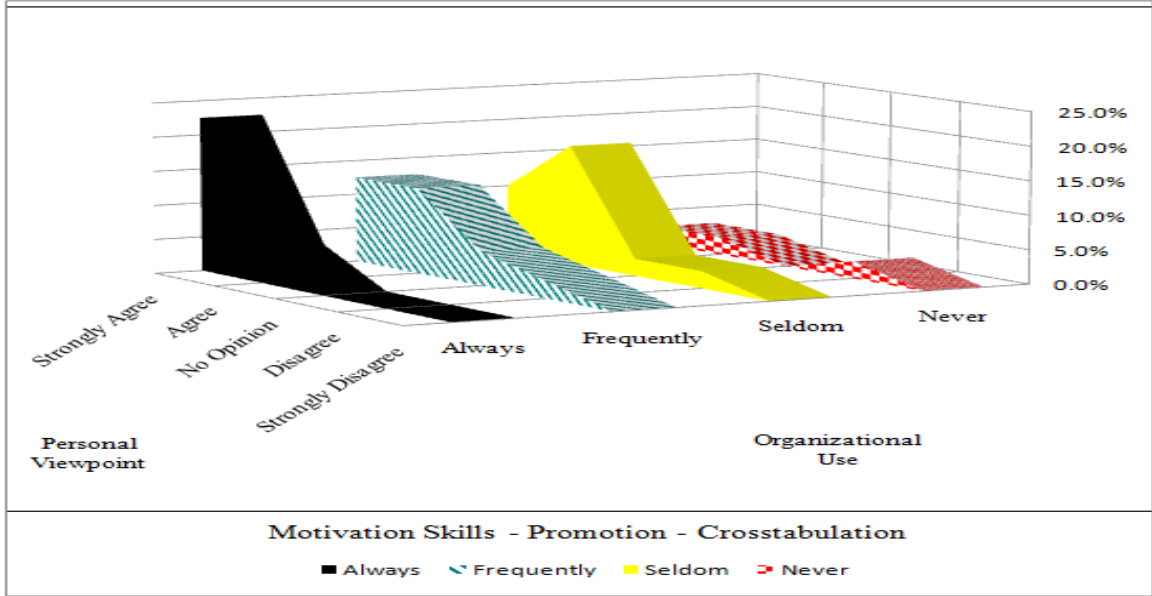


Figure 37. Crosstabulation of Motivation Skills for IP

Table 23 and Figure 37, along with the information in Appendix O. Motivation Skills, indicate the PV and OU concerning the competency of motivation skills are in weak agreement. Approximately 53% of the survey participants believe the competency of effective motivation skills should be identified for internal promotion and their organizations do use them when promoting from within.

The motivation skills competency use by organizations for writing position descriptions (55%), making initial hiring selections (45%), and making internal promotions (53%) are not the lowest, however, they are in the lower half of the 12 competencies.

Motivation Skills and PM Competency Value Grid

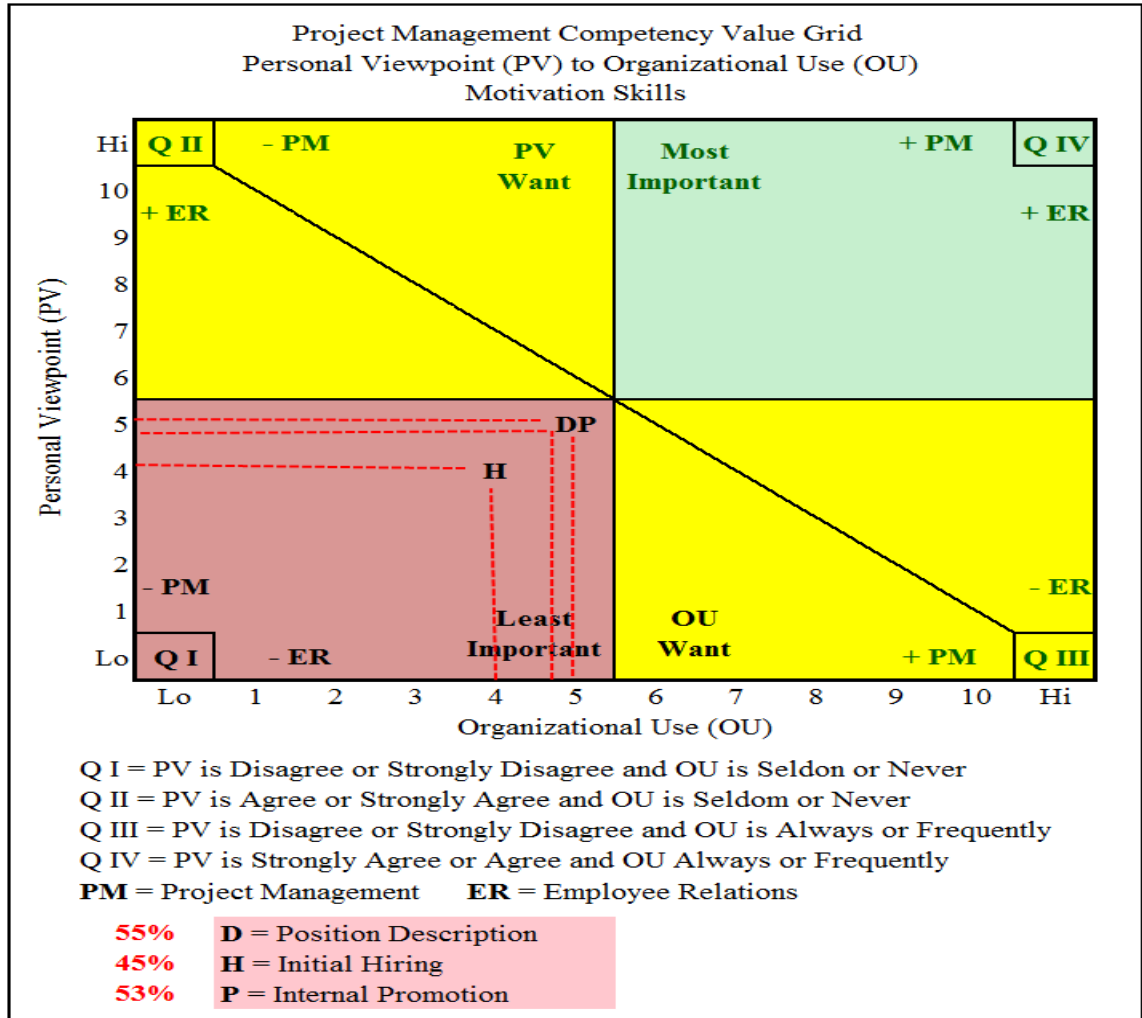


Figure 38. PM Competency Value Grid for Motivation Skills

Figure 38 reveals little agreement for motivation skills in the three issues of inclusion in the position description, initial hiring, and internal promotion.

Negotiation Skills

Negotiation is one method, among others, for settling disputes (Carnevale, et al, 1990, p. 330). “Competency and mastery in the art of negotiation come from understanding and gaining proficiency in eliminating obstacles that block movement toward successful conflict resolution” (Carnevale, et al, 1990, p. 330). The competency of ‘negotiation’ skills needed by a project manager is prevalent in other project management writings (Cleland, 1994; PMI, 2000; Shtub, et al, 1994) and research studies (Bauer, 2005; GAO, 2001; Golob, 2002; Krahn, 2005). Within project management activities conflict can easily arise from a multitude of stakeholders and their numerous agendas.

Demand for valuable resources among other functions within an organization can be a primary source of conflict which will necessitate negotiation. A simple act of scheduling tasks, especially concurrent ones, can easily result in conflicts among the various employees. The importance of the previously discussed management support building skill can now be seen as a valuable one. Executive support would certainly lessen the need for much negotiation among the portfolio managers or program managers.

Negotiation Skills and Position Description

Table 24. Crosstabulation of Negotiation Skills in Percentages for PD

PERSONAL VIEWPOINT (PV) about Negotiation Skills: Project Manager must possess effective skills for negotiating complex and diverse issues to manage a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Negotiation Skills: Requires project management staff to have effective skills for negotiating complex and diverse issues to manage a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	20.5%	7.7%	23.1%	2.6%	53.8%
Agree	0.0%	20.5%	17.9%	0.0%	38.5%
No Opinion	0.0%	0.0%	5.1%	2.6%	7.7%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	20.5%	28.2%	46.2%	5.1%	100.0%

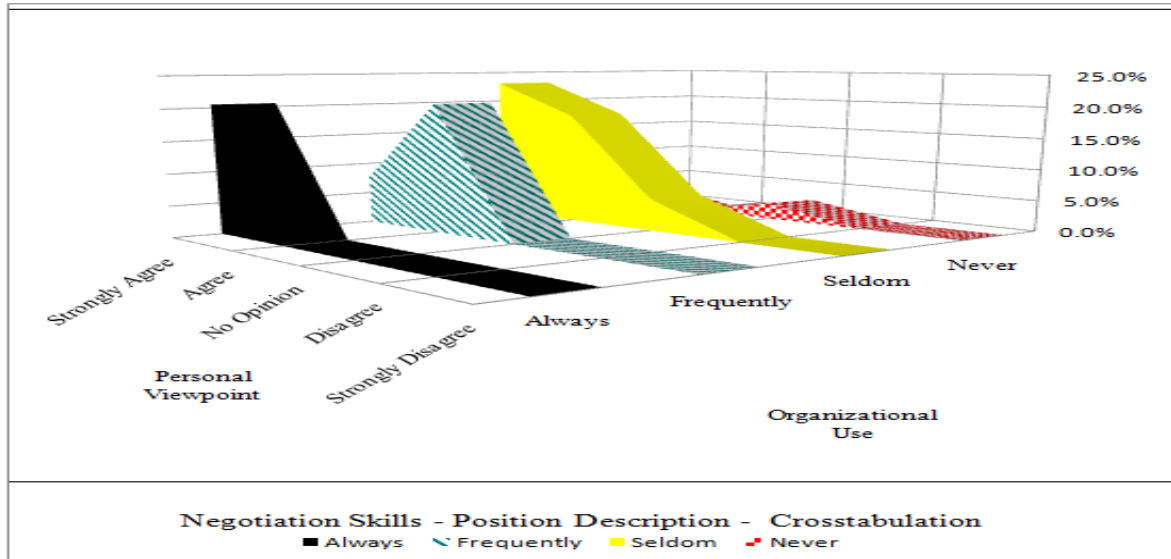


Figure 39. Crosstabulation of Negotiation Skills for PD

Table 34 and Figure 39, along with the information in Appendix P. Negotiation Skills, indicate the PV and OU concerning the competency of negotiation skills are in little agreement. Approximately 49% of the survey participants believe the competency of effective negotiation skills should be identified in the position description and their organizations do use them when writing position descriptions.

Negotiation Skills and Initial Hiring

Table 25. Crosstabulation of Negotiation Skills in Percentages for IH

PERSONAL VIEWPOINT (PV) about Negotiation Skills: Project Manager must possess effective skills for negotiating complex and diverse issues to manage a project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Negotiation Skills: Requires project management staff to have effective skills for negotiating complex and diverse issues to manage a project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	12.8%	10.3%	15.4%	5.1%	43.6%
Agree	0.0%	17.9%	20.5%	2.6%	41.0%
No Opinion	0.0%	7.7%	2.6%	2.6%	12.8%
Disagree	0.0%	0.0%	0.0%	2.6%	2.6%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	12.8%	35.9%	38.5%	12.8%	100.0%

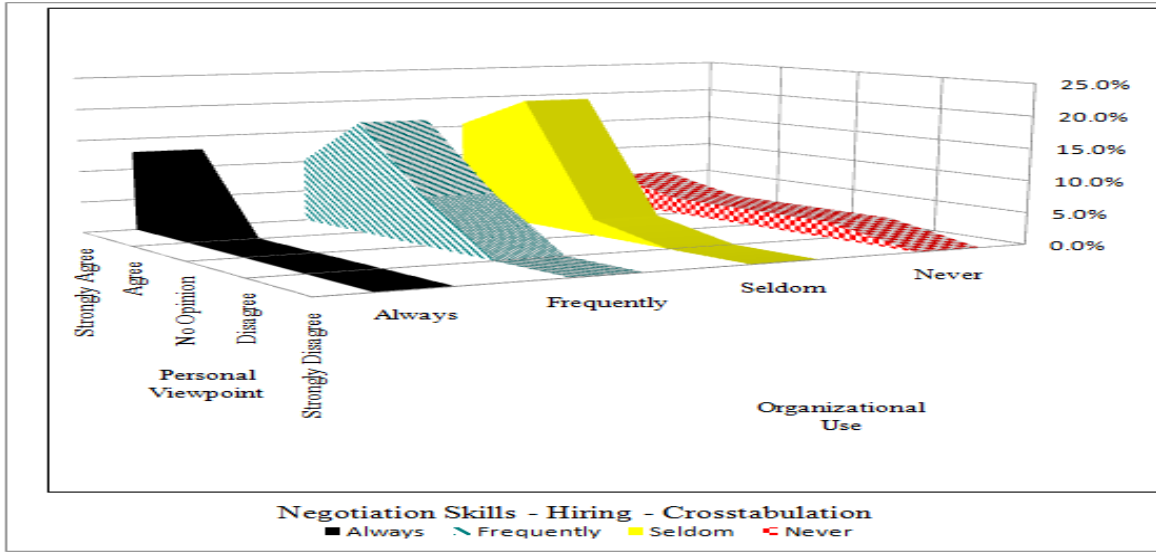


Figure 40. Crosstabulation of Negotiation Skills for IH

Table 25 and Figure 40, along with the information in Appendix P. Negotiation Skills, indicate the PV and OU concerning the competency of negotiation skills are in little agreement. Approximately 41% of the survey participants believe the competency of effective negotiation skills should be identified for initial hiring and their organizations do use them when making initial hiring selections.

Table 26. Crosstabulation of Negotiation Skills in Percentages for IP

PERSONAL VIEWPOINT (PV) about Negotiation Skills: Project Manager must possess effective skills for negotiating complex and diverse issues to manage a project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Negotiation Skills: Requires project management staff to have effective skills for negotiating complex and diverse issues to manage a project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	18.4%	13.2%	15.8%	2.6%	50.0%
Agree	2.6%	15.8%	18.4%	0.0%	36.8%
No Opinion	0.0%	5.3%	2.6%	2.6%	10.5%
Disagree	0.0%	0.0%	0.0%	2.6%	2.6%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	21.1%	34.2%	36.8%	7.9%	100.0%

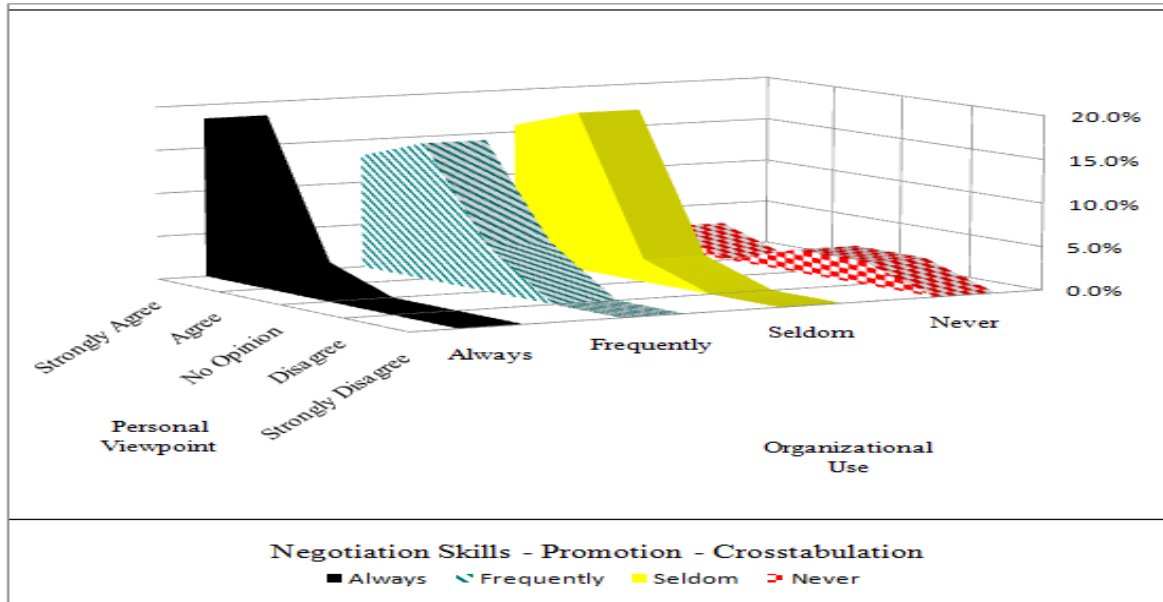


Figure 41. Crosstabulation of Negotiation Skills for IP

Table 26 and Figure 41, along with the information in Appendix P. Negotiation Skills, indicate the PV and OU concerning the competency of negotiation skills are in weak agreement. Approximately 50% of the survey participants believe the competency of effective negotiation skills should be identified for internal promotion and their organizations do use them when promoting from within.

The competency of negotiation is a skill with little agreement between the survey respondents' personal viewpoints and their organization's use of it in writing position descriptions (43.6%), making initial hire selections (43.6%), and making internal promotions (36.8%). In all three issues negotiation falls below the average of the 12 competencies with the initial hire selection being the lowest of the 12 competencies.

Negotiation Skills and PM Competency Value Grid

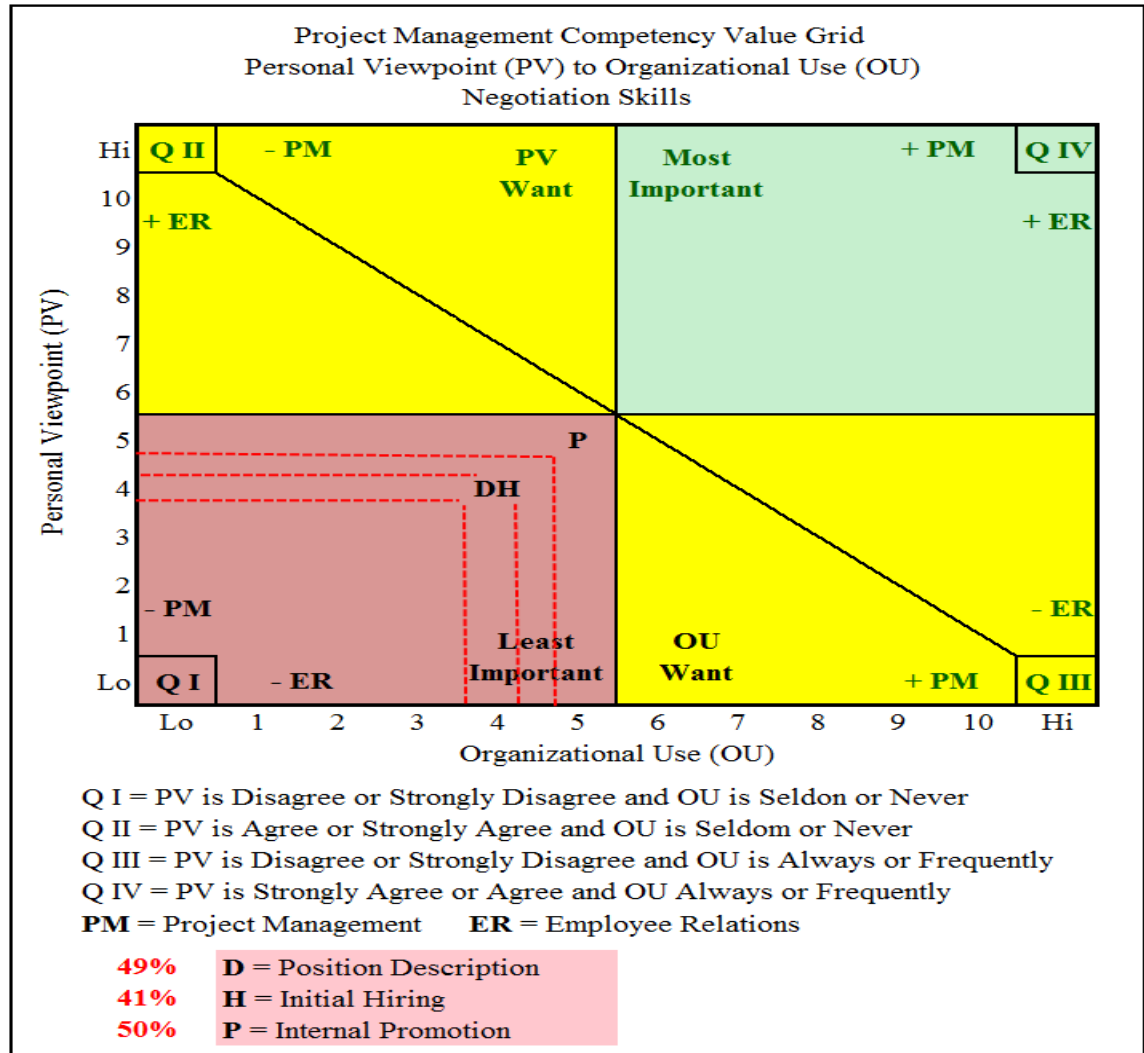


Figure 42. PM Competency Value Grid for Negotiation Skills

Figure 42 reveals little agreement for negotiation skills in the three issues of inclusion in the position description, initial hiring, and internal promotion.

Organizational Skills

The ability to properly organize things and create organization out of chaos is a much needed management competency. As early as 1832, Charles Babbage wrote, “Perhaps the most important principle on which the economy of a manufacture depends is the division of labor amongst the persons who perform the work” (2000, p. 277). At the same time it is important for a project manager to always keep flexible and never allow things to become so rigid any failure can creep into the project (Muller, 2000, p. 46). The competency of ‘organizational’ skills needed by a project manager exists in other project management writings (Kerzner, 2003; Lewis, 2000; Wysocki, et al, 2000) and a research study (Golob, 2002). Alignment of functions and human resources to conduct specific tasks within a project is perhaps more important than the normal workplace organization.

Organizational Skills and Position Description

Table 27. Crosstabulation of Organizational Skills in Percentages for PD

PERSONAL VIEWPOINT (PV) about Organizational Skills: Project Manager must possess organizational skills to effectively manage a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Organizational Skills: Requires project management staff to have organizational skills to effectively manage a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	22.5%	35.0%	2.5%	5.0%	65.0%
Agree	0.0%	20.0%	7.5%	0.0%	27.5%
No Opinion	0.0%	0.0%	2.5%	2.5%	5.0%
Disagree	0.0%	2.5%	0.0%	0.0%	2.5%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	22.5%	57.5%	12.5%	7.5%	100.0%

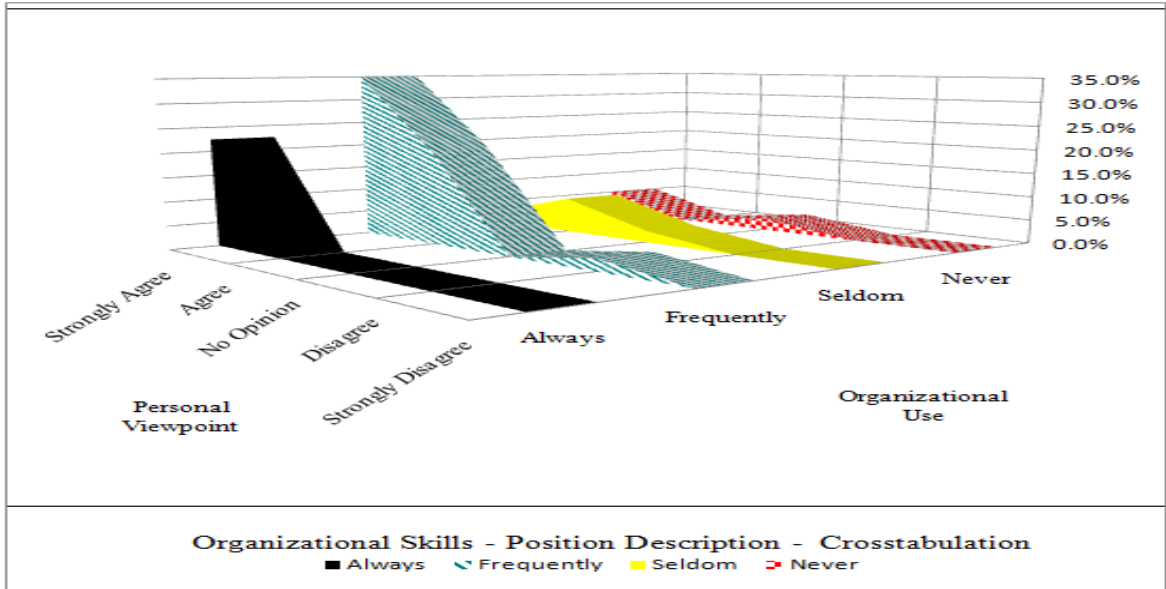


Figure 43. Crosstabulation of Organizational Skills for PD

Table 27 and Figure 43, along with the information in Appendix Q.

Organizational Skills, indicate the PV and OU concerning the competency of organizational skills are in strong agreement. Approximately 78% of the survey participants believe the competency of effective organizational skills should be identified in the position description and their organizations do use them when writing position descriptions.

Organizational Skills and Initial Hiring

Table 28. Crosstabulation of Organizational Skills in Percentages for IH

PERSONAL VIEWPOINT (PV) about Organizational Skills: Project Manager must possess organizational skills to effectively manage a project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Organizational Skills: Requires project management staff to have organizational skills to effectively manage a project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	17.5%	27.5%	7.5%	5.0%	57.5%
Agree	0.0%	17.5%	15.0%	0.0%	32.5%
No Opinion	0.0%	2.5%	2.5%	2.5%	7.5%
Disagree	0.0%	0.0%	2.5%	0.0%	2.5%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	17.5%	47.5%	27.5%	7.5%	100.0%

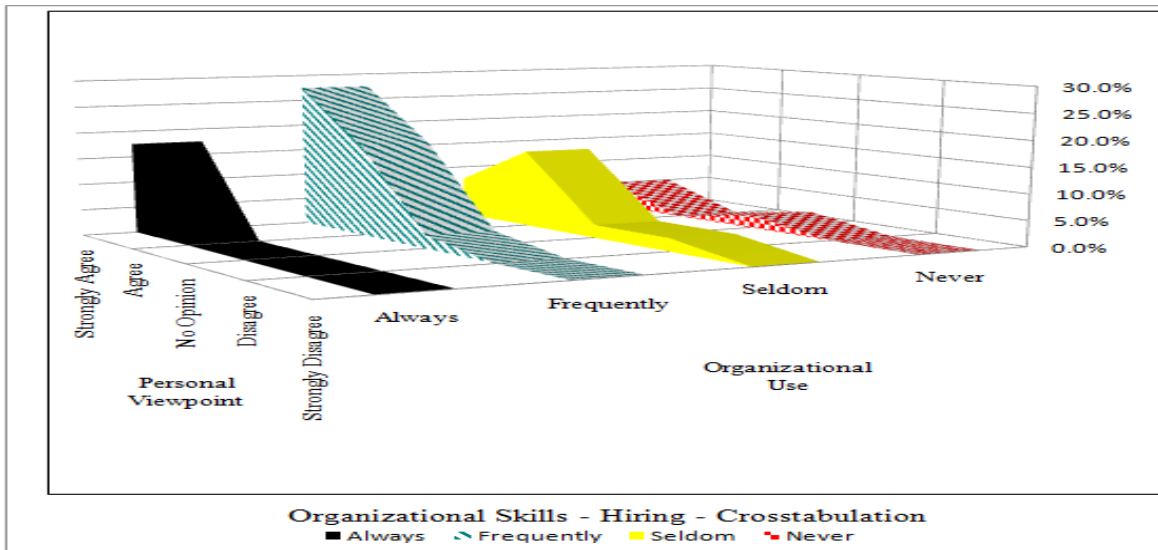


Figure 44. Crosstabulation of Organizational Skills for IH

Table 28 and Figure 44, along with the information in Appendix Q.

Organizational Skills, indicate the PV and OU concerning the competency of organizational skills are in some agreement. Approximately 63% of the survey participants believe the competency of effective organizational skills should be identified for initial hiring and their organizations do use them when making initial hiring selections.

Organizational Skills and Internal Promotion

Table 29. Crosstabulation of Organizational Skills in Percentages for IP

PERSONAL VIEWPOINT (PV) about Organizational Skills: Project Manager must possess organizational skills to effectively manage a project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Organizational Skills: Requires project management staff to have organizational skills to effectively manage a project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	17.9%	28.2%	10.3%	5.1%	61.5%
Agree	2.6%	17.9%	10.3%	0.0%	30.8%
No Opinion	0.0%	2.6%	2.6%	2.6%	7.7%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	20.5%	48.7%	23.1%	7.7%	100.0%

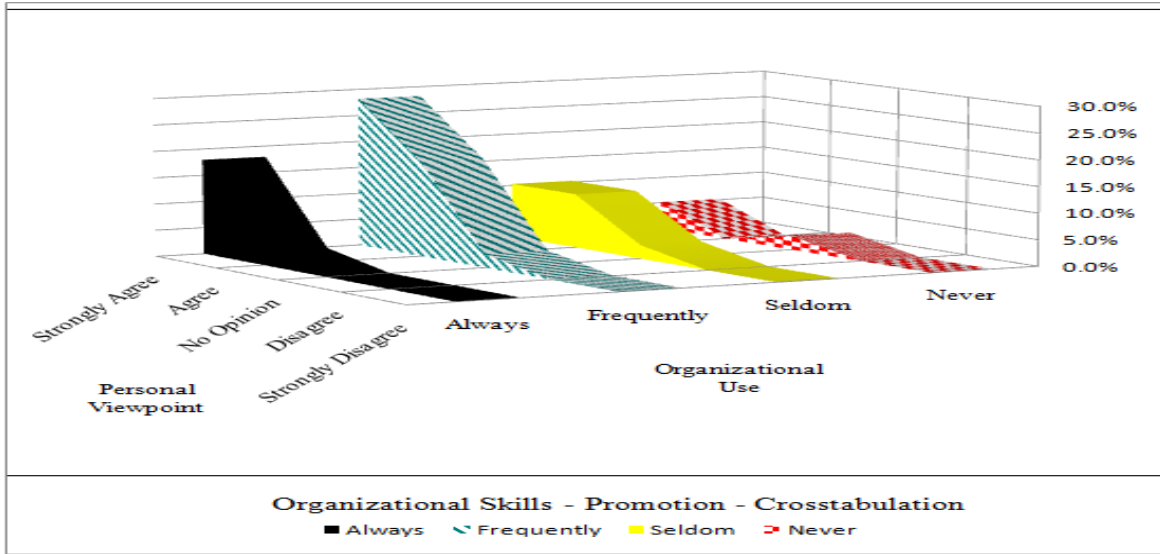


Figure 45. Crosstabulation of Organizational Skills for IP

Table 29 and Figure 45, along with the information in Appendix Q.

Organizational Skills, indicate the PV and OU concerning the competency of organizational skills, indicate the PV and OU concerning the competency of organizational skills are in some agreement. Approximately 67% of the survey participants believe the competency of effective organizational skills should be identified for internal promotion and their organizations do use them when promoting from within.

The competency of organizational skills was above average of the 12 competencies with a low amount of organizations seldom or never using the competency when writing a position description (15%), making initial hire selections (28%), and making internal promotions (26%).

Organizational Skills and PM Competency Value Grid

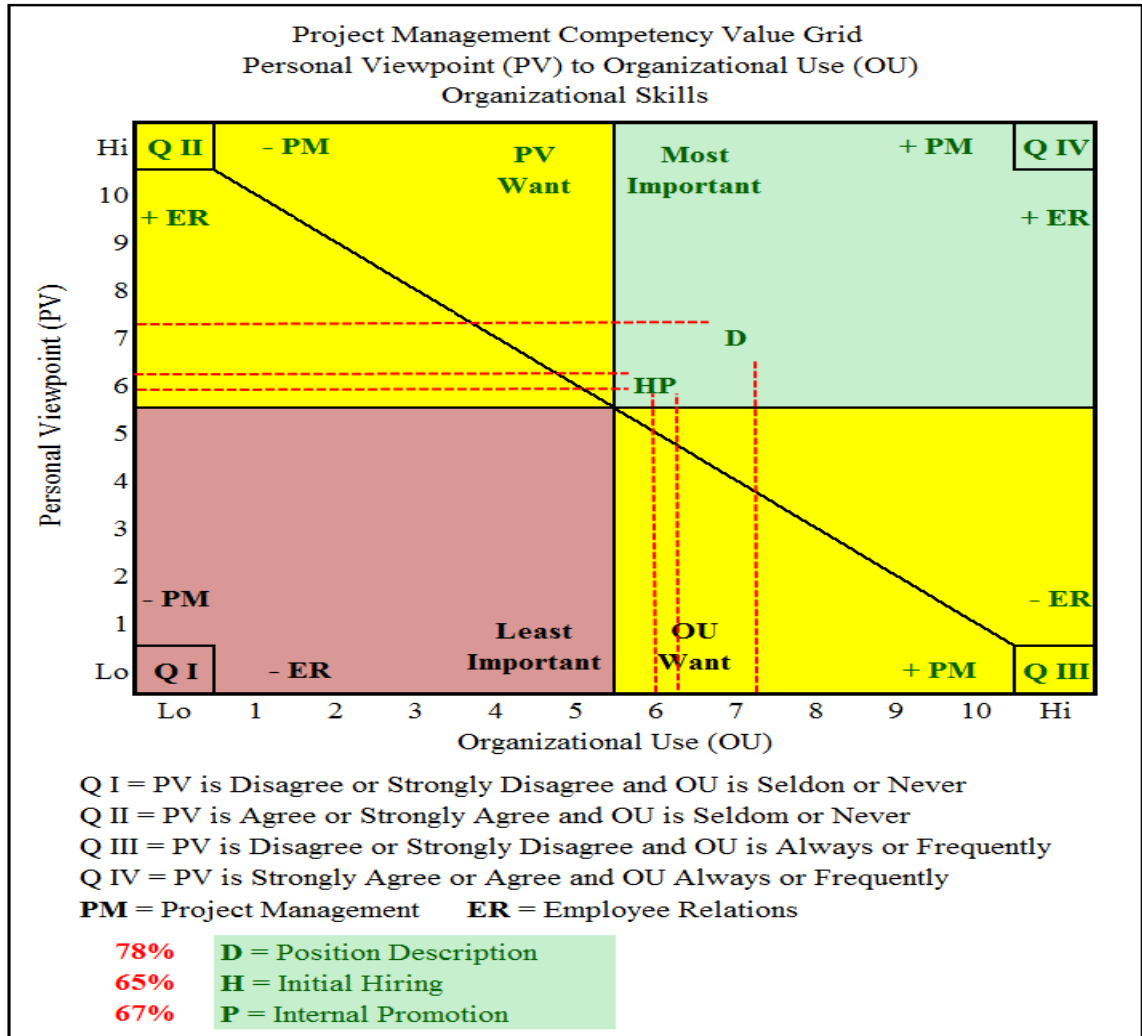


Figure 46. PM Competency Value Grid for Organizational Skills

Figure 46 reveals strong agreement for organizational skills in the three issues of inclusion in the position description, initial hiring, and internal promotion.

Organizational Political Skills

Organizational Political Skill is an important factor. “It can be broadly defined as actions taken outside the formal power structure on an individual or a coalition level that are designed to influence others, especially those at higher levels, to promote or maintain one’s vital interest” (Pan & Flynn, 2003, p. 458). Unfortunately the vital interest may be to the detriment of the project which means the project manager must have competency in this area to be able to overcome any potential, negative influence.

Organizational Political Skills and PM Competency Value Grid

Table 30. Crosstabulation of Organizational Political Skills in Percentages for PD

PERSONAL VIEWPOINT (PV) about Organizational Political Skills: Project Manager must possess organizational skills to effectively manage a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Organizational Political Skills: Requires project management staff to have organizational skills to effectively manage a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	17.5%	15.0%	17.5%	7.5%	57.5%
Agree	0.0%	12.5%	10.0%	2.5%	25.0%
No Opinion	0.0%	0.0%	7.5%	5.0%	12.5%
Disagree	0.0%	0.0%	2.5%	0.0%	2.5%
Strongly Disagree	0.0%	0.0%	0.0%	2.5%	2.5%
Total	17.5%	27.5%	37.5%	17.5%	100.0%

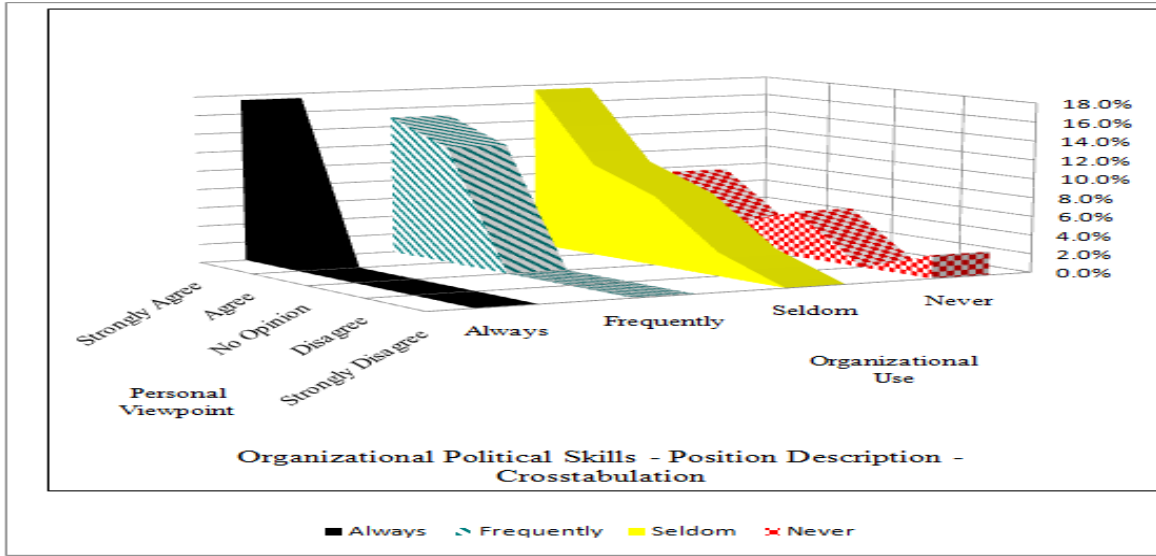


Figure 47. Crosstabulation of Organizational Political Skills for PD

Table 30 and Figure 47, along with the information in Appendix R.

Organizational Political Skills, indicate the PV and OU concerning the competency of organizational political skills are in little agreement. Approximately 45% of the survey participants believe the competency of effective organizational political skills should be identified in the position description and their organizations do use them when writing position descriptions. However, this competency was rated the lowest of all 12 competencies in the position description issue. Further, there were 5% of the survey respondents who ‘Disagreed’ or ‘Strongly Disagreed’ with the need for the competency while 13% had ‘No Opinion’ on the issue. It appears ‘political skills’ is not a well received competency for identification when writing position descriptions.

Organizational Political Skills and Initial Hiring

Table 31. Crosstabulation of Organizational Political Skills in Percentages for IH

PERSONAL VIEWPOINT (PV) about Organizational Political Skills: Project Manager must possess organizational political skills of meeting the organizational leadership's expectations to manage any type of project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Organizational Political Skills: Requires project management staff to have organizational political skills of meeting the organizational leadership's expectations: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	15.0%	15.0%	12.5%	5.0%	47.5%
Agree	0.0%	15.0%	12.5%	5.0%	32.5%
No Opinion	0.0%	2.5%	5.0%	7.5%	15.0%
Disagree	0.0%	2.5%	2.5%	0.0%	5.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	15.0%	35.0%	32.5%	17.5%	100.0%

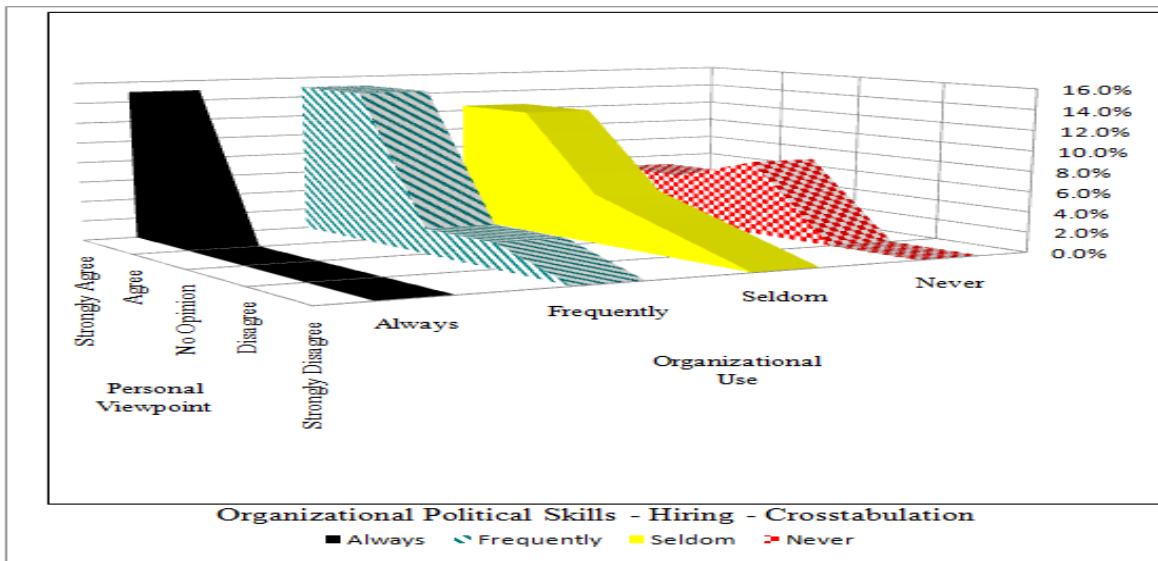


Figure 48. Crosstabulation of Organizational Political Skills for IH

Table 31 and Figure 48, along with the information in Appendix R.

Organizational Political Skills, indicate the PV and OU concerning the competency of organizational political skills are in little agreement. Approximately 45% of the survey participants believe the competency of effective organizational political skills should be identified for initial hiring and their organizations do use them when making initial hiring selections. Like the position description, the competency of ‘political skills’ appears to lack much support.

When 35% of the organizations seldom or never use the competency for making initial hiring selections they represent only slightly fewer organizations which fail to identify it in their position descriptions (38%).

Organizational Political Skills and Internal Promotion

Table 32. Crosstabulation of Organizational Political Skills in Percentages for IP

PERSONAL VIEWPOINT (PV) about Organizational Political Skills: Project Manager must possess organizational political skills of meeting the organizational leadership's expectations to manage any type of project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Organizational Political Skills: Requires project management staff to have organizational political skills of meeting the organizational leadership's expectations: Used in Promotion					
Personal Viewpoint	Always	Frequently	Seldom	Never	Total
Strongly Agree	17.5%	17.5%	15.0%	5.0%	55.0%
Agree	5.0%	10.0%	5.0%	2.5%	22.5%
No Opinion	2.5%	2.5%	7.5%	5.0%	17.5%
Disagree	2.5%	0.0%	0.0%	2.5%	5.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	27.5%	30.0%	27.5%	15.0%	100.0%

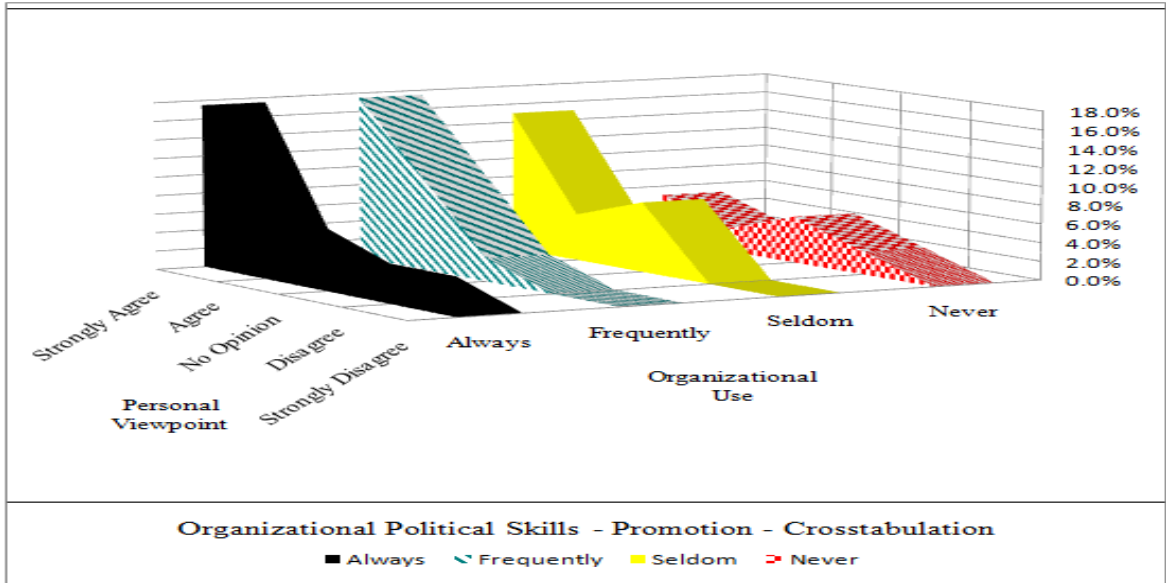


Figure 49. Crosstabulation of Organizational Political Skills for IP

Table 32 and Figure 49, along with the information in Appendix R.

Organizational Political Skills, indicate the PV and OU concerning the competency of organizational political skills are in weak agreement. Approximately 50% of the survey participants believe the competency of effective organizational political skills should be identified for internal promotion and their organizations do use them when promoting from within.

Overall, the competency of ‘organizational political skills’ does not appear to be an organizationally supported competency by their failing to use it when writing position descriptions (37.5%), making initial hiring selections (35%), and making internal promotions (26%).

Organizational Political Skills and PM Competency Value Grid

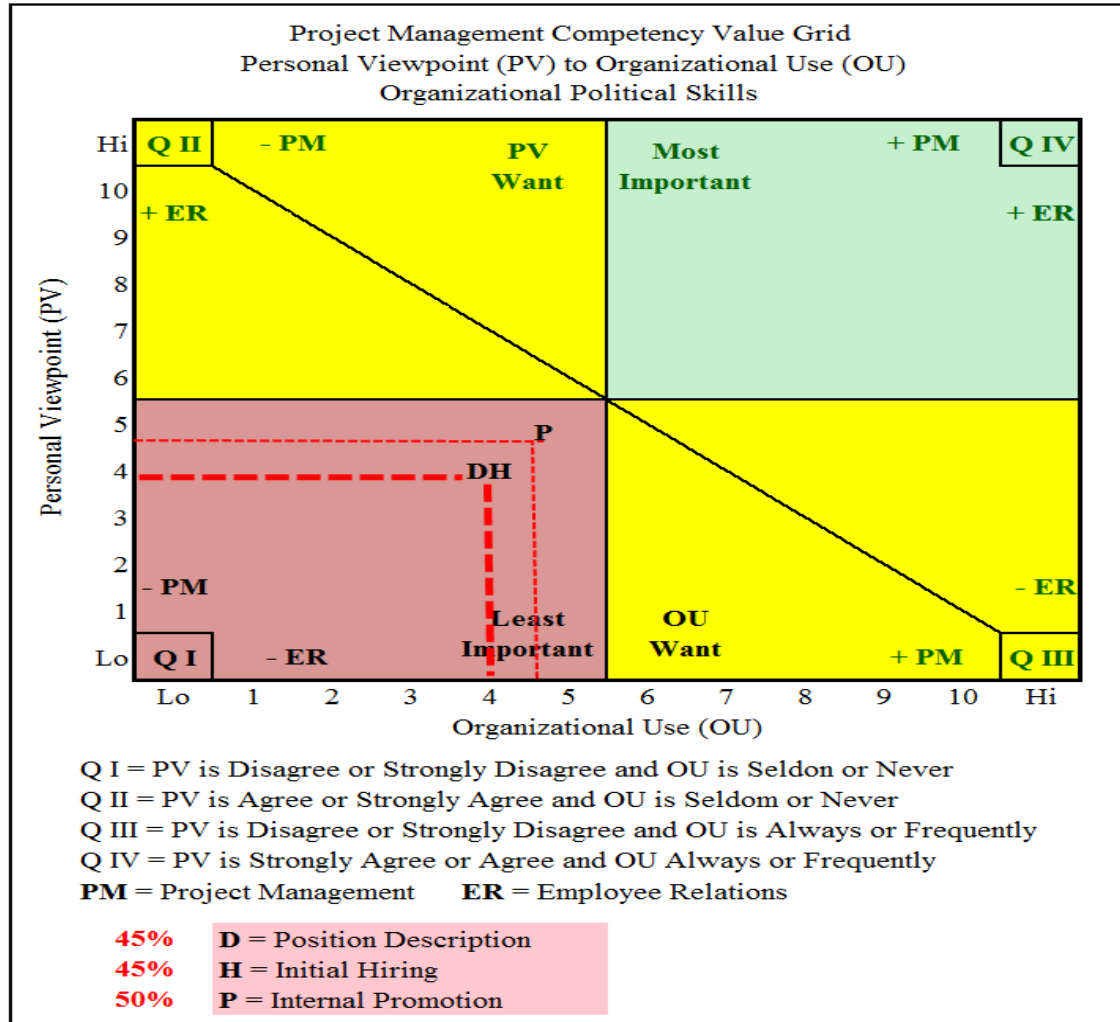


Figure 50. PM Competency Value Grid for Organizational Political Skills

Figure 50 reveals little agreement for organizational political skills in the three issues of inclusion in the position description, initial hiring, and internal promotion.

Problem-Solving Skills

Brill, et al, clearly identify communication expertise and problem-solving expertise as two of the top 10 competencies needed by a project manager (2006, p. 127). Further, "Overall, respondents agreed that project management requires much more than just knowing how to define scope, create timelines, and manage budgets. . . . Of particular note, respondents indicated that a project manager must possess problem-solving expertise . . ." (Brill, et al, 2006, p. 129)

The competency of problem-solving skills needed by a project manager is prevalent in other project management writings (Cleland, 1994; Lewis, 2000; PMI, 2000) and research studies (Bauer, 2005; GAO, 2001; Golob, 2002; Krahn, 2005).

Problem-Solving Skills and Position Description

Table 33. Crosstabulation of Problem-Solving Skills in Percentages for PD

PERSONAL VIEWPOINT (PV) about Problem-Solving Skills: Project Manager must possess problem-solving skills for resolving complex problems in managing a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Problem-Solving Skills: Requires project management staff to have problem-solving skills for resolving complex problems in managing a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	25.0%	20.0%	15.0%	2.5%	62.5%
Agree	0.0%	25.0%	12.5%	0.0%	37.5%
No Opinion	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	25.0%	45.0%	27.5%	2.5%	100.0%

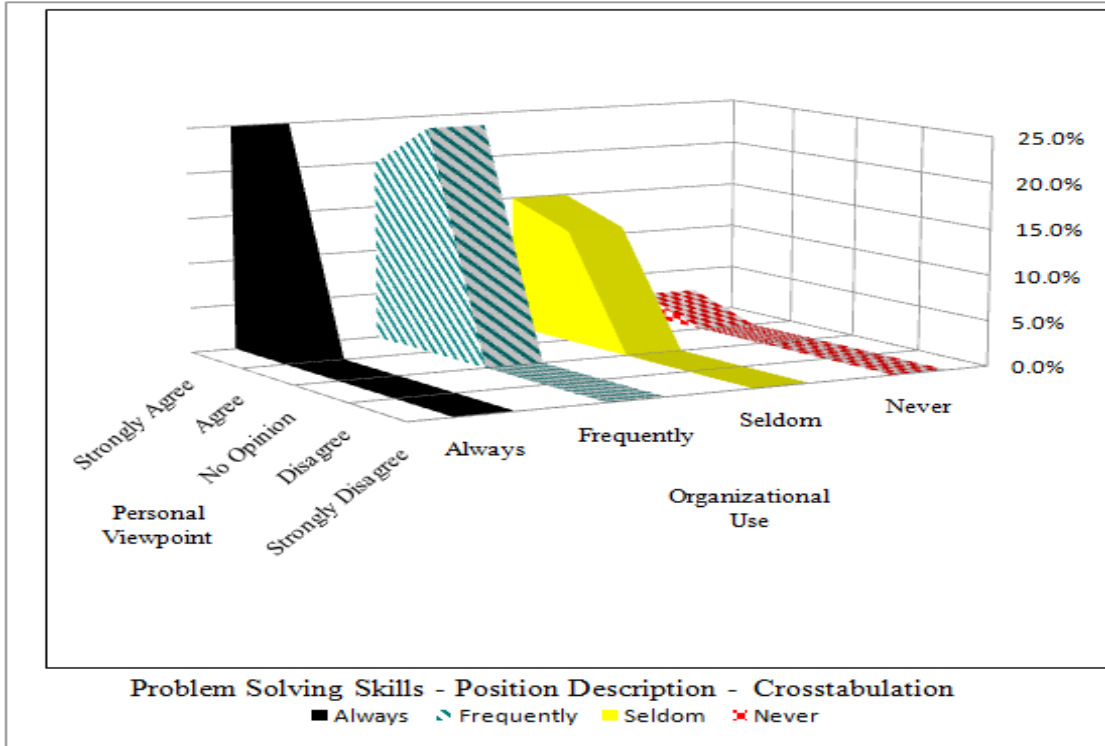


Figure 51. Crosstabulation of Problem-Solving Skills for PD

Table 33 and Figure 51, along with the information in Appendix S. Problem-Solving Skills, indicate the PV and OU concerning the competency of problem-solving skills are in strong agreement. Approximately 70% of the survey participants believe the competency of effective problem-solving skills should be identified in the position description and their organizations do use them when writing position descriptions. This competency was rated as number five of the 12 competencies for inclusion when writing position descriptions. However, 30% of the survey respondents' organizations seldom or never use the competency when writing their position descriptions.

Overall, while the competency of problem-solving is considered to be in strong agreement between the survey respondents and most of their organizations (70%) use the

factor when writing their position descriptions, the competency is used as much for initial hiring selections as internal promotions.

Problem-Solving Skills and Initial Hiring

Table 34. Crosstabulation of Problem-Solving Skills in Percentages for IH

PERSONAL VIEWPOINT (PV) about Problem-Solving Skills: Project Manager must possess problem-solving skills for resolving complex problems in managing a project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Problem-Solving Skills: Requires project management staff to have problem-solving skills for resolving complex problems in managing a project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	17.5%	15.0%	10.0%	7.5%	50.0%
Agree	5.0%	27.5%	15.0%	0.0%	47.5%
No Opinion	0.0%	2.5%	0.0%	0.0%	2.5%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	22.5%	45.0%	25.0%	7.5%	100.0%

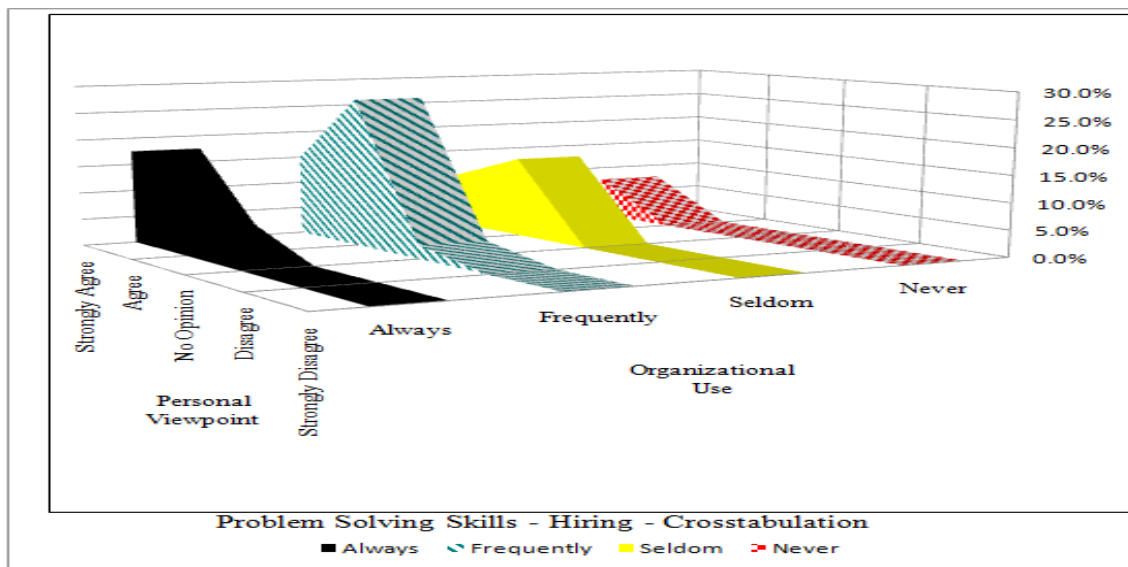


Figure 52. Crosstabulation of Problem-Solving Skills for IH

Table 34 and Figure 52, along with the information in Appendix S. Problem-Solving Skills, indicate the PV and OU concerning the competency of problem-solving skills are in some agreement. Approximately 65% of the survey participants believe the competency of effective problem-solving skills should be identified for initial hiring and their organizations do use them when making initial hiring selections.

Problem-Solving Skills and Internal Promotion

Table 35. Crosstabulation of Problem-Solving Skills in Percentages for IP

PERSONAL VIEWPOINT (PV) about Problem-Solving Skills: Project Manager must possess problem-solving skills for resolving complex problems in managing a project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Problem-Solving Skills: Requires project management staff to have problem-solving skills for resolving complex problems in managing a project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	26.3%	13.2%	13.2%	5.3%	57.9%
Agree	0.0%	23.7%	15.8%	0.0%	39.5%
No Opinion	0.0%	2.6%	0.0%	0.0%	2.6%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	26.3%	39.5%	28.9%	5.3%	100.0%

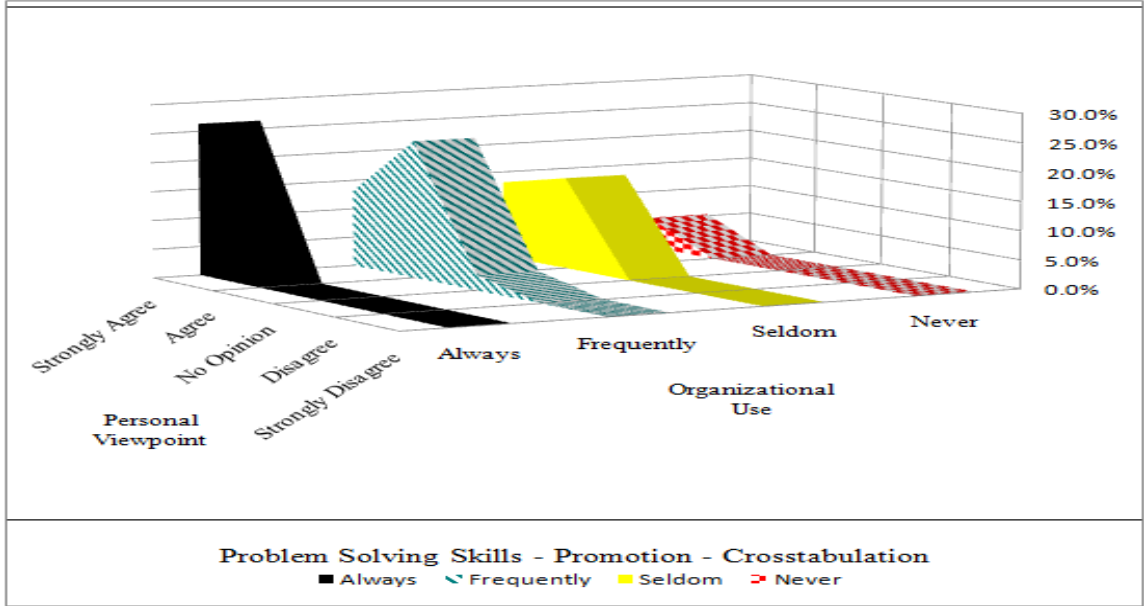


Figure 53. Crosstabulation of Problem-Solving Skills for IP

Table 35 and Figure 53, along with the information in Appendix S. Problem-Solving Skills, indicate the PV and OU concerning the competency of problem-solving skills are in some agreement. Approximately 63% of the survey participants believe the competency of effective problem-solving skills should be identified for internal promotion and their organizations do use them when promoting from within.

Problem-Solving Skills and PM Competency Value Grid

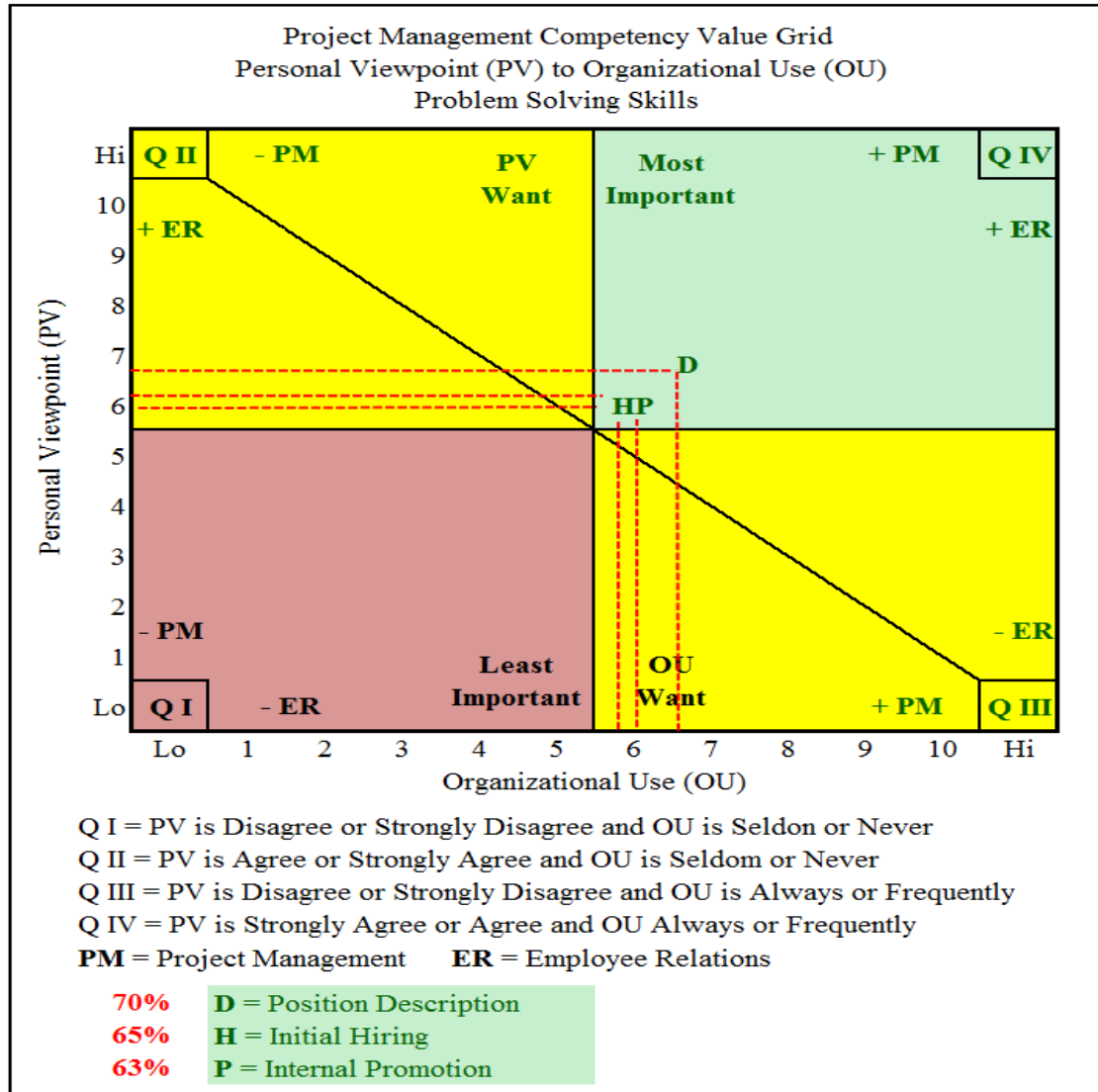


Figure 54. PM Competency Value Grid for Problem-Solving Skills

Figure 54 reveals strong agreement for problem-solving skills in the three issues of inclusion in the position description, initial hiring, and internal promotion.

Team-Building Skills

“Work now, labor analysts say, will mostly be accomplished by teams of individuals from within and outside a company . . .” (Dillon, 2006, p. 22). “In today’s business world, adults often engage in work through multidisciplinary project teams rather than through individual effort. Effective project management is a critical competency for anyone participating in such teamwork. . .” (Brill, et al, 2006, p. 151). “Project success depends on the competence of the project team . . .” (AACCE, 2003). The competency of team-building skills needed by a project manager is prevalent in other project management writings (Cleland, 1994; Heerkens, 2002; Kerzner, 2003; Lewis, 2000; Wysocki, et al, 2000) and research studies (GAO, 2001; Golob, 2002; Krahn, 2005; Rodriquez, 2005). Almost 20 years ago, Carnevale, et al, wrote, “In the past two decades, there has been a tremendous increase in the use of teams in the workplace” (1990, p. 32). Just five years ago, Coplin rated teamwork as the third most important quality or skill after communications and honesty/integrity which employers want from their staff (2003, p. 3). Teamwork is a competency often mentioned in numerous classified advertisements of any newspaper job listings. The following results are somewhat surprising.

Team-Building Skills and Position Description

Table 36. Crosstabulation of Team-Building Skills in Percentages for PD

PERSONAL VIEWPOINT (PV) about Team-Building Skills: Project Manager must possess team-building skills for developing, coaching and mentoring project team members to effectively perform and meet expectations: Use in Position Description					
ORGANIZATIONAL USE (OU) of Team-Building Skills: Requires project management staff to have team-building skills for developing, coaching and mentoring project team members to effectively perform and meet expectations: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	22.5%	17.5%	7.5%	5.0%	52.5%
Agree	0.0%	22.5%	17.5%	2.5%	42.5%
No Opinion	0.0%	0.0%	5.0%	0.0%	5.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	22.5%	40.0%	30.0%	7.5%	100.0%

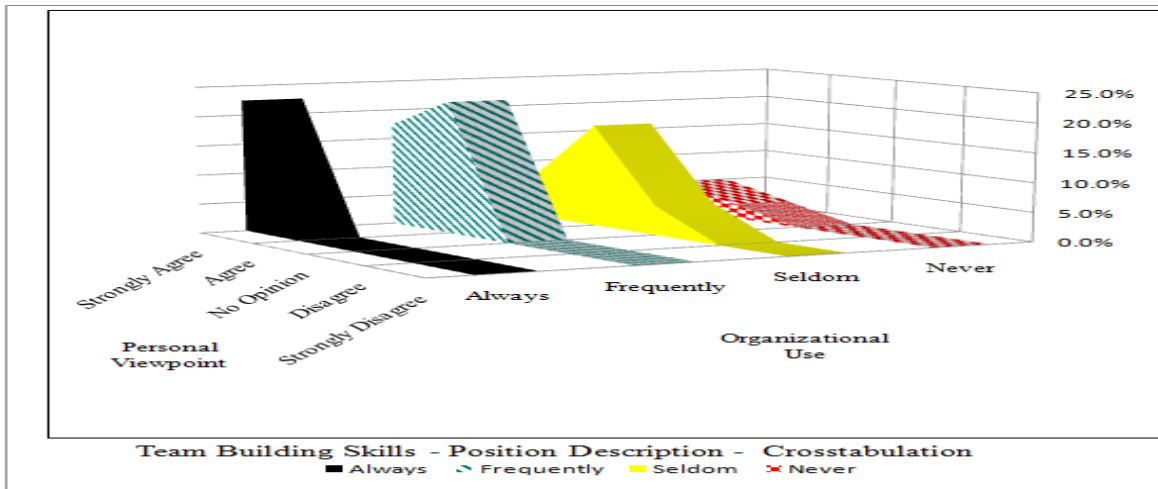


Figure 55. Crosstabulation of Team-Building Skills for PD

Table 36 and Figure 55, along with the information in Appendix T. Team-Building Skills, indicate the PV and OU concerning the competency of team-building skills are in some agreement. Approximately 63% of the survey participants believe the

competency of effective team-building skills should be identified in the position description and their organizations do use them when developing position descriptions.

Team-Building Skills and Initial Hiring

Table 37. Crosstabulation of Team-Building Skills in Percentages for IH

PERSONAL VIEWPOINT (PV) about Team-Building Skills: Project Manager must possess team-building skills for developing, coaching and mentoring project team members to effectively perform and meet expectations: Use in Hiring					
ORGANIZATIONAL USE (OU) of Team-Building Skills: Requires project management staff to have team-building skills for developing, coaching and mentoring project team members to effectively perform and meet expectations: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	12.5%	20.0%	5.0%	7.5%	45.0%
Agree	0.0%	22.5%	25.0%	0.0%	47.5%
No Opinion	0.0%	2.5%	2.5%	2.5%	7.5%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	12.5%	45.0%	32.5%	10.0%	100.0%

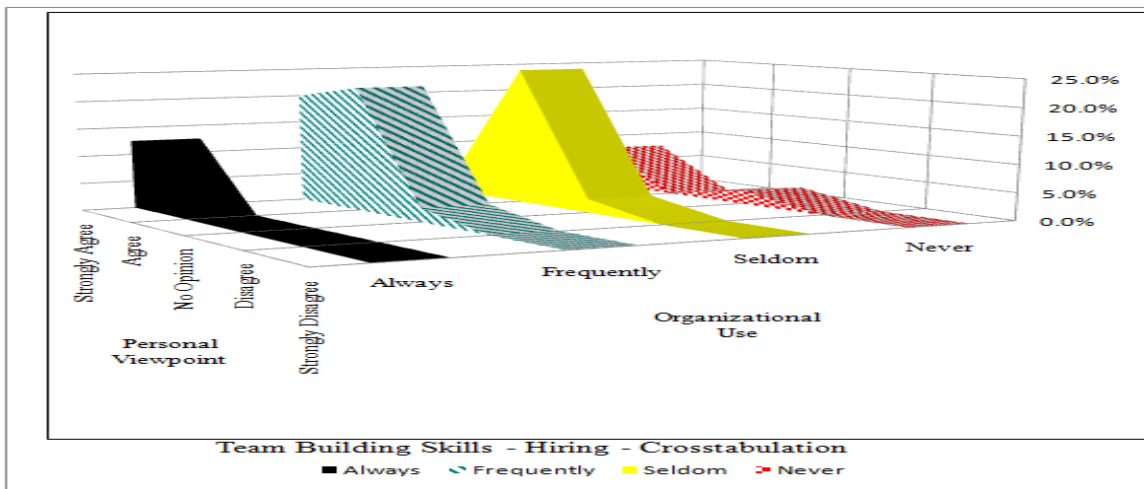


Figure 56. Crosstabulation of Team-Building Skills for IH

Table 37 and Figure 56, along with the information in Appendix T. Team-Building Skills, indicate the PV and OU concerning the competency of team-building skills are in weak agreement. Approximately 55% of the survey participants believe the competency of effective team-building skills should be identified for initial hiring and their organizations do use them when making initial hiring selections.

Team-Building Skills and Internal Promotion

Table 38. Crosstabulation of Team-Building Skills in Percentages for IP

PERSONAL VIEWPOINT (PV) about Team-Building Skills: Project Manager must possess team-building skills for developing, coaching and mentoring project team members to effectively perform and meet expectations: Use in Promotion					
ORGANIZATIONAL USE (OU) of Team-Building Skills: Requires project management staff to have team-building skills for developing, coaching and mentoring project team members to effectively perform and meet expectations: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	17.5%	15.0%	17.5%	10.0%	60.0%
Agree	0.0%	17.5%	17.5%	0.0%	35.0%
No Opinion	0.0%	2.5%	0.0%	2.5%	5.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	17.5%	35.0%	35.0%	12.5%	100.0%

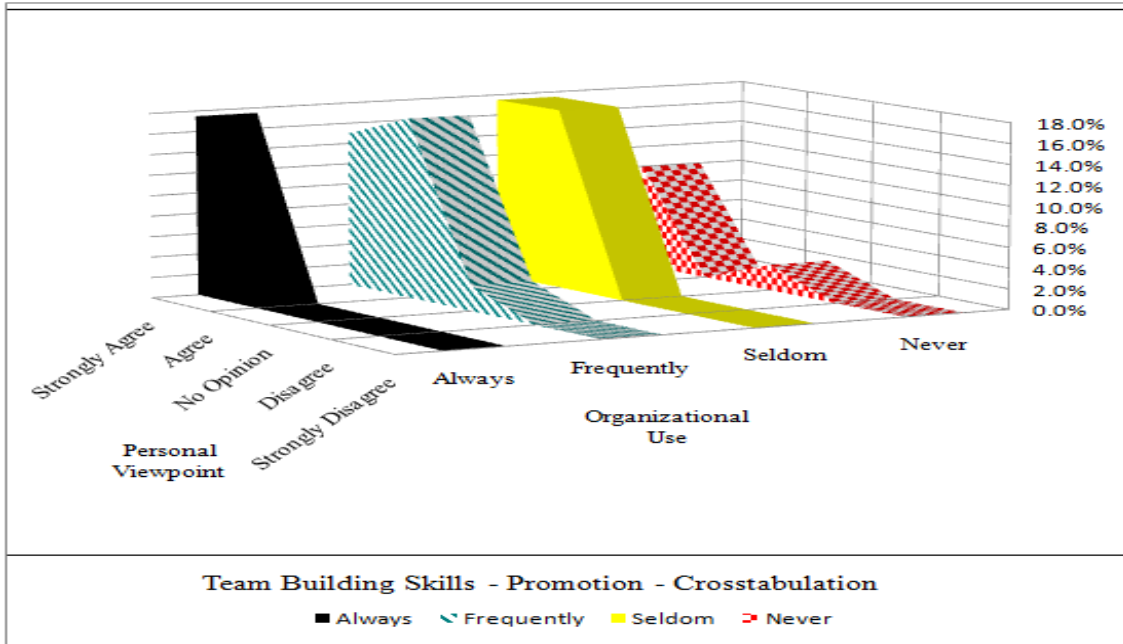


Figure 57. Crosstabulation of Team-Building Skills for IP

Table 38 and Figure 57, along with the information in Appendix T. Team-Building Skills, indicate the PV and OU concerning the competency of team-building skills are in weak agreement. Approximately only 50% of the survey participants believe the competency of effective team-building skills should be identified for internal promotions and their organizations do use them when promoting from within.

Teamwork data revealed the survey respondents' personal viewpoint was much stronger than their organization's use of the competency. Organizations seldom or never used the teamwork competency when writing position descriptions (33%), making initial hiring selections (38%), and when making internal promotions (45%). Considering the emphasis seen on the issue of teamwork in classified advertisements this was a bit of a surprise finding.

Team-Building Skills and PM Competency Value Grid

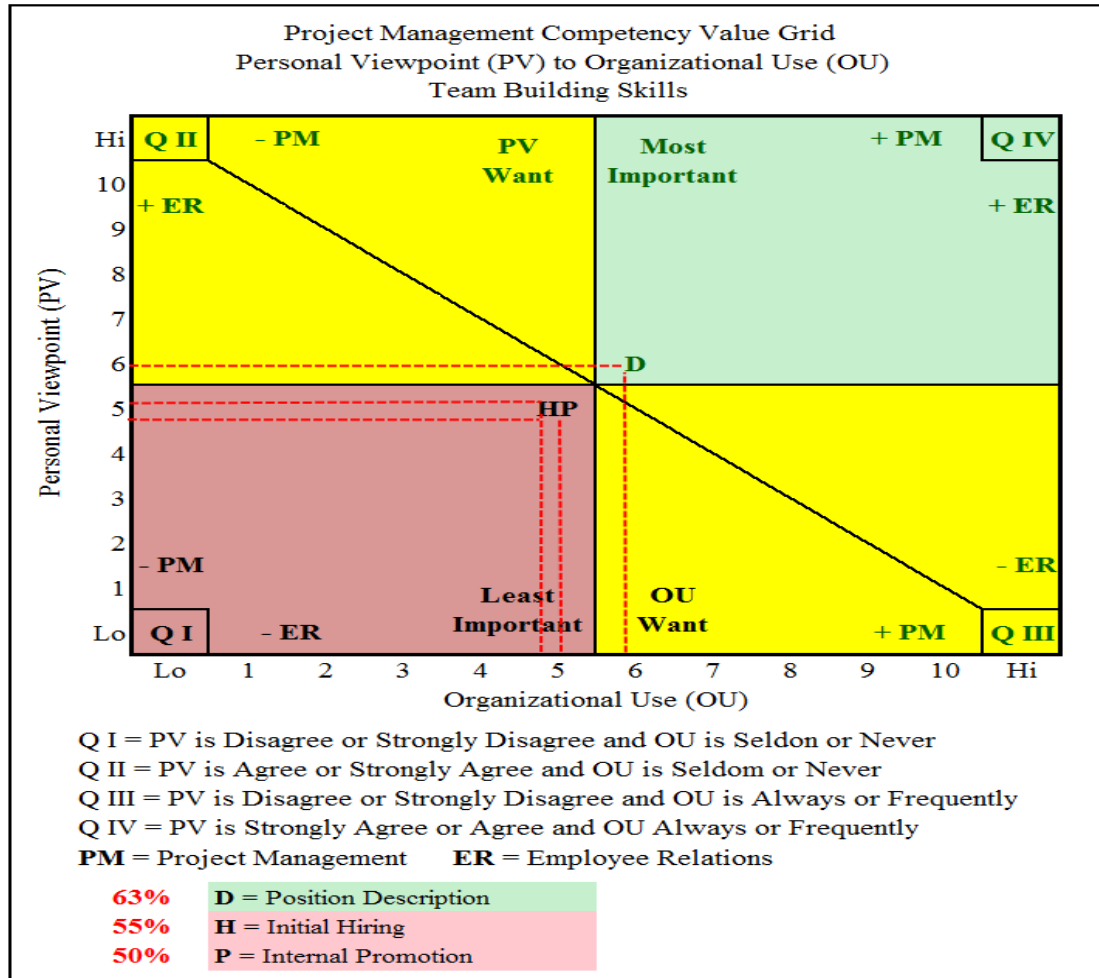


Figure 58. Project Management Competency Value Grid for Team-Building Skills

Figure 58 reveals little agreement for team-building skills in initial hiring, and internal promotion and some agreement for inclusion in the position description.

Project Management Competency Value Grid Findings

The following tables and figures explain findings as a result of using the PM Competency Value Grid. The individual values of the 12 competencies previously

depicted using the Project Management Competency Value Grid are compiled in Table

39. Project Management Competency Value Grid Data:

Table 39. Project Management Competency Value Grid Data

Competency	Importance		
	Position Description	Hiring	Promotion
Communication Skills	93%	85%	87%
Basic Computer Skills	83%	87%	83%
Conflict Resolution Skills	65%	55%	55%
Decision Making Skills	80%	67%	72%
Delegation Skills	55%	48%	45%
Management Support Building Skills	63%	55%	68%
Motivation Skills	55%	45%	53%
Negotiation Skills	49%	41%	50%
Organizational Skills	78%	65%	67%
Organizational Political Skills	45%	45%	50%
Problem Solving Skills	70%	65%	63%
Team Building Skills	63%	55%	50%
Average	67%	59%	62%

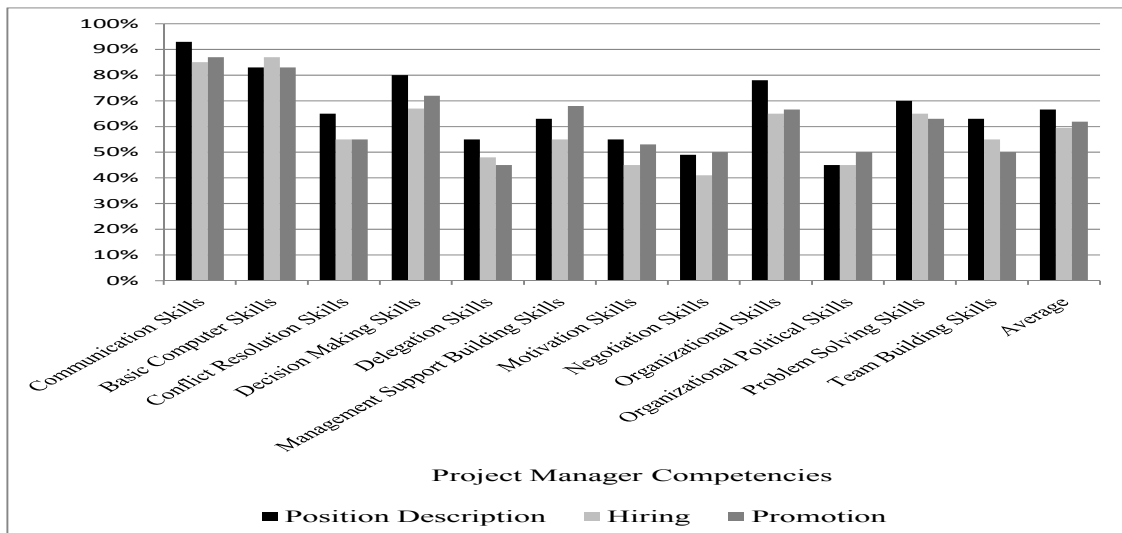


Figure 59. Project Management Competency Value Data

Table 39 and Figure 59 indicate the issue of competencies being identified in the position description appears to be more important than for initial hiring selections or internal promotions in two-thirds of the 12 competencies. The four competencies of basic computer skills, management support building skills, negotiation skills, and organizational political skills reveal the position description has a lower rating than either the initial hiring or internal promotions.

In using the Project Management Competency Value Grid findings, there are varying levels of agreement between the ‘Personal Viewpoint’ and the ‘Organizational Use’ within the 12 competencies and three issues as depicted in Table 40. Competency Agreements:

Table 40. Competency Agreements

Competency Skills	Position Description (PD)	Initial Hiring (IH)	Internal Promotion (IP)
Communication	Almost Full	Very Strong	Very Strong
Computer	Very Strong	Very Strong	Very Strong
Conflict Resolution	Some	Weak	Weak
Decision Making	Very Strong	Some	Strong
Delegation	Weak	Little	Little
Management Support Building	Some	Weak	Some
Motivation	Weak	Little	Weak
Negotiation	Little	Little	Weak
Organization	Strong	Some	Some
Organizational Politics	Little	Little	Weak
Problem Solving	Strong	Some	Some
Team Building	Some	Weak	Weak

The four quadrants of the Project Management Competency Value Grid were used to determine the various levels of agreement. This table is derived from a compilation of the aforementioned, individual 12 competencies.

Competency Perceived Rank Order of Importance

In response to a survey question involving perceived importance of the 12 competencies, survey respondents provided their personal viewpoint. A compilation of their input and averaging of the data resulted in a rank ordering of perceived importance. This finding is independent of the Project Management Competency Value Grid determinations.

Table 41. Competency Rank Order of Perceived Importance

Ranking	Skill
1	Communication
2	Decision-Making
3	Organizational
4	Team-Building
5	Computer
6	Problem-Solving
7	Conflict Resolution
8	Management Support Building
9	Motivation
10	Organizational Politics
11	Delegation
12	Negotiation

Hypotheses 1-2-3

As aforementioned the first three hypotheses involved the issue of what competencies a project manager needs when management is developing a job description, initial hiring, and internal promotion.

H1_O - There is no perceived difference concerning various competencies needed by project managers when management is developing a project manager job description

H1_A - There is a perceived difference concerning various competencies needed by project managers when management is developing a project manager job description

H2_O - There is no perceived difference concerning the various competencies a project manager needs when management is selecting and hiring an individual as a project manager

H2_A - There is a perceived difference concerning the various competencies a project manager needs when management is selecting and hiring an individual as a project manager

H3_O - There is no perceived difference concerning the various competencies a project manager needs when management is selecting and promoting an internal candidate to project manager

H3_A - There is a perceived difference concerning the various competencies a project manager needs when management is selecting and promoting an internal candidate to project manager

Hypothesis 1

The research findings support the H1_A hypothesis. There is a perceived difference among project managers/project sponsors and executive management concerning various competencies needed by project managers when management is developing a project manager job description.

Hypothesis 2

The research findings support the H2_A hypothesis. There is a perceived difference among project managers/project sponsors and executive management concerning the various competencies a project manager needs when management is selecting and hiring an individual as a project manager.

Hypothesis 3

The research findings support the H3_A hypothesis. There is a perceived difference among project managers/project sponsors and executive management concerning the various competencies a project manager needs when management is selecting and promoting an internal candidate to project manager.

Hypotheses 1-2-3 Results

The first three hypotheses were linked to the first research question which dealt with the project management competencies identified for inclusion in writing a position description, initial hiring selections, and making internal promotions as perceived by the survey respondents in a 'Personal Viewpoint' vs. 'Organizational Use' crosstabulation Likert-type response format. The various crosstabulation tables, descriptive statistics, Project Management Competency Value Grids, and figures support the alternative

hypotheses in all three issues of the position description, initial hiring, and internal promotion. However there were varying levels of agreement between the ‘Personal Viewpoint’ and the ‘Organizational Use’ within the 12 competencies and three issues as reflected in Table 40. Competency Agreements.

Gehring writes, “Although project management uses many general management skills . . . these skills by themselves are not sufficient to control all of the complex elements associated with management of personnel on a project” (2007, p. 45). Naquin and Holton believe organizations must develop their intellectual and knowledge capital due to emerging internal and external pressures creating a need for new leadership and managerial competence (2006, p. 144). Project Managers must develop their own competencies, as well as their team members, in order to be successful in meeting stakeholder expectations.

Hypotheses 4-5

Hypothesis 4

The fourth hypothesis was linked to the second research question which dealt with the project management competencies perceived as needed by project managers to be successful in different industries. There were 33 commonly accepted industries used in routine project management surveys identified in a list for the survey participants to respond to. Hypothesis 4 was:

H4₀ - There is no perceived difference between the various competencies a project manager needs to be successful in different industries

H4_A - There is a perceived difference between the various competencies a project manager needs to be successful in different industries

Unfortunately there were only 10 industries identified by the survey respondents from the list of 33 industries. In addition, while the survey group met statistical constraints overall, the low number of respondents makes this hypothesis inconclusive.

Hypothesis 4 Results

Although there may appear to be a perceived difference between the various competencies a project manager needs to be successful in different industries the overall survey response rate negates the potential to make a valid claim in support of either the null (H4_O) or the alternative (H4_A) hypotheses. While it may, in fact, accurately represent the pool of survey participants who responded to this research project the low total numbers does not support a valid claim. This issue will be addressed in the 'Recommendations' section.

The issue of skills and competencies crosses all industries and disciplines. It is not limited to just project management. However, due to the importance of project management in bringing about change in a cost effective and within time constraints, the issue of skills and competencies is a much discussed topic, especially in light of the many documented project failures.

Clairborne (1992) addresses industry needs in writing, “. . . industry is changing rapidly which creates a need for employees with a wide range of generalizable skills to meet the needs of the changing technologies” (p. 6). “The new ‘adaptable and flexible’ worker was said to need, in addition to specific skills, a set of generic skills transferable

across changing work sites and different occupations” (Williams, 2005, p. 35). Hill (2204) writes,

During the past decade, modern project management precepts have emerged to instill a vitalized professional approach to project management across countless industries. Individual capabilities in project management have been strengthened and enlarged through a combination of developments in project management process and techniques, the implementation of training programs, and automated tools that use advanced design concepts and technology. (p. 45).

Williams also mentions, “At the same time, the development of a set of generic ‘key’ skills was increasingly seen as essential to workers’ effective participation in the emerging patterns of work” (Williams, 2005, p. 35). Employers need multi-skilled employees to meet the mounting demands placed upon them in trying to meet competitive forces.

Clairborne writes, “Employers need employees with skill flexibility to change as the industrial environment progresses. They also need workers with skills that are transferable to various work situations” (1992, p. 6). The future workplace environment will be more project oriented and require employees to possess a greater variety of skills.

Hypothesis 5

This hypothesis involved the importance between the Hard/Technical (Engineering/ Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills.

H5_O - There is no perceived difference concerning the importance between the Hard/Technical (Engineering/ Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills

H5_A - There is a perceived difference concerning the importance between the Hard/Technical (Engineering/ Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills

Hypothesis 5 Results

The research findings support H5_A - There is a perceived difference between the Hard/Technical (Engineering/Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills. In response to a survey question involving perceived importance of Hard/Technical Skills vs. Soft/Non-Technical Skills, survey respondents provided their personal viewpoint. The following table and figure reflects their input:

Table 42. Hard/Technical Skills vs. Soft/Non-Technical Skills Importance

Importance of Skill Sets	Responses	Percent
Hard/Technical (Engineering/Scientific) Skills	1	2.9%
Soft/Non-Technical (Interpersonal/People Management) Skills	17	48.6%
Neither – Both Skill Sets Are Equally Important	17	48.6%

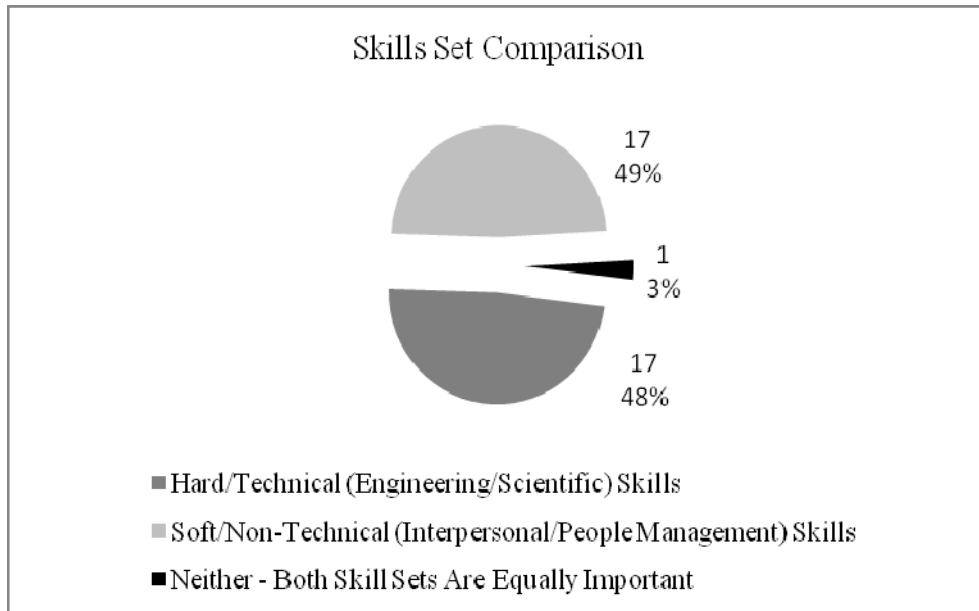


Figure 60. Hard/Technical Skills vs. Soft/Non-Technical Skills Comparison

Only 35 survey participants responded to the survey question involving which set of skills was most important. Although one survey participant believes the Hard/Technical (Engineering/Scientific) Skills are the most important skill set, the remaining respondents were evenly split between the Soft/Non-Technical (Interpersonal/People Management Skills and the Neither – Both Skills Sets are Equally Important choices. As such, there appears to be a perceived difference concerning importance between the importance of the Hard/Technical (Engineering/Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills.

Cowie writes, “. . . in many cases, project management is taught as a set of hard skills – how to create Gant [sic] charts, how to split up a complex project and so on – and the softer, people skills essential to success are overlooked” (2003, p. 256). Literature indicates some professionals possess high levels of technical proficiency, as well as non-

technical skills. Over time, the more experienced and tenured they become they begin to be elevated within the organization. As this transition takes place the technical oriented work is realigned to the younger, new hires and they become more mired in the non-technical, managerial tasks associated with project management (Lee, et al, 2001, p. 27). However, “Some types of non-technical skills are perceived by IS professionals as more important than technical expertise” (Lee, et al, 2001, p. 27).

In the area of various competencies a project manager needs in the Hard/ Technical (Engineering/Scientific) Skills versus Soft/Non-Technical (Interpersonal/ People Management) Skills other considerations must be taken into account. “It has long been recognized that screening for and developing nontechnical ‘soft’ skills in project managers and other employees is critical for the continued success of any complex, fast-changing organization” (Muzio, Fisher, Thomas, & Peters, 2007, p. 30). Muzio, et al, go on to explain, “Soft skills, also referred to as ‘microsocial’ skills, are universally recognized as being critical to successful project management. Methods of measuring those skills, however, are to-date largely subjective and nonsystematic” (2007, p. 30). In regards to the measurement of these skills, they write, “Although the literature is clear on the need for these micro-social skill areas, it is substantially less clear regarding how they should be assessed or measured” (Muzio, et al, 2007, p. 31). “Besides the traditional project management methodologies, tools, and techniques, leadership skills, which can also be called the human side or soft skills, have been widely accepted as a pivotal factor in the success of projects” (Shi & Chen, 2006, p. 1). This research project, as other research projects have done, identifies competencies believed to be needed by project

managers. The identification and any rank ordering of needed competencies is impacted by the survey respondent's knowledge and experience in the field of project management.

The debate over 'hard' vs. 'soft' skills will probably always exist. Sternberger believes, "In today's business environment organizations need to manage the human as well as the financial implications of their business strategies" (2002, p. 9) which lends itself in support of the 'soft' skill side. McLagan has a valuable point with, "Competency criteria aren't always easy to describe" (2006, p. 61). And, as with some research writings, "Compared to other competency studies, it was concluded that there is broad recognition of a need for continuing action" (Sternberger, 2002, p. 93). Therefore, even at the conclusion of this research project there will continue a need for further research effort into the needed project manager competencies.

Summary

This chapter presented an analysis and interpretation of the survey participants' responses to a survey collected for the purposes of determining the personal viewpoint vs. organizational use related to the three issues of developing job descriptions, making initial hiring selections, and making internal promotions. Crosstabulation tables, descriptive statistics, chi-square tests, and figures were used to describe the demographics of the survey population participants. The researcher developed a 'Project Management Competency Value Grid' to portray the 'Personal Viewpoint' vs. 'Organizational Use' of the 12 competencies.

The first three Hypotheses' findings all support the Alternative Hypotheses overall where there is a perceived difference concerning the various competencies a

project manager needs when management is:

1. developing a project manager job description
2. selecting and hiring an individual as a project manager
3. selecting and promoting an internal candidate to project manager

Table 40. Competency Agreements reflects the agreement and disagreements in the competencies and issues.

Hypothesis 4, pertaining to competencies needed in different industries, was considered inconclusive since there was insufficient data on which to base a valid claim in support of either the null (H_{4O}) or alternative (H_{4A}).

Hypothesis 5, pertaining to the importance between the Hard/Technical (Engineering/ Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills, supported the H_{5A} – There is a perceived difference concerning the importance between the Hard/Technical (Engineering/ Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills.

CHAPTER 5. RESULTS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter's purpose is to present the final results and conclusions of this research study and provide recommendation for future research efforts.

The Project Management Institute reports, "One out of three executives believes that project management is a strategic imperative, and three out of four believe that it will become one" (PMI, 2005, p. 30). LaBrosse believes organizations, ". . . consist of processes and projects. Processes are the way work gets done repeatedly day-to-day – activities performed to keep the organization operational. Projects are short-term efforts undertaken to meet the organization's strategic objectives" (2007, p. 25). "The contemporary surge in interest in project management is typically explained by reference to the increasing recognition of 'the project' as a versatile, flexible, and predictable form of work organisation [sic]" (Cicmil & Hodgson, 2006, p. 112). Cowie writes, "As . . . projects become ever more complex, strong project management skills are becoming more important to all businesses" (2003, p. 256). It is obvious from the literature review and this research project a difference of opinion exists as to which project management competencies are needed.

Project management is a complex process often targeting multiple outcomes and involving numerous stakeholders. Project management competency is just as complex which may require the acquisition of a variety of knowledge and skill sets involving numerous areas of expertise (Brill, et al, 2006, p. 117). Success of any project depends on the competence of the project manager and project team (AACE, 2003). “Recent management literature suggests that knowledge and human capital are increasingly important determinants of an organization's competitive advantage” (Gorman, Nelson, & Glassman, 2004, p. 255). Project Manager competence is essential to the future success of project-oriented workplace environments.

Ven and Chuang consider competencies as synonymous with abilities and “. . . the state or quality of being able to perform tasks” (2005, p. 136) while Waller’s belief of, “Competencies are defined as knowledge, skills, and abilities required to perform a job effectively” (1999, p. 61) is a bit more complex. Vatter believes, “Professional competence comes from the possession of knowledge (ability to apply the experience and judgment of others) about the professional field” (1965, p. 61). Van Loo and Toolsema address overall, or more generic, key skills in writing, “Despite a large body of literature, a generally accepted theory on key skills has not yet been established. Instead, key skills play an eminent role in the current debates on the importance of skills and lifelong learning” (2005, p. 219). Taking a more simplistic view is Rob Verkerk, Auckland University lecturer, when he states, “Project management is now just a core competency

for any manager – or a mechanism for getting stuff done” (LePla, 2006, p. 61). Verkerk bases his statement on his years of teaching project management in New Zealand institutions of higher education.

Whether considered simplistic or more complex, the basic fact is skills and competencies, in particular project management ones, are a much discussed business topic and sought after area of expertise needed to stem the tide of dismal project failures. “Boards of directors and senior business managers globally are looking for ways to compete more effectively in this highly volatile environment” (Fraser, n. d.). Understanding competencies needed by project managers is a primary goal today. “Competencies can be viewed at a personal level or an organization level” (Stedham, 2006, p. 26). This research effort was based on the personal viewpoint vs. the organizational use of specific issues.

Results

“Quantitative research is . . . hypothesis-testing research” (Newman & Benz, 1998, p. 18). Five hypotheses involved in this research project were linked to three primary research project questions. The null (H_0) and alternative (H_A) hypotheses were:

H_0 - There is no perceived difference concerning various competencies needed by project managers when management is developing a project manager job description

- H1_A - There is a perceived difference concerning various competencies needed by project managers when management is developing a project manager job description
- H2_O - There is no perceived difference concerning the various competencies a project manager needs when management is selecting and hiring an individual as a project manager
- H2_A - There is a perceived difference concerning the various competencies a project manager needs when management is selecting and hiring an individual as a project manager
- H3_O - There is no perceived difference concerning the various competencies a project manager needs when management is selecting and promoting an internal candidate to project manager
- H3_A - There is a perceived difference concerning the various competencies a project manager needs when management is selecting and promoting an internal candidate to project manager
- H4_O - There is no perceived difference between the various competencies a project manager needs to be successful in different industries
- H4_A - There is a perceived difference between the various competencies a project manager needs to be successful in different industries
- H5_O - There is no perceived difference concerning the importance between the Hard/Technical (Engineering/ Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills

H5_A - There is a perceived difference concerning the importance between the Hard/Technical (Engineering/ Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills

Limitations

For ease of reading, the study limitations identified in Chapter Three are reprinted here:

Pre-Survey Limitations

1. To gather as much data as possible this research project was completely unrestricted as to its survey population. It was not limited to any specific country, industry, or operating environment.
2. There will be survey respondents from different cultures and societies involved. There were no limitations placed on the potential survey respondent population in hopes of gathering as much meaningful and valid data as possible.
3. The survey questions are primarily closed-ended questions. As such, a respondent may be unsure of the best answer and may select one of the fixed responses randomly rather than in a thoughtful manner (Rea & Parker, 1997, p. 34). During the data analysis attention will be paid to those responses which may fail to meet the norm or appear to have been randomly selected.
4. Some survey respondents may have difficulty in understanding the actual meaning of a particular survey question. Every effort has been made to simplify the survey questions with explanations.

5. Since the survey instrument will only be available for a specific period of time, not all project managers or project sponsors will be able to respond.
6. Since the survey instrument is a one-time measurement the survey respondents may be responding on a limited knowledge and experience basis.
7. This research project cannot account for all of the complexities of project management processes and requirements existing within different organizations.

Post-Survey Limitation Remarks

In reviewing the original limitations from Chapter Three, the following three limitations were considered to be the only ones which impacted this research effort.

1. Since the survey instrument will only be available for a specific period of time, not all project managers or project sponsors will be able to respond.

Remarks: This was a very important consideration in the initial posting of the survey and the amount of time the survey would be made available. Members of the Center for Business Practices (CBP) Survey Research Network were invited to participate in this research project, as they had so many times before in similar research projects. The CBP Survey Research Network is a volunteer benchmarking group with thorough knowledge of their organizations' project management practices and business results (CBP, 2004, p. 5). This population normally responds to CBP surveys in order to further the project management discipline. The belief was that as a volunteer benchmarking group with thorough knowledge of their organizations' project

management practices and business results they would be able to provide valuable responses to this specific survey project.

The survey availability was originally planned for three full weeks to best accommodate project management staff on vacation or extremely busy. The survey was developed and posted to www.surveymonkey.com on Monday, 1 October 2007 with a broadcast, blind-copy e-mail sent out to the aforementioned potential survey pool. There were a total of 91 bad e-mail addresses identified which resulted in only 1,244 good e-mail transmissions. Of this amount only 215 individuals opened the actual, original e-mail with 41 individuals going directly to the survey instrument from the Web link provided. However, in reviewing the Web site survey final report the number of actual responses was 56 respondents. It appears the additional 15 individuals from this group may have entered the actual Web link at another time and without using the hyperlink from the original e-mail. Since this low response rate of 53 respondents was only 4.26% of the 1,244 good e-mail addresses it failed to meet the anticipated 95% Confidence Level, $\pm 5\%$ Confidence Interval. And even though Rea and Parker believe a 50 to 60 % return rate can be expected (1997, p. 69) the low response rate for this group failed to meet initial expectations. Baker writes, “The best response rate is the largest one you can produce given your time, finances, and persistence” (1999, p. 216). Two reminder e-mails were sent out to the original respondent pool to afford them the opportunity to participate.

While “survey research is the process of collecting representative sample data from a larger population and using the sample to infer attributes of the population”

(Nesbary, 2000, p. 10), the anticipated confidence level and confidence interval had to be expanded to satisfactorily accept the use of the limited number of responses. The 53 responses did meet a 90% Confidence Level, $\pm 11.1\%$ Confidence Interval which is considered acceptable. Nesbary writes, “The confidence level outlines the probability (likelihood) that the population parameter falls within the confidence interval. The confidence interval is the range of values within which the actual value falls” (2000, p. 17). As the survey was offered to all members of the volunteer, bench-marking group, each individual had an equal chance of being selected (Evans & Olson, 2000; Nesbary, 2000; Patten, 2002). And as a result, sample accuracy was maintained by each member having an equal probability of being included in the sample (Evans & Olson, 2000; Nesbary, 2000).

As aforementioned, due to an initial low response rate during the first week, an additional broadcast, blind-copy e-mail was sent out at the beginning of week two. Again, due to a low response rate, a third and final reminder e-mail was sent out. In discussions with Jim Pennypacker, CBP Director, the return rate was significantly lower than normal. It is believed the stress of many projects, long work hours, and critical timelines were the cause of the low response rate. Further, the approaching winter holiday season may have impacted the time people believed they had available for answering a non-compensated effort and one outside their billable work related requirements.

Dr R. Gibb, Market Research Statistician with Proctor & Gamble Corporation and University of Phoenix Mathematics/Statistics Part-Time Faculty, (personal communication, December 1, 2007), explained, “Sometimes a statistic is just what it is”.

Huff wrote, “Many a statistic is false on its face. It gets by only because the magic of numbers brings about a suspension of common sense” (1982, p. 138). Follow-on reminders may have generated a few more responses, however, there needed to be a time to end the survey and analyze the results.

2. Since the survey instrument is a one-time measurement the survey respondents may be responding on a limited knowledge and experience basis.

Remarks: As the survey did involve respondents answering questions about their organization’s actual use of specific competencies some respondents may have felt uncomfortable in responding believing they lacked sufficient knowledge of the issue. However, it was deemed acceptable for individuals to not respond to all of the questions as it is common for employees to lack a complete understanding of their organization’s actual policies and practices.

3. This research project cannot account for all of the complexities of project management processes and requirements existing within different organizations.

Remarks: Due to the low response rate for Hypothesis 4, involving the perceived difference between the various competencies a project manager needs to be successful in different industries, it was considered inconclusive for making a valid claim of either the null or the alternative. As such, the initial recognition of this limitation was good. Further, the findings of this research effort are limited as a result of so few industries being identified by the survey respondents.

Conclusions

Gilliard and Price believe, “Effective project managers demonstrate a results-oriented attitude. . . . Specific attitudes, behaviors, and competencies are characteristic of results-oriented, effective project managers” (2005, p. 48). When discussing the value of project management in their 2005 Annual Report, PMI stated, “. . . 34 percent believe it is a strategic imperative” while “73 percent agree it will become a strategic imperative over the next few years” (2005, p. 30). In a survey involving the value of project management PMI found 93% of their membership strongly agrees it is a valuable asset while 90% agree it is an effective way to ensure success (2005, p. 30). The five hypotheses which formed the basis of this research effort are reflected in the following table with the status column indicating which hypothesis (null vs. alternative) was accepted or rejected. Due to a lack of response one hypothesis set was labeled ‘Insufficient Data’. The following status table is based on the findings and results from the analysis of the data obtained during this study.

Table 43. Hypotheses Results

Hypotheses	Status
H1 _O - There is no perceived difference concerning various competencies needed by project managers when management is developing a project manager job description	Reject
H1 _A - There is a perceived difference concerning various competencies needed by project managers when management is developing a project manager job description	ACCEPT
H2 _O - There is no perceived difference concerning the various competencies a project manager needs when management is selecting and hiring an individual as a project manager	Reject
H2 _A - There is a perceived difference concerning the various competencies a project manager needs when management is selecting and hiring an individual as a project manager	ACCEPT
H3 _O - There is no perceived difference concerning the various competencies a project manager needs when management is selecting and promoting an internal candidate to project manager	Reject
H3 _A - There is a perceived difference concerning the various competencies a project manager needs when management is selecting and promoting an internal candidate to project manager	ACCEPT
H4 _O - There is no perceived difference between the various competencies a project manager needs to be successful in different industries	Insufficient Data
H4 _A - There is a perceived difference between the various competencies a project manager needs to be successful in different industries	
H5 _O - There is no perceived difference between the Hard/Technical (Engineering/Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills	Reject
H5 _A - There is a perceived difference between the Hard/Technical (Engineering/Scientific) Skills versus Soft/Non-Technical (Interpersonal/People Management) Skills	ACCEPT

The first three hypotheses involving survey questions about which competencies should be used for developing position descriptions, initially hiring new hires, and promoting staff from within the organization all reflect acceptance for the Alternative Hypothesis of ‘There is a perceived difference’ between the ‘Personal Viewpoint’ and the ‘Organizational Use’ of the issue. Hypothesis 4, involving project manager skills in specific businesses or industries, was labeled as ‘Insufficient Data’ due to a lack of sufficient responses. Hypothesis 5 was easily determined to support the alternative

hypothesis ‘There is a perceived difference’ between Hard/Technical Skills and Soft/Non-Technical Skills for being the most important.

Discussion

Worker competence is not a new topic. Ey writes, “One of the first people to address this issue of competence at work was engineer Fredrick Taylor (1911) when he noticed a discrepancy between the ways that least and most competent workers accomplished their work” (2006, p. 3). In using a rational, scientific approach Taylor conducted time and motion studies to identify needed training and development activities for improving worker competence which resulted in greater organizational effectiveness (Ey, 2006, p. 3). Taylor’s scientific approach to worker productivity later resulted in his becoming known as the ‘Father of Scientific Management’ and the impetus of further studies in the early 20th century by the Gilbreth’s and other notables such as Barth, Gantt, and Emerson. Studies involving basic skills and competencies continue today, as noted by Dillon,

For the past year, officials from the Society for Human Resource Management have traveled the country, talking to focus groups of personnel directors to gather their biggest gripes about new employees. Overwhelmingly, HR professionals say they’re frustrated and flummoxed by the graduates’ absence of basic skills. . . .

These findings are sobering but not surprising. . . . Unless those shortcomings are rectified, the situation looks even more acute in the 21st century. (2006, p. 22)

Turner and Muller found, “Many firms said competence and leadership style is important for project managers . . .” (2006, p. 43). Ware and Grantham believe,

The world of work is experiencing an upheaval and a transformation as profound as the one that grew out of the invention of the printing press in the late fifteenth century. The ways people work, where and when they work, and what they produce have changed dramatically in just the past few years. Knowledge work is now the predominant form of labor in the economy. (Ware & Grantham, 2005, p. 15).

“Key skills are often regarded as skills that can be used productively in various work-related contexts, independent of specific tasks performed” (Van Loo & Toolsema, 2005, p. 207). “The skills needed in the knowledge economy workplace differ from those of the mass production economy” (Seifert, 2006, p. 1). “Jobs of the future workplace will require workers to be able to support a variety of skills” (Clairborne, 1992, p. 6).

“Technological changes, organizational developments, competition and an increased attention for quality broaden the need for skills in the workplace and require employee development” (Van Loo & Toolsema, 2005, p. 208). Knowledge work is the new competitive advantage (Clairborne, 1992; Ware & Grantham, 2005; Seifert, 2006).

Employee competencies and skills are a much needed factor for organizations to be competitive, perhaps more so today than ever before. Today, global interconnectivity significantly increases competition in comparison to just a mere five decades ago. The development of the internet and search engines has made market research and product sourcing a competitive advantage for those organizations mastering it.

Handel wrote, “Employers do complain about the difficulty of meeting their labor needs with the workforce available to them. . .” (2003, p. 159). Hayward and Fernandez identify a major issue with,

Even if employers and employees acknowledge the need for skills acquisition, forces may be at work that prevent this investment from taking place. One of the most important forces at work when it comes to deciding whether or not this investment is carried out is who pays for the cost of accumulating skills. Since there are individual and social benefits to education and training, those who are going to obtain a return from the use of skills are the obvious candidates to be liable for this cost. However, the potential beneficiaries of the process of skill accumulation are not always or even often easy to identify, and, in the absence of such an identification, it remains uncertain who should pay for the cost of skills accumulation and how much. (2004, p. 130)

This is an important issue for consideration in light of the temporary employment nature of the profession with project managers moving from organization-to-organization to manage another project upon completion of the last one. Investment in the education and training of staff is normally based upon the individual’s current competencies and future opportunities within the organization rather than expending valuable dollars for an individual who may be leaving the organization at the conclusion of a project.

Due to the fact projects are ‘temporary’ in nature, “In the absence of career ladders to sequence jobs, individuals must develop strategies to craft their own careers” (O’Mahoney & Bechky, 2006, p. 919). Project managers must learn to develop and

manage their own careers and recognize, “. . . career progression in external labor markets may be less predictable” (O’Mahoney & Bechky, 2006, p. 919). However, good project managers agree, “Certification is used to identify qualified practitioners, recognize their expertise in a particular field and assist in the self development and improvement of individuals by identifying a body of knowledge and establishing professional standards” (Gilley, 1985, p. 13). The Project Management Institute (PMI) certification program for various levels of project management is the means by which a project manager can identify themselves to prospective employers.

In the early 1990s, the Academy for Educational Development found supervisors can assess their new employees' competencies, identify their specific needs, and then create a targeted individual development plan to include specialized work experiences, coursework, training, mentoring, and coaching opportunities to increase the new employee's level of competence (Astroth, Garza, & Taylor, 2004, p. 33). Hartman, Bentley, Richards, and Krebs wrote,

Research before 2000 focused on the entry-level work skills that employers wanted. Since then, two very important factors have changed the profile of the new entry-level worker: the rapidly changing technology and a major shift in the economy after September 11, 2001. These factors justify the need for more studies on what skills and tasks employees actually perform” (2005, p. 346).

“Further investigation also suggests that those who are more technologically literate will enjoy greater job security” (Kalfsbeek, 2006, p. 111). However, Scanlan identifies,

A project is not a place for learners unless learning is included in the project scope. By its nature, project management is a ‘do’ versus a ‘learn on the job’ activity. . . . but project management per se is really not a place for learners (2006, p. 35).

Project management staff, especially the project manager, must possess specific skills. Unfortunately the project management discipline is often called the “accidental profession” (Crawford, 2002; Heerkens, 2002; Young, 2000). Topchik writes about individuals being promoted into management who are not ready to be or even wanting to be promoted to a managerial position. He supports Crawford, Heerkens, and Young by calling these promotees an ‘accidental manager’ (2004). Heerkens defines an accidental project manager as, “A person who is placed into the role of project manager by organizational necessity and chance, rather than by design or through choice of career path” (2002, p. 2). Project management staff must be the ‘Subject Matter Experts’ on the actual nine knowledge areas and five processes for effective project management implementation. As the project management ‘experts’ they should be guiding the actual organizational staff in the performance of their duties. Like a human resource department, where a human resource professional would advise the organization’s functional manager on a specific personnel transaction, i.e. development of a position description or the appropriate questions for the interview of applicants, the project management staff acts as the specialist for project management issues.

The ‘Personal Viewpoint’ of the project management staff, in regards to the Soft/Non-Technical (Interpersonal/People Management) Skills, differed from the

‘Organizational Use’ of the identified skills for inclusion when writing position descriptions, initially hiring new project management staff, and promoting current employees from within the organization. The reason for these differences needs to be further researched and analyzed. Along with this research there is a need to identify what can be done to lessen the difference between the ‘Personal Viewpoint’ and the ‘Organizational Use’.

Recommendations

Based on the findings of this research study, the following recommendations are made for future research efforts:

1. This study examined a relatively small population of a specific, but diversified project management community comprised of a volunteer benchmarking group serving as the CBP Survey Research Network. They possess a thorough knowledge of their organizations’ project management practices and business results (CBP, 2004, p. 5). Future research efforts could be easily replicated by using a larger population, perhaps coordinating with a PMI Chapter interested in better understanding their membership.
2. Future research efforts should include more and closer prior coordination with a PMI Chapter Board of Directors and the Chapter President to be able to gain their support in trying to obtain chapter membership participation.
3. This study found 36% of the participants were born outside of North America with 24% currently residing and working outside of North America. Future research efforts could be replicated by using a larger population, perhaps

coordinating with a PMI Chapter located outside of North America and interested in better understanding their membership.

4. This study survey could be easily modified to address and collect data on the Hard/Technical (Engineering/Scientific) Skills needed by project managers in the same 'Personal Viewpoint' versus 'Organizational Use' format.
5. This study could easily be modified to address and collect data in other professions.

Concluding Remarks

This research effort brings more findings to the academic literature concerning the importance of which Soft/Non-Technical (Interpersonal/People Management) Skills are most important for organizations to consider when writing project management position descriptions, initially hiring new individuals, and promoting staff from within the organization. This study provides project managers with the information involving the 'Personal Viewpoint' of their peers' versus the 'Organizational Use' of specific Soft/Non-Technical Skills. Understanding this information will help the project manager in dealing with the 'Executive Level Responsible for Project Management' and the 'Project Management Champion or Sponsor'.

In 2006, Bergman wrote,

Advanced skill development refers to a variety of miscellaneous skills developed during doctoral education and includes improved research and writing skills, oral communication, teamwork, and prioritizing and time management skills, to name just a few. And professional competencies refer to the skills and knowledge bases

developed during doctoral education that are unique to a particular profession, as well as the professional identity transformation that takes place during doctoral education (p. 140).

This statement supports the philosophy and goals of most educational institutions of higher learning and their specific programs of study from the bachelor's level through to a doctoral level.

An interesting point about the current emphasis on competencies and skills is the potential for it to be another 'Management by Best Seller' observed in other areas of business through theories, such as 'Zero Defects', 'Quality Circles', 'Search for Excellence', 'Reengineering', 'Emotional Intelligence', and 'Organizational Metrics', which have been business theories of past years. While competencies and skills are critical issues, the question of their survival as such is something which may sadly result in them also being a short-lived theory. Competencies and skills are not unique to any one particular profession. Almost all professions have some type of defined competencies expected of their members. A comparison of various professions could show the commonality of competencies across the board.

More importantly, clearly identified expectations in a position description are important for qualifying potential applicants. The American Compensation Association, Scottsdale, AZ, sponsored research conducted by the Hay Group, Hewitt Associates, Towers Perrin and William M. Mercer Inc where they reviewed organizational practices at 217 companies and found competencies are being used for staffing, training and development, performance management, and compensation management (Anonymous,

1996, p. 15). Allan Hauptfeld, principal of California-based Vantage Research & Consulting, conducted research of 250 executives participating in a Management Actions Program and found more than 20% were concerned about hiring talented employees as their biggest-development roadblock and considered the process like “. . . finding a needle in a haystack” (Executive Update, 2007, p. 23). This is supported by the November 2007 HRfocus [sic] magazine article’s view of managing an organization’s talent by attracting, retaining, and developing the best talent is every HR professional’s goal (Anonymous, 2007). An earlier HRfocus magazine article of August 1996 states, “In performance management, 90 percent use competency-based appraisal data for employee development purposes. In staffing, 88 percent use competency-based interviews to make hiring decisions. In training and development, 62 percent have implemented programs specifically geared around competencies” (Anonymous, p. 15). The use of competency as a basis for initial selection and promotion is evident throughout the world of work. However, an important point is raised by Buhler,

As technically competent staff members are moved into management positions, they become responsible for a critical organizational function — the selection of new employees. Too often in today's work environment, these new managers are not properly trained in the selection process, and most specifically, in the interview. (2007, p. 20)

This is neither surprising nor restricted to just project managers. It is a common practice for individuals to be promoted from within the ranks of an organization and then expected to succeed with little or no supervisory or management training. As is often

mentioned about project management, the discipline is often called the ‘accidental profession’ (Crawford, 2002; Heerkens, 2002; Young, 2000). Individuals are promoted into project management positions with little or no training.

When dealing with organizational internal promotions to project manager levels, Turner and Muller believe, “It is critical for organizations to measure their project managers’ leadership competencies as part of the annual appraisal process and help project managers develop an appropriate profile for the projects they will manage in the future” (2006, p.93). Development of promoted individuals is a much needed step to organizational success. Identifying potential and promoting it is important, but then identifying the current knowledge, skills, and abilities of an individual is also critical for the continued development, success and promotion of a newly promoted individual.

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APPENDIX A. PROJECT MANAGEMENT ASSOCIATIONS

Following list of Project Management Associations constitutes the major global associations.

Project Management Institute (PMI)

PMI has established the standard for project management techniques and tools worldwide (Heldman, 2003). PMI focuses on the needs of project management professionals worldwide. Acknowledged as the leader in the field of project management with membership representing a truly global community of more than 200,000 professionals in 125 countries, PMI members come from every major industry to include aerospace, automotive, business management, construction, engineering, financial services, healthcare, information technology, pharmaceuticals, and telecommunications. PMI consistently enhances the project management profession by developing and promoting global standards of excellence (Project Management Institute (PMI), 2006).

The PMI 2005 Annual Report indicates their worldwide membership is 208,660 which include 184,461 PMPs (Project Management Institute, 2005, p. 32). The PMI January 2007 Fact Sheet indicates their worldwide membership is now 230,825 members with 212,622 certified PMPs (Project Management Institute, 2007, p. 1). This represents an approximate growth of 22,200 members with 28,200 members becoming certified PMPs in a two year period.

Australian Institute of Project Management (AIPM)

AIPM is the national organization for Project Management in Australia with over 6,600 members.

Our Mission is to promote and progress the profession of project management in Australia. Our Vision is for project management to be recognised [*sic*] as the preferred process for achieving objectives at all levels across industry, government and the community. AIPM's role is to improve the knowledge, skills and competence of project team members, project managers and project directors, all of whom play a key role in the achievement of business objectives, not just project objectives. AIPM also aims to ensure that those involved at other levels in an organisation [*sic*] and the community understand the key role of project management in today's society. Contact information is: Level 9, 139 Macquarie St, Sydney NSW 2000, Australia, Ph: 02 8288 8700 Fax: 02 8288 8711 or Email: info@aipm.com.au ABN: 49 001 443 303. (Australian Institute for Project Management, 2006)

International Project Management Association (IPMA)

The IPMA is a non-profit organisation [*sic*] whose membership is comprised primarily of national project management associations throughout the world. Their international presence, from North and South America to Asia to Europe, the Middle East and Africa, allows them to embrace different cultures while spreading the word to organizations and project managers in every corner of the world about the benefits of the project management profession.

At IPMA, we are endeavouring [*sic*] to configure the future. We want to be:

1. Successful at establishing individual and organizational appreciation of the value of project management.
2. The leader in defining the project management career path by setting the bar for excellence in certification.
3. The organization where the “great minds” in project management share their ideas.
4. The provider of forums to explore the potential growth and maturation of the profession.
5. The leader in the evolution of the profession and the maturity of its practice.
6. The primary source for gathering and disseminating project management knowledge and information. (International Project Management Association (IPMA), 2006).

International Association of Project and Program Management (IAPPM)

The IAPPM Vision Statement is, “To enhance and add value to our global members and the project community at large allowing them to manage projects and programs successfully using the right tools, skillsets and methods.” (International Association of Project and Program Management [IAPPM], n.d.). Their Mission Statement is, “As a worldwide global project organization IAPPM will create value together with our members, project communities, business partners, and corporations by leveraging our content, collaboration and business management insight” (International

Association of Project and Program Management [IAPPM], n.d.). The Web site is www.iappm.org for contact information.

Contact information is www.iappm.org or telephone (732) 421-2306 with a mailing address of:

International Association for Project and Program Management (IAPPM)

Renaissance Square

426 Main Street – Suite 360

Spotswood, NJ 08884

APPENDIX B. PROJECT MANAGEMENT BODY OF KNOWLEDGE (PMBOK)

Nine Knowledge Areas

“The nine knowledge areas are:

1. Integration
2. Scope
3. Time
4. Cost
5. Quality
6. Human Resources
7. Communications
8. Risk
9. Procurement” (PMI, 2004, p. 7).

The nine knowledge areas are predominantly independent, stand-alone issues but are constantly overlapping as events occur throughout a project. Proper implementation of a knowledge area helps insure the success of a project. Within each knowledge area there are inputs, tools and techniques, and outputs. In some instances an output from one knowledge area becomes an input to another knowledge area where the tools and techniques are applied which transform the input into a different output. The first project management knowledge area is integration which is applicable throughout a projects lifecycle and works together with the other eight knowledge areas. Each of the other knowledge areas are more specific and sometimes worked individually by a specific

member of the project team. There are instances when a knowledge area may feed more than just one other knowledge area.

Five Processes

“The five processes are:

1. Initiation
2. Planning
3. Executing
4. Controlling
5. Closing” (PMI, 2004, p. 28).

Project management is a formal integrative endeavor where an action, or failure to take action in one area, will usually impact other project processes. Like the nine knowledge areas, the five process groups’ are linked together to create a result where the output of one process may become the input to another process. Further, these groups are not stand-alone, one-time occurrences; rather, they are overlapping events which occur throughout a project (PMI, 2004).

In the five processes a constant back and forth relationship, especially in the execution and controlling phases, exists to monitor a project. The controlling phase is the feedback loop. Management must develop a number of feedback mechanisms so they are kept abreast of current and critical events (Smith, 2002). These overlapping processes are important to the successful accomplishment of a project to insure stakeholder satisfaction and especially client approval of the final product. Not all of the processes overlap each other. Each of the five processes is critical to a project’s successful accomplishment.

The project management process relationship is similar to a normal life cycle of a product where there is an initial discovery, product development, product sales, and eventual decline in product demand.

APPENDIX C. PM COMPETENCIES DEVELOPED FROM LITERATURE REVIEW

Table C1. Literature Review – Competencies

	Orgns		PM Authors							Dissertations				Amt	
	Note	1	2	3	4	5	6	7	8	9	10	11	12		13
Initiative								•		•					2
Get job done		•						•					•		3
Self-Confidence						•		•		•					3
Creditable								•		•					2
Ethical/Integrity						•		•				•	•	•	5
Flexible/Adaptable				•		•		•		•		•		•	6
Influencer		•				•		•		•			•		5
HR Competency			•												1
Technical Competency			•			•	•				•				4
Leadership		•	•					•		•		•	•	•	7
Conceptual Thinker				•				•		•					3
Visionary				•				•							2
Entrepreneurship							•								1
Strategist				•		•		•		•				•	5
Management Skills											•				1
Mgmt Support Building		•		•			•	•		•					5
Interpersonal Skills				•		•		•	•	•			•		6
Administration							•			•		•			3
Analytical Skills				•				•	•	•			•		5
Delegation				•				•		•					3
Planning						•	•	•		•		•	•		6
Organization							•	•		•		•			4
Resource Allocation							•	•							2
Change Mgmt			•												1
Controlling/Monitoring						•		•						•	3
Communication		•	•	•		•		•	•		•	•	•	•	10
Negotiator		•	•	•					•		•	•	•		7
Motivator						•		•		•	•				4
Team-Building			•	•		•	•	•		•		•	•	•	9
Decision-Maker		•	•	•		•			•			•	•		7
Problem-Solver		•	•	•				•			•	•	•		7
Conflict Resolution							•		•			•	•		4
Stress Mgmt								•							1
IT Mgmt			•					•							2
Project Management															
Integration Mgmt		•	•					•				•			4
Scope Mgmt		•	•		•			•				•	•		6
Time Mgmt		•	•		•							•	•		5
Cost Mgmt		•	•	•	•							•	•		6
Quality Mgmt		•	•		•	•		•		•		•			7
HR Mgmt		•	•		•										3
Communication Mgmt		•		•	•	•						•	•		6
Risk Mgmt		•	•		•			•							4
Procurement Mgmt		•	•		•										3

1. PMI Project Management Institute (PMI) (2000, p. 24)
2. GAO (General Accounting Office, 2001, p. 4)
3. Cleland (Cleland, 1994, p. 351)
4. Frame (Frame, 1995, p. 237)
5. Heerkens (Heerkens, 2002, p. 41)
6. Kerzner (Kerzner, 2003, p. 145)
7. Lewis (Lewis, 2000, p. 351)
8. Shtub (Shtub, Bard, & Globerson, 1994, p. 224)
9. Wysocki (Wysocki, Beck Jr, & Crane, 2000, p. 39)
10. Bauer (Bauer, 2005, p. 233)
11. Golob (Golob, 2002, p. 106)
12. Krahn (Krahn, 2005, p. 125)
13. Rodriquez (Rodriquez, 2005, p. 125)

APPENDIX D. SUBJECT MATTER EXPERT BIOS

David Ross and David Yosua, both PMI certified PMPs, participated in this research project as subject matter experts. James Pennypacker is the Director of the Center for Business Practices, the research arm of PM Solutions. He participated by working with his pool of resources. The following pages reflect their biographies.

David W. Ross

David W. Ross, PMP, has over 30 years of experience in executive and project management, information systems, communications, and systems test and evaluation for government organizations and commercial companies worldwide. He has led the successful start-up of three service and technology businesses, providing overall management and strategic direction for these companies, supervising the development of business opportunities and strategic alliances with other companies and international organizations.

Mr. Ross received his Bachelor of Science degree in electrical engineering from New Jersey Institute of Technology, and a Master of Science degree in Engineering Management from Northeastern University. An active Project Management Institute (PMI) member since 1993, he earned his Project Management Professional (PMP) certification in 1994. He was the program manager for PMI's Program and Portfolio Management Standard program, which resulted in the publication of two new PMI Standards in May 2006, and currently serves as a member of PMI's Standards Member Advisory Group (MAG).

Mr. Ross is currently Business Area Manager for Northrop Grumman Mission Systems/XonTech Systems in Dayton, OH and an adjunct instructor at the McGregor School at Antioch University where he teaches project management at the undergraduate level.

David Yosua

Dave Yosua, PMP, is a project management professional with over twenty-five years experience in all aspects of project management. Dave's experience includes leading large project teams, assessing organizational effectiveness, providing consulting expertise to a variety of clients and industries and teaching project management to the public and private sector. As a Microsoft Certified Professional, Dave has been instrumental in directing PM Solutions' Product Development team and in establishing a strong company capability for providing remote project management/project control support to clients.

Prior to joining PM Solutions Dave was a Director of a Project Support Center, where he provided technical leadership and hands-on assistance in the management and support of 30-50 concurrent IT projects and their associated staff, while promoting corporate wide use of project management concepts. He provided mentoring and training within the broader field community and assisted in the development and implementation of standards for project management across the company. He also served as focal point for project performance escalations and troubleshooting for both internal and external projects.

Dave has had extensive experience in the management of large government projects through his work at TASC and EG&G where he was the Project Controls team leader for the Environmental Restoration program at Mound Applied Technologies. At EG&G, he was responsible for the overall performance of the project management (Primavera P3) systems that supported the cost/schedule management of all technical

activities undertaken by the project team at the plant site. His responsibilities included auditing the performance of projects and assisting in their remediation as needed. While at TASC, he supported numerous DOD clients, NASA, and the FAA in project management studies, support and training. Dave was the project manager and lead author of “Risk Management, Concepts and Guidance” published by DSMC.

Mr. Yosua, who holds an MBA and a BS in Industrial Management, is a known industry expert who has published numerous papers on the topics of project management and risk management. He has been a guest lecturer at the Air Force Institute of Technology, Wright State University, and local professional association meetings (PMI and AACE).

James S. Pennypacker

James S. Pennypacker is the Director of the Center for Business Practices, the research arm of PM Solutions. He has directed numerous research projects on a variety of management issues, including performance measurement, portfolio management, and process maturity. He is an editor of several books, including Project Portfolio Management, Project Portfolio Management Maturity Model, Managing Multiple Projects, What Makes a Good Project Manager, and Justifying the Value of Project Management. His articles on management appear in numerous professional journals, including PM Network, Project Management Journal, IEEE Transactions on Engineering Management, Optimize, and Portfolio Knowledge.

Jim is the host of the CBP Summit and the CBP Benchmarking Forums and regularly presents papers at professional conferences, including the PMO Summit, ProjectWorld, Project Leadership Conference, and Project Management Institute Global Congress. He formerly served the project management profession as the Project Management Institute's Publisher/Editor-in-Chief and Manager of the James R. Snyder Center for Project Management Knowledge and Wisdom.

Jim holds a B.A. in philosophy from Temple University and an M.B.A from West Chester University. He has completed advanced graduate work in management, publishing, and philosophy of technology at Temple University, Arizona State University, University of Phoenix, and Capella University.

Jim has several publications to his credit:

1. Author, The State of Project Management, CBP Research Report, 2006

2. Author, Troubled Projects: Project Failure or Project Recovery, CBP Research Report, 2006
3. Author, Project Management Maturity Benchmark, CBP Research Report, 2006
4. Author, High-Performance Project Teams, CBP Research Report, 2006
5. Author, Strategy & Projects, CBP Research Report, 2006
6. Editor, Project Portfolio Management Maturity Model, CBP, 2005
7. Author, Project Portfolio Management Maturity Benchmark, CBP Research Report, 2005
8. Co-author, "Project Management Maturity," IEEE Transactions on Engineering Management, February 2006.
9. Author, Implementing Enterprise Project Management Systems, CBP Research Report, 2004
10. Author, Project Control Functions, CBP Research Report, 2004
11. Author, The Value of Project Management Training, CBP Research Report, 2004.
12. Author, Project Portfolio Management, CBP Research Report, 2003.
13. Author, Project Management: The State of the Industry, CBP/Projects@Work Research Report, 2003.
14. Editor, What Makes a Good Project Manager, CBP, 2003
15. Co-editor, Managing Multiple Projects: Planning, Scheduling, and Allocating Resources for Competitive Advantage, Marcel Dekker, 2002.

16. Author, The Value of Project Management—Getting Executive Buy-In, CBP Research Report, 2002.
17. Editor, Justifying the Value of Project Management, CBP, 2002.
18. Author, Project Management Maturity Benchmark, CBP Research Report, 2001.
19. Author, The Value of Project Management in IT Organizations, CBP Research Report, 2001.
20. Author, The Value of Project Management, CBP Research Report, 2000.
21. Co-editor, Project Portfolio Management: Selecting and Prioritizing Projects for Competitive Advantage, CBP, 1999.
22. Editor, Project Management Forms, Project Management Institute, 1997.
23. Authored more than 70 articles on project management, knowledge management, and the future of technology in society, published in magazines and books such as PM Network, Optimize, Project Management Journal, Projects@Work, Portfolio Knowledge, AMA Handbook of Project Management, MacUser, Desktop Publisher, Philadelphia Medicine, Faulkner Technical Reports, Seven Scenarios for Philadelphia's Next 25 Years.

APPENDIX E. SURVEY INSTRUMENT

The following survey was composed in the www.surveymonkey.com survey template and downloaded as an Adobe.pdf file. The file was copied and pasted here. The actual screen view a survey respondent was similar to the sample question. They saw the question(s), a completion bar to indicate the amount of the survey completed, and a set of PREVIOUS and NEXT buttons to return to the previous question or move onto the next page and question(s).

Thank you for taking time to complete the following survey. Purpose of this research project survey instrument is to determine important competencies and skills to be considered when a) designing job descriptions for project managers, b) interviewing and hiring project managers, and c) promoting project managers. Skills identified in this survey were selected based on those most frequently mentioned in a literature review of eight project management authors, four doctoral learners' dissertations, the Project Management Body of Knowledge (PMBOK), and a United States General Accounting Office (GAO) report.

Once the surveys are completed, the results can be used to develop job descriptions for project managers, interviewing questionnaires, promotion guidelines, and training assessments. This survey questionnaire is comprised of multiple sections. Combination of the various parts and their questions will enable managers across the globe and in diverse industries to more properly align their project manager career development efforts.

Your responses to this survey questionnaire are strictly confidential. The primary intent of the researcher of this work is academic in nature in that the researcher is a Doctoral candidate and collecting information for a final academic dissertation. Data collected will be used in statistical analysis and the final dissertation. No individual or organization will be identified in any analysis or the dissertation as a result of the survey data.

PUBLIC LAW 93-759 (Privacy Act of 1974) requires all survey respondents be informed of the purposes and uses of the solicited information. Therefore, the following is provided:

Purpose: This research project survey instrument examines the importance of identifying project management competencies to be used for the development of project manager job descriptions, appropriate interview questions in the hiring process, and proper performance reviews to be used for potential promotions.

Uses: This survey instrument will be used to develop statistical data for academic research purposes. Individual survey respondents input will be confidential. Participation in this research project survey instrument is entirely voluntary.

By completing this research project survey questionnaire, you are indicating your informed consent, which means your understanding of the information provided and agreement to participate is both voluntary and confidential.

The approximate time to take the survey is only about 20 minutes. Most of the sections are comprised of a personal viewpoint and an organizational use of a project management issue. For this reason the survey may appear long but is quick to actually complete.

Please accept my sincerest appreciation for your time and participation.

Robert L. McHenry

2. SAMPLE QUESTION

The format of the survey instrument is to ask your PERSONAL VIEWPOINT concerning a specific topic and then the ORGANIZATIONAL USE of the issue in the next question.

PERSONAL VIEWPOINT is your personal belief concerning the issue.

ORGANIZATIONAL USE is how your current employer actually applies the competency in the workplace in their development of job position descriptions, use in initial hiring of individuals, and use for internal promotions.

NOTE: This survey will take approximately 25 to 30 minutes for you to complete.

1. PERSONAL VIEWPOINT about Survey Taking Skills

Project Manager must possess effective Survey Taking skills for responding to survey instruments

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Initial Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. ORGANIZATIONAL USE involving Survey Taking Skills

Requires project management staff to have effective Survey Taking Skills for responding to survey instruments

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Age and Gender

	19 or Younger	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 or Older
Female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Male	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. What is the approximate number of years you have been working and involved with project management?

	Less than 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 or More
Years in the Workforce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Years Involving Project Management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. World regions involving personal information

Please Mark All Applicable Responses

	Location of Birthplace	Location of Grade School Education	Location of College Education	Location(s) of Past Employment	Location of Current Employment
North American (US - Canada - Bermuda)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asia Pacific	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Europe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Middle East	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Africa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Latin America - Caribbean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. What is your educational background?

Please Mark All Applicable Responses

- | | |
|--|---|
| <input type="checkbox"/> No High School Diploma | <input type="checkbox"/> Some Masters Level Work But No Degree |
| <input type="checkbox"/> High School Diploma | <input type="checkbox"/> Master of Arts (MA) |
| <input type="checkbox"/> Vocational School Diploma | <input type="checkbox"/> Master of Science (MS) |
| <input type="checkbox"/> Some College Work But No Degree | <input type="checkbox"/> Masters in Business Administration (MBA) |
| <input type="checkbox"/> Associates Degree | <input type="checkbox"/> Masters Degree |
| <input type="checkbox"/> Bachelor of Arts (BA) | <input type="checkbox"/> Some Doctoral Level Work But No Degree |
| <input type="checkbox"/> Bachelor of Science (BS) | <input type="checkbox"/> ABD - All But Dissertation |
| <input type="checkbox"/> Bachelors Degree | <input type="checkbox"/> Doctoral Degree |

7. What is your project management training experience(s)?

Please Mark All Applicable Responses

- | | |
|--|---|
| <input type="checkbox"/> No project management training at all | <input type="checkbox"/> College Project Management Certificate Program |
| <input type="checkbox"/> Personal self-development through reading materials | <input type="checkbox"/> Attendance at some PM Association training seminars |
| <input type="checkbox"/> Personal self-development through online courses | <input type="checkbox"/> Attendance at some PM Association events (luncheon/dinner) |
| <input type="checkbox"/> Attendance at commercial vendor training | <input type="checkbox"/> Attendance at some PM Association monthly meetings |
| <input type="checkbox"/> Attendance at Employer Organizational Training | <input type="checkbox"/> Attendance at some PM Association Annual Seminar |
| <input type="checkbox"/> College conducted Project Management Courses | <input type="checkbox"/> Other |

Other (please specify) _____

8. What title best describes your current position?

Please Mark All Applicable Responses

- | | |
|--|---|
| <input type="checkbox"/> Organizational Project Management Champion or Sponsor | <input type="checkbox"/> Program Manager over a major organizational Program |
| <input type="checkbox"/> Executive Level responsible for Project Management | <input type="checkbox"/> Project Manager |
| <input type="checkbox"/> Management Level responsible for Project Management | <input type="checkbox"/> Project Team Leader |
| <input type="checkbox"/> Client of Project Management Services | <input type="checkbox"/> Project Team Member |
| <input type="checkbox"/> Project Management Office (PMO) Leader | <input type="checkbox"/> Subject Matter Expert serving full-time on a Project Team |
| <input type="checkbox"/> Portfolio Manager over multiple Programs and Projects | <input type="checkbox"/> Subject Matter Expert assisting a Project Team when needed |
| <input type="checkbox"/> Program Manager over multiple Projects | |

Other (please specify) _____

9. What is your personal involvement in organizational projects?

Please Mark All Applicable Responses

	Yes	No
Perform full-time project work	<input type="radio"/>	<input type="radio"/>
Perform part-time project work in addition to other work	<input type="radio"/>	<input type="radio"/>
Perform Hard/Technical (Engineering/Scientific) Skills related projects	<input type="radio"/>	<input type="radio"/>
Perform Soft/Non-Technical (Interpersonal/People Management) Skills related work	<input type="radio"/>	<input type="radio"/>
Do you have the educational background for the type of projects?	<input type="radio"/>	<input type="radio"/>
Do you have the necessary project management training to meet project requirements?	<input type="radio"/>	<input type="radio"/>

10. What is the largest PM Team you have personally participated on as strictly a team member and as the designated Team Leader?

	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 35	36 to 40	41 to 45	46 to 50	More than 50
Number of team members when you were strictly a team member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number of team members when you were the designated Team Leader	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. What was the approximate dollar value of the largest project you have personally participated on as strictly a team member and as the designated Team Leader?

	Less than \$100,000	\$100,000 to \$500,000	\$500,001 to \$1,000,000	\$1,000,001 to \$5,000,000	\$5,000,001 to \$25,000,000	\$25,000,001 to \$50,000,000	\$50,000,001 to \$100,000,000	More Than \$100,000,000
Project dollar value when you were strictly a team member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Project dollar value when you were the designated Team Leader	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. What is your involvement and certification(s) in any of these professional Project Management associations?

Please Mark All Applicable Responses

	Australian Institute of Project Management (AIPM)	International Association of Project and Program Management (IAPPM)	International Project Management Association (IPMA)	Project Management Institute (PMI)
No Involvement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attend Infrequently	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attend Regularly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dues Paying Member Only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hold some association recognized certification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Committee Member	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Board Member	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Project Manager Certification(s):

13. What is your involvement in any other professional associations?

Please Mark All Appropriate Responses

No Involvement
 Dues Paying Member Only
 Attend Infrequently
 Attend Regularly
 Committee Member
 Board Member

Name of Other Associations

**14. What is the industry of your CURRENT and PREVIOUS employers?
Given the choice, what industry would you like to be in as a Project Manager?**

Please Scroll Down and Mark All Applicable Responses

	CURRENT Employer	PREVIOUS Employers	Industry of Personal C
Agriculture, Forestry, & Fishing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arts & Crafts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Automotive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Building, Construction & Civil Engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemicals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Computers - Consulting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Computers - Hardware	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Computers - Software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consulting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electrical Power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exhibitions, Trade Shows, & Conferences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Food, Beverage, and Tobacco	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manufacturing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Materials Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Media	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mining	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oil & Gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Packaging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Professional Services (Accountant/Attorney)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public Utilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pulp & Paper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Real Estate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Textiles & Clothing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transportation & Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Travel, Tourism, & Recreation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Waste Management, Pollution Control & Recycling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wholesale & Retail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**15. What is the organizational structure arrangement of your CURRENT and PREVIOUS employers?
Given the choice, what arrangement would you like to be in as a Project Manager?**

Please Mark All Applicable Responses

	CURRENT Employer	PREVIOUS Employers	Industry of Personal Choice
For Profit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not-for-Profit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public (Government)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Military	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Self-Employed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Small Local Business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
National Business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
International Business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. What is the location of your CURRENT and PREVIOUS employer's organizational Corporate Headquarters and global facilities?

Please Mark All Applicable Responses

	CURRENT Employer's Corporate Headquarters	CURRENT Employer's Global Facilities	PREVIOUS Employer's Corporate Headquarters	PREVIOUS Employer's Global Facilities
North American (US - Canada - Bermuda)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asia Pacific	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Europe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Middle East	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Africa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Latin America - Caribbean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. How does your CURRENT employer recognize project management related issues?

Please Mark All Applicable Responses

- None
 Uses 'Project Manager' Job Title (s)
 Employs Project Managers
 Supports Project Management Philosophies
 Pays for Project Management Education & Training
 Has Designated Project Management Office (PMO)

Comments:

18. What arrangement does your CURRENT employer use for project management?

Please Mark All Applicable Responses

- Project management staff located throughout organization
 Project Management Office (PMO) with all Project Team Members working within the PMO only
 PMO with Matrixed (On Loan) Subject Matter Expert (SME) Staff from other functions
 No PMO with Project Management Staff located throughout the organization
 No PMO and No Project Management Staff

Comments:

19. What is the approximate number of organizational projects currently active at this time, satisfactorily completed or failed?

	None	1 to 5	6 to 10	11 to 20	21 to 30	31 to 40	41 to 50	51 to 75	76 to 100	Over 100 Projects	Do Not Know
Currently active/on-going projects at this time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Satisfactorily completed projects in last 12 months	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Satisfactorily completed projects in last 5 years	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Failed projects in last 12 months	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Failed projects in last 5 years	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. What is the approximate dollar value of the least expensive, most common/routine project, and most expensive organizational project(s)?

	Less than \$100,000	\$100,000 to \$500,000	\$500,001 to \$1,000,000	\$1,000,001 to \$5,000,000	\$5,000,001 to \$25,000,000	\$25,000,001 to \$50,000,000	\$50,000,001 to \$100,000,000	\$100,000,001 or More	Do Not Know
Least Expensive Project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most Common/Routine Project(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most Expensive Project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. PERSONAL VIEWPOINT of Nine Knowledge Areas

Project Manager must possess skills identified in the Nine Knowledge Areas of the Project Management Body of Knowledge (PMBOK)

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Integration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scope	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cost	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human Resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procurement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. PERSONAL VIEWPOINT of Nine Knowledge Areas Ranking

Rank order what you believe is the relative importance of the Nine Knowledge Areas from one (1) to nine (9)

Please do not use the same number twice

Integration	_____
Scope	_____
Time	_____
Cost	_____
Quality	_____
Human Resources	_____
Communications	_____
Risk	_____
Procurement	_____

23. PERSONAL VIEWPOINT of Nine Knowledge Areas

(Integration - Scope - Time - Cost - Quality - Human Resources - Communications - Risk - Procurement)

Project Manager must possess skills identified in the Nine Knowledge Areas of the PMBOK

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. ORGANIZATIONAL USE of Nine Knowledge Areas

(Integration - Scope - Time - Cost - Quality - Human Resources - Communications - Risk - Procurement)

Requires project management staff to have skills identified in the Nine Knowledge Areas of the PMBOK

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. PERSONAL VIEWPOINT of Five Process Areas

Project Manager must possess skills identified in the Five Process Areas of the Project Management Body of Knowledge (PMBOK)

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Initiate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Execute	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Close	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. PERSONAL VIEWPOINT of Five Process Area Rank Order

Rank order what you believe is the relative importance of the Five Process Areas from one (1) to five (5)

Please do not use the same number twice

Initiate	_____
Plan	_____
Execute	_____
Control	_____

27. PERSONAL VIEWPOINT of Five Process Areas (Initiate - Plan - Execute - Control - Close)

Project Manager must possess skills identified in the Five Process Areas of the Project Management Body of Knowledge (PMBOK)

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. ORGANIZATIONAL USE of Five Process Area (Initiate - Plan - Execute - Control - Close) Skills

Requires project management staff to have skills from the Five Process Areas of the PMBOK

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29. PERSONAL VIEWPOINT of the General Management Skills Five Functions (Plan - Organize - Staff - Execute - Control)

Project Manager must possess general management skills

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organize	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Execute	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

30. PERSONAL VIEWPOINT of General Management Skills Five Functions Rank Order
Rank order what you believe is the relative importance of the Five Functions from one (1) to five (5)

Please do not use the same number twice

Plan	_____
Organize	_____
Staff	_____
Execute	_____
Control	_____

31. PERSONAL VIEWPOINT of General Management Skills Five Functions (Plan - Organize - Staff - Execute - Control)

Project Manager must possess general management skills

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

32. ORGANIZATION USE of General Management Skills Five Functions (Plan - Organize - Staff - Execute - Control)

Requires project management staff to have skills identified in the Five Functions

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. PERSONAL VIEWPOINT about Certification as a Project Manager

Project Manager must possess some level of certification

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

34. ORGANIZATION USE of Certification as a Project Manager

Requires project management staff to have some level of Project Manager certification

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

35. PERSONAL VIEWPOINT of Hard/Technical (Engineering/Scientific) Skills
Project Manager must possess the Hard/Technical Skills involved in the specific project and organization (i.e., aerospace engineer to build an aircraft, computer programmer to manage a software development effort, or a civil engineer to manage a construction project)

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

36. ORGANIZATIONAL USE of Hard/Technical (Engineering/Scientific) Skills
Requires project management staff to have Hard/Technical Skills involved in the specific project and organization (i.e., aerospace engineer to build an aircraft, computer programmer to manage a software development effort, or a civil engineer to manage a construction project)

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

37. PERSONAL VIEWPOINT about Soft/Non-Technical (Interpersonal/People Management) Skills
Project Manager must possess Soft/Non-Technical Skills to manage any type of project

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

38. ORGANIZATIONAL USE of Soft/Non-Technical (Interpersonal/People Management) Skills
Requires project management staff to have Soft/Non-Technical Skills

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

39. Soft/Non-Technical (Interpersonal/People Management) Skills - Personal Viewpoint of Ranking

Rank order what you believe is the relative importance of the Soft/Non-Technical Skills from one (1) to eleven (11)

Please do not use the same number twice

Communication	
Conflict Resolution	
Decision Making	
Delegation	
Management Support Building	
Motivation	
Negotiation	
Planning	
Problem Solving	
Organization	
Team Building	

40. PERSONAL VIEWPOINT about Communication Skills

Project Manager must possess effective oral and written communication skills

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

41. ORGANIZATIONAL USE of Communication Skills

Requires project management staff to have effective oral and written communication skills

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

42. PERSONAL VIEWPOINT about Basic Computer Skills

Project Manager must possess basic computer skills (word processing, spreadsheets, databases) to manage any type of project

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

43. ORGANIZATIONAL USE involving Basic Computer Skills

Requires project management staff to have basic computer skills (word processing, spreadsheets, databases)

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

44. PERSONAL VIEWPOINT about Conflict Resolution Skills

Project Manager must possess effective conflict resolution skills for resolving team and organizational conflicts

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

45. ORGANIZATIONAL USE involving Conflict Resolution Skills

Requires project management staff to have effective conflict resolution skills for resolving team and organizational conflicts

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

46. PERSONAL VIEWPOINT about Decision Making Skills

Project Manager must possess effective decision making skills for making good choices in managing a project

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

47. ORGANIZATIONAL USE involving Decision Making Skills

Requires project management staff to have effective decision making skills for making good choices in managing a project

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

48. PERSONAL VIEWPOINT about Delegation Skills

Project Manager must possess effective delegation skills in delegating work among team members in managing a project

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

49. ORGANIZATIONAL USE involving Delegation Skills

Requires project management staff to have effective delegation skills in delegating work among team members in managing a project

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

50. PERSONAL VIEWPOINT about Management Support Building Skills

Project Manager must possess effective skills for building management support among the organizational executive/leadership staff to manage a project

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

51. ORGANIZATIONAL USE involving Management Support Building Skills

Requires project management staff to have effective skills for building management support among the organizational executive/leadership staff to manage a project

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

52. PERSONAL VIEWPOINT about Motivation Skills

Project Manager must possess effective skills for motivating a diverse, possibly global, staff to manage a project

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

53. ORGANIZATIONAL USE involving Motivation Skills

Requires project management staff to have effective skills for motivating a diverse, possibly global, staff to manage a project

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

54. PERSONAL VIEWPOINT about Negotiation Skills

Project Manager must possess effective skills for negotiating complex and diverse issues to manage a project

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

55. ORGANIZATIONAL USE involving Negotiation Skills

Requires project management staff to have effective skills for negotiating complex and diverse issues to manage a project

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

56. PERSONAL VIEWPOINT about Organizational Skills

Project Manager must possess organizational skills to effectively manage a project

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

57. ORGANIZATIONAL USE involving Organizational Skills

Requires project management staff to have organizational skills to effectively manage a project

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

58. PERSONAL VIEWPOINT about Organizational Political Skills

Project Manager must possess organizational political skills of meeting the organizational leaderships expectations to manage any type of project

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

59. ORGANIZATIONAL USE involving Organizational Political Skills

Requires project management staff to have organizational political skills of meeting the organizational leaderships expectations

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

60. PERSONAL VIEWPOINT about Problem Solving Skills

Project Manager must possess problem solving skills for resolving complex problems in managing a project

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

61. ORGANIZATIONAL USE involving Problem Solving Skills

Requires project management staff to have problem solving skills for resolving complex problems in managing a project

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

62. PERSONAL VIEWPOINT about Team Building Skills

Project Manager must possess team building skills for developing, coaching and mentoring project team members to effectively perform and meet expectations

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Identify in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

63. ORGANIZATIONAL USE involving Team Building Skills

Requires project management staff to have team building skills for developing, coaching and mentoring project team members to effectively perform and meet expectations

	Always	Frequently	Seldom	Never
Identified in Position Description	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used for Internal Promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

64. In general, what do you believe are the major cause(s) of project failure(s)?

Please Mark All Applicable Responses

- | | | |
|---|---|---|
| <input type="checkbox"/> ORGANIZATIONAL COMMITMENT | <input type="checkbox"/> COST | <input type="checkbox"/> COMMUNICATIONS |
| <input type="checkbox"/> Executive Level Commitment | <input type="checkbox"/> Poor Cost Planning | <input type="checkbox"/> Poor Communications Planning |
| <input type="checkbox"/> Management Level Support | <input type="checkbox"/> Lack of Cost Plan | <input type="checkbox"/> Lack of Communications Plan |
| <input type="checkbox"/> Employee Level Support | <input type="checkbox"/> Improper Distribution/Use of Funds | <input type="checkbox"/> Lack of Communication Among Project Staff |
| <input type="checkbox"/> Project Leader Support | <input type="checkbox"/> QUALITY | <input type="checkbox"/> Lack of Effective Communication |
| <input type="checkbox"/> Project Team Commitment | <input type="checkbox"/> Poor Quality Planning | <input type="checkbox"/> Poor Record Keeping and Documentation Management |
| <input type="checkbox"/> Poor Client Working Relationship | <input type="checkbox"/> Lack of Quality Plan | <input type="checkbox"/> RISK |
| <input type="checkbox"/> SCOPE ISSUES | <input type="checkbox"/> Poor Quality Materials | <input type="checkbox"/> Poor Risk Planning |
| <input type="checkbox"/> Poor Overall Initial Planning | <input type="checkbox"/> Lack of Clear Quality Expectations | <input type="checkbox"/> Lack of Risk Management Plan |
| <input type="checkbox"/> Lack of Clearly Identified Tasks | <input type="checkbox"/> Over-Promising to Client | <input type="checkbox"/> Excessive Risk Taking |
| <input type="checkbox"/> Scope Creep | <input type="checkbox"/> HUMAN RESOURCES | <input type="checkbox"/> PROCUREMENT |
| <input type="checkbox"/> Poor Scope Control | <input type="checkbox"/> Poor Human Resources Planning | <input type="checkbox"/> Poor Procurement Planning |
| <input type="checkbox"/> TIME ISSUES | <input type="checkbox"/> Lack of Human Resources Plan | <input type="checkbox"/> Lack of Procurement Plan |
| <input type="checkbox"/> Poor Time Planning | <input type="checkbox"/> Lack of Competent Project Team Members | <input type="checkbox"/> Improper Equipment Purchases |
| <input type="checkbox"/> Lack of Time Plan | <input type="checkbox"/> Lack of Qualified/Skilled Workers | <input type="checkbox"/> Improper Material Purchases |
| <input type="checkbox"/> Lack of Enough Labor Hours | <input type="checkbox"/> Poorly Trained Workers | |

Other (please specify)

65. Have you ever been involved in a project which was determined to be a failure?

Please Mark All Applicable Responses

- | | |
|--|---|
| <input type="checkbox"/> YES | <input type="checkbox"/> Yes with extensive actions taken by management to rescue failed project |
| <input type="checkbox"/> Yes but departed before project ended | <input type="checkbox"/> Yes but management failed to take corrective actions to rescue failing project |
| <input type="checkbox"/> Yes but was released before project ended | <input type="checkbox"/> NO |

Other (please specify)

66. How many projects have you been involved with which failed?

- None
 1 Project
 2 Projects
 3 Projects
 4 Projects
 5 Projects
 6 or More Projects

67. Specifically, what do you believe was the major cause(s) of the project failure (s)?

Please Mark All Applicable Responses

- | | | |
|---|---|---|
| <input type="checkbox"/> ORGANIZATIONAL COMMITMENT | <input type="checkbox"/> COST | <input type="checkbox"/> COMMUNICATIONS |
| <input type="checkbox"/> Executive Level Commitment | <input type="checkbox"/> Poor Cost Planning | <input type="checkbox"/> Poor Communications Planning |
| <input type="checkbox"/> Management Level Support | <input type="checkbox"/> Lack of Cost Plan | <input type="checkbox"/> Lack of Communications Plan |
| <input type="checkbox"/> Employee Level Support | <input type="checkbox"/> Improper Distribution/Use of Funds | <input type="checkbox"/> Lack of Communication Among Project Staff |
| <input type="checkbox"/> Project Leader Support | <input type="checkbox"/> QUALITY | <input type="checkbox"/> Lack of Effective Communication |
| <input type="checkbox"/> Project Team Commitment | <input type="checkbox"/> Poor Quality Planning | <input type="checkbox"/> Poor Record Keeping and Documentation Management |
| <input type="checkbox"/> Poor Client Working Relationship | <input type="checkbox"/> Lack of Quality Plan | <input type="checkbox"/> RISK |
| <input type="checkbox"/> SCOPE ISSUES | <input type="checkbox"/> Poor Quality Materials | <input type="checkbox"/> Poor Risk Planning |
| <input type="checkbox"/> Poor Overall Initial Planning | <input type="checkbox"/> Lack of Clear Quality Expectations | <input type="checkbox"/> Lack of Risk Management Plan |
| <input type="checkbox"/> Lack of Clearly Identified Tasks | <input type="checkbox"/> Over-Promising to Client | <input type="checkbox"/> Excessive Risk Taking |
| <input type="checkbox"/> Scope Creep | <input type="checkbox"/> HUMAN RESOURCES | <input type="checkbox"/> PROCUREMENT |
| <input type="checkbox"/> Poor Scope Control | <input type="checkbox"/> Poor Human Resources Planning | <input type="checkbox"/> Poor Procurement Planning |
| <input type="checkbox"/> TIME ISSUES | <input type="checkbox"/> Lack of Human Resources Plan | <input type="checkbox"/> Lack of Procurement Plan |
| <input type="checkbox"/> Poor Time Planning | <input type="checkbox"/> Lack of Competent Project Team Members | <input type="checkbox"/> Improper Equipment Purchases |
| <input type="checkbox"/> Lack of Time Plan | <input type="checkbox"/> Lack of Qualified/Skilled Workers | <input type="checkbox"/> Improper Material Purchases |
| <input type="checkbox"/> Lack of Enough Labor Hours | <input type="checkbox"/> Poorly Trained Workers | |

Other (please specify)

68. What was the average approximate dollar value of the failed project(s)?

- | | |
|--|---|
| <input type="radio"/> Less than \$100,000 | <input type="radio"/> \$2,000,001 to \$3,000,000 |
| <input type="radio"/> \$100,000 to \$200,000 | <input type="radio"/> \$3,000,001 to \$4,000,000 |
| <input type="radio"/> \$200,001 to \$300,000 | <input type="radio"/> \$4,000,001 to \$5,000,000 |
| <input type="radio"/> \$300,001 to \$400,000 | <input type="radio"/> \$5,000,001 to \$10,000,000 |
| <input type="radio"/> \$400,001 to \$500,000 | <input type="radio"/> \$10,000,001 to \$15,000,000 |
| <input type="radio"/> \$500,001 to \$600,000 | <input type="radio"/> \$15,000,001 to \$20,000,000 |
| <input type="radio"/> \$600,001 to \$700,000 | <input type="radio"/> \$20,000,001 to \$25,000,000 |
| <input type="radio"/> \$700,001 to \$800,000 | <input type="radio"/> \$25,000,001 to \$50,000,000 |
| <input type="radio"/> \$800,001 to \$900,000 | <input type="radio"/> \$50,000,001 to \$100,000,000 |
| <input type="radio"/> \$900,001 to \$1,000,000 | <input type="radio"/> \$100,000,001 or More |
| <input type="radio"/> \$1,000,001 to \$2,000,000 | |

69. Which skill set do you believe most important?

- Hard/Technical (Engineering/Scientific) Skills
 Soft/Non-Technical (Interpersonal/People Management Skills)
 Neither - both skill sets are equally important

70. Please rate your personal competencies in the following skills with 5 being "Expert" and 1 being "No Competency"

	5 = Expert	4 = Above Average Competency	3 = Average - Comparable to Peers	2 = Needs Some Improvement	1 = No Competency
Communication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computer Literacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conflict Resolution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Decision Making	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delegation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management Support Building	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Motivation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Negotiation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organizational	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Political	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Problem Solving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Team Building	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What other skills do you believe are necessary for a project manager to have?

71. Identify your personal approach to managing projects

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
I focus solely on the project requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I focus primarily on the Hard/Technical Skills areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I focus primarily on the Soft/Non-Technical Skills areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I focus more on task completion than individual team member situations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I focus more on individual team member situations than on task completion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Team Members view me more as a task-oriented individual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Team Members view me more as a people-oriented individual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

72. What do you believe about your current employer and project management?

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Organization observes Nine Knowledge Areas (Integration/Scope/Time/Cost/Quality/Human Resources/Communications/Risk/Procurement)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organization observes Five Process Areas (Initiate/Plan/Execute/Control/Close)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organization observes General Management Principles (Plan/Organize/Staff/Execute/Control)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Executive Level is committed to PM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management Level is committed to PM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supervisory Level is committed to PM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Employee Level is committed to PM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organization effectively uses Formal Project Management Office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organization effectively uses Project Team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organization effectively uses Project Team Leader	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organization effectively uses Project Management Team Members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organization effectively uses PM Staff Located Throughout Organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organization effectively uses Subject Matter Experts Supporting Projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)					

73. Based on PM responsibilities, what do you believe about employer compensation (actual pay and benefits)?

	Under Compensated	Properly Compensated	Over Compensated
At previous employers, overall project management staff compensation was:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At previous employers, personal compensation was:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At current employer, overall PM staff compensation is:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At current employer, personal compensation is:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most employers of PM staff have compensation which is:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

74. What is your view about training seminar costs?

	\$99 or less per day	\$100 to \$149 per day	\$150 to \$199 per day	\$200 to \$249 per day	\$250 to \$299 per day	\$300 to \$349 per day	\$350 to \$399 per day	\$400 to \$449 per day	\$450 to \$499 per day	\$500 to \$749 per day	\$750 to \$999 per day	\$1,000 or more per day
Would attend and be willing to personally pay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Would only attend if employer paid for it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX F. DEMOGRAPHICS

The following information is in support of Chapter 4.

Descriptive data of the respondents include gender, age, years of experience in the workforce and project management experience, education and training, project management certification, experience with project failures, country where survey respondent currently resides and other organizational information which is revealed in the following pages. The SPSS Graduate Package Version 16 statistical software tool was used to analyze the survey results.

Besner and Hobbs conducted a Web-based survey with experienced project practitioners participating. Their results revealed a demographic picture of “Respondents: 753; Age: 30-50 (74%); Gender: Male (67%); Female (33%)” (2006, p. 38). Their findings differ somewhat from the results of this survey where the age range from 30 to 49 was 45.3%, as reflected in the following pages. However, this study used range intervals of five years with a range at 50 to 54 years of age which resulted in a 15.1% response in this age grouping. Given consideration of a 3% per year response (15.1%/5 years) the total response for 30 to 50 age range in this survey would still only approximate 48 to 49% versus the Besner and Hobbs result of 74%. Another difference between the two studies involved the demographic of gender. The Besner and Hobbs gender demographic was 67% male versus this study male response rate of 77%. In addition to the Besner and Hobbs study comparison, other survey results will be used to make comparisons. Project Manager competencies and skills are commonly studied and written about in doctoral dissertations as well as published authors. The topic is much

discussed because of the large number of project failures.

Respondent Gender and Age

The survey respondents were asked questions about their gender and age which resulted in the following descriptive statistic.

Table F1. Descriptive Statistics for Gender and Age

	N	Minimum	Maximum	Mean	Std. Deviation
Gender	53	1	2	1.23	.423
Age	53	4	10	7.72	1.714
Valid N	53				

The age ranges available in the survey questionnaire were based on intervals of 5 years overall, '19 or less', '20 to 24', '25 to 29', '30 to 34', '35 to 39', and so on as reflected in the following table. The survey group did not have anyone less than 30 years of age.

Table F2. Gender to Age Crosstabulation

Gender	Age											Total	
	≥19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69		≤70
Male	0	0	0	1	2	8	4	6	11	9	0	0	41
Female	0	0	0	1	0	4	4	2	0	1	0	0	12
Total	0	0	0	2	2	12	8	8	11	10	0	0	53

Respondent Gender. The question asking the gender of the respondent(s) resulted in a total of 53 responses with males representing 77% of the respondents:

Table F3. Respondent Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	41	77.4	77.4	77.4
Female	12	22.6	22.6	100.0
Total	53	100.0	100.0	

Respondent Age. The question asking the age of the respondent(s) resulted in a total of 53 responses. What should be noted is the predominant ages begin to increase in the 40 to 44 year interval and again in the 55 upward groups.

Table F4. Respondent Age

Age	Frequency	Percent	Valid Percent	Cumulative Percent
30-34	2	3.8	3.8	3.8
35-39	2	3.8	3.8	7.5
40-44	12	22.6	22.6	30.2
45-49	8	15.1	15.1	45.3
50-54	8	15.1	15.1	60.4
55-59	11	20.8	20.8	81.1
60-64	10	18.9	18.9	100.0
Total	53	100.0	100.0	

Table F5. Survey Respondent Statistics Involving Years of Work Experience

Survey Respondents		What is the approximate number of years you have been in the workforce?	What is the approximate number of years you have been involved with project management?	
N	Valid	51	45	
	Missing	2	8	<i>Years</i>
	Total	53	53	<i>of</i>

Work Experience

The survey two part question, “What is the approximate number of years you have been working and involved with project management?” generated two demographic data points showing valuable information pertaining to the respondent(s) experience levels in the world of work and their years of work experience involving project management activities.

The years of experience in project management question has fewer responses which is not surprising. Again, the ‘accidental profession’ (Crawford, 2002; Heerkens, 2002; Young, 2000) philosophy applies. It is normal to expect individuals to have fewer years of project management experience than years in the workforce. As a result, the survey participants would also have fewer years.

Table F6. Years of Experience in the Workforce

		What is the approximate number of years you have been in the workforce?									
Gender		5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	Total
Male		1	5	5	3	8	9	5	3	1	40
Female		0	1	1	3	4	0	1	1	0	11
Total		1	6	6	6	12	9	6	4	1	51

Table F7. Years of Experience Involving Project Management

What is the approximate number of years you have been involved with project management?									
Gender	Less than 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	Total
Male	1	4	7	10	4	4	3	1	34
Female	0	4	1	0	4	1	1	0	11
Total	1	8	8	10	8	5	4	1	45

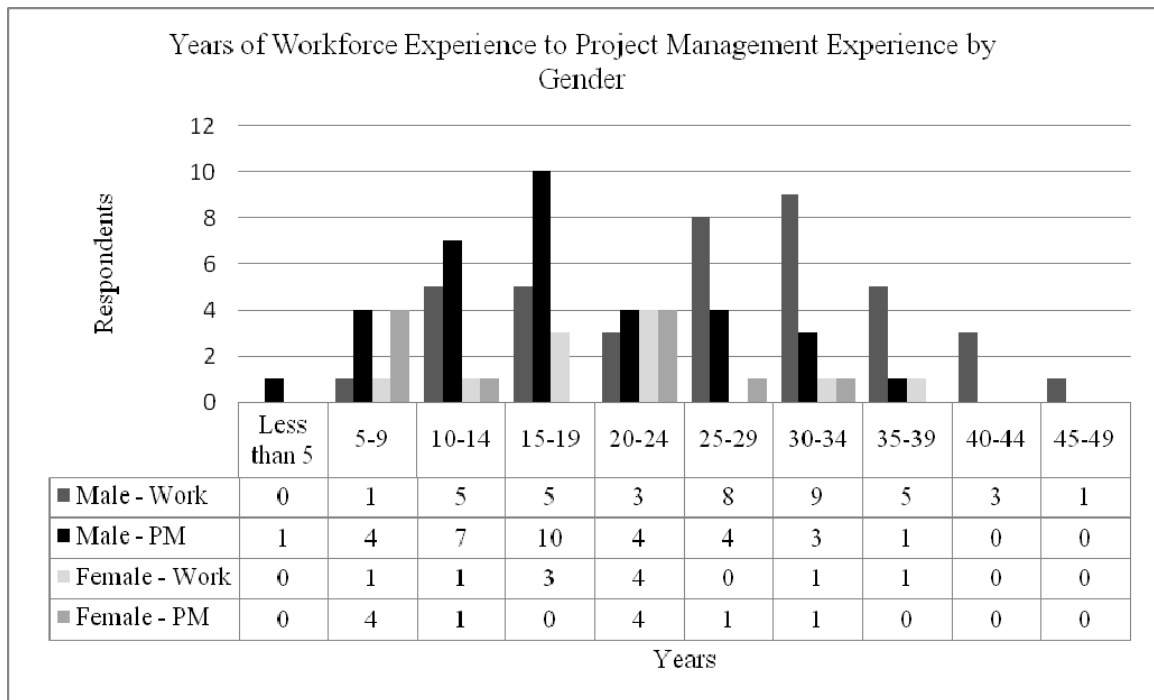


Figure F1. Years of Workforce Experience to PM Experience by Gender.

Table F8. Age-Gender-Workforce and PM Experience Crosstabulation

What is the approx number of years you have been . . .		Respondent Age								
involved with project management?	in the workforce?	Gender	30-34	35-39	40-44	45-49	50-54	55-59	60-64	Total
Less than 5	10-14	M			1					1
		F								
5-9	10-14	M	1							1
		F	1							1
	15-19	M		1	1					2
		F			1					1
	20-24	M								
		F			1					1
25-29	M							1		1
	F									
10-14	15-19	M			2					2
		F								
	25-29	M								
		F				1				1
	30-34	M			1			1	1	3
		F								
35-39	M							2	2	
	F									
15-19	15-19	M			1					1
		F								
	20-24	M			2					2
		F								
	25-29	M					2	1		3
		F								
30-34	M					1	2		3	
	F									
40-44	M								1	1
	F									
20-24	20-24	M								
		F					1			1
	25-29	M				1	1			2
		F			1	2				3
	30-34	M						1		1
		F								
45-49	M								1	1
	F									
25-29	25-29	M				1		1		2
		F								
35-39	35-39	M						1	1	2
		F					1			1
30-34	30-34	M						1		1
		F								
40-44	40-44	M						1	1	2
		F							1	1
35-39	35-39	M							1	1
		F								

The Age-Gender-Workforce & Project Management Experience Crosstabulation Table and The Years of Workforce Experience to Project Management Experience by Gender Figure reflects demographic data. From the tables and figure it can be seen the female subset of the survey respondents has both less years in the workforce and less years experience involving project management than the male subset. The years of a survey respondent in the workforce would most likely exceed the years of experience involving project management as the discipline is typically entered after joining the workforce and actually working for a number of years. This would also account for the number of females having both less work experience and years of experience involving project management.

Blomquist and Muller believe organizations are increasingly using project management as a means to achieve business objectives which is increasing the number of projects in organizations and creating the need for more project management staff (2006, p. 52). As a result, the more experienced, tenured employee is likely to be offered the opportunity to move into project management. And, again, accounts for the term of 'accidental profession' (Crawford, 2002; Heerkens, 2002; Young, 2000). Individual's best meeting a project timeline and budget are often offered the opportunity to move into project management.

To better understand the survey respondents in this survey project, additional demographic questions were asked in relation to their experiences with project values and failures, and organizational information, as well as regions of the world where the respondents were born, educated and currently reside.

Respondent Personal Demographics

One survey question involving the demographic about the country where survey respondents currently live resulted in:

Table F9. Crosstabulation of Gender vs. Country of Current Residence

Country of Current Residence	Gender							
	Male	Gender Percent of Country	Percent of Total Responses	Female	Gender Percent of Country	Percent of Total Responses	Total	Percent of Total Responses
Australia	1	100%	2%	0	0%	0%	1	2%
Canada	2	100%	5%	0	0%	0%	2	5%
Ghana	1	100%	2%	0	0%	0%	1	2%
India	0	0%	0%	2	100%	5%	2	5%
Israel	1	100%	2%	0	0%	0%	1	2%
Malaysia	0	0%	0%	1	100%	2%	1	2%
Romania	2	100%	5%	0	0%	0%	2	5%
Trinidad	1	100%	2%	0	0%	0%	1	2%
United Kingdom	1	100%	2%	0	0%	0%	1	2%
United States	26	84%	60%	5	16%	12%	31	72%
Total	35	81%	81%	8	19%	19%	43	100%

Another multi-part survey question was designed around the six regions used by the premier world Project Management Institute (PMI) organization. The six regions are:

1. North American
2. Asia Pacific
3. Europe
4. Middle East
5. Africa
6. Latin America - Caribbean

This question was used to determine the demographics about the regions of the world where survey respondents were born, attended their early education, attended

college, and had been employed. The survey responses resulted in several data points as reflected in the following five tables:

Table F10. Crosstabulation of Gender vs. Birthplace Region of the World

Birthplace	Gender							
	Gender		Percent of Total Responses	Gender		Percent of Total Responses	Total	Gender Percent of Region
	Male	Percent of Region		Female	Percent of Region			
North American	25	78%	50%	7	22%	14%	32	64%
Asia Pacific	4	80%	8%	1	20%	2%	5	10%
Europe	2	40%	4%	3	60%	6%	5	10%
Middle East	2	100%	4%	0	0%	0%	2	4%
Africa	2	100%	4%	0	0%	0%	2	4%
Latin America - Caribbean	3	75%	6%	1	25%	2%	4	8%
Total	38	76%	76%	12	24%	24%	50	100%

Table F11. Crosstabulation of Gender vs. Early Education Region of the World

Early Education	Gender							
	Gender		Percent of Total Responses	Gender		Percent of Total Responses	Total	Gender Percent of Region
	Male	Percent of Region		Female	Percent of Region			
North American	26	79%	53%	7	21%	14%	33	67%
Asia Pacific	4	80%	8%	1	20%	2%	5	10%
Europe	2	50%	4%	2	50%	4%	4	8%
Middle East	1	100%	2%	0	0%	0%	1	2%
Africa	2	100%	4%	0	0%	0%	2	4%
Latin America - Caribbean	3	75%	6%	1	25%	2%	4	8%
Total	38	78%	78%	11	22%	22%	49	100%

Table F12. Crosstabulation of Gender vs. College Region of the World

College	Gender							
	Gender		Percent of Total Responses	Gender		Percent of Total Responses	Total	Gender Percent of Region
	Male	Percent of Region		Female	Percent of Region			
North American	29	83%	60%	6	17%	13%	35	73%
Asia Pacific	2	67%	4%	1	33%	2%	3	6%
Europe	3	60%	6%	2	40%	4%	5	10%
Middle East	1	100%	2%	0	0%	0%	1	2%
Africa	1	100%	2%	0	0%	0%	1	2%
Latin America - Caribbean	2	67%	4%	1	33%	2%	3	6%
Total	38	79%	79%	10	21%	21%	48	100%

Table F13. Crosstabulation of Gender vs. Past Employment Region of the World

Past Employment	Gender							
	Gender		Percent of Total Responses	Gender		Percent of Total Responses	Total	Gender Percent of Region
	Male	Percent of Region		Female	Percent of Region			
North American	28	80%	58%	7	20%	15%	35	73%
Asia Pacific	3	75%	6%	1	25%	2%	4	8%
Europe	2	50%	4%	2	50%	4%	4	8%
Middle East	1	100%	2%	0	0%	0%	1	2%
Africa	2	100%	4%	0	0%	0%	2	4%
Latin America - Caribbean	1	50%	2%	1	50%	2%	2	4%
Total	37	77%	77%	11	23%	23%	48	100%

Table F14. Crosstabulation of Gender vs. Current Employment Region of the World

Current Employment	Gender							
	Gender		Percent of Total Responses	Gender		Percent of Total Responses	Total	Gender Percent of Region
	Male	Percent of Region		Female	Percent of Region			
North American	28	80%	58%	7	20%	15%	35	73%
Asia Pacific	3	75%	6%	1	25%	2%	4	8%
Europe	2	50%	4%	2	50%	4%	4	8%
Middle East	1	100%	2%	0	0%	0%	1	2%
Africa	2	100%	4%	0	0%	0%	2	4%
Latin America - Caribbean	1	50%	2%	1	50%	2%	2	4%
Total	37	77%	77%	11	23%	23%	48	100%

The personal demographics data involving regions of the world indicates project management is more prevalent in the highly industrialized nations of North America followed by the Asia Pacific Region and Europe countries. Less industrialized nations and regions of Latin America – Caribbean, Africa, and the Middle East appear to lag behind.

Within this survey respondent group there does not appear to be a change in regions from the past employment to the current employment tables. Another important fact is the amount of females, or lack of, in the Middle East and Africa Regions. This may be a result of the cultural impact of women in the workplace in some countries.

Table F15 and Figure F2 Crosstabulation – Gender to Educational Level indicates the survey group respondents’ educational level. There appears to be a reasonable level of progressive educational levels. The female percentages are lower at the bachelor’s level, equal in the master’s level except for the Masters in Business Administration, and then higher at the doctoral level.

Table F15. Crosstabulation of Gender vs. Educational Level

Educational Level	Gender						
	Male		Female		Total		Total
	Count	Percent	Count	Percent	Count	Percent	
High School Diploma	16	73%	6	27%	22	6%	22
Vocational Degree	3	100%	0	0%	3	0%	3
Some College Work But No Degree	3	100%	0	0%	3	0%	3
Associates Degree	5	83%	1	17%	6	1%	6
Bachelor of Arts (BA)	2	100%	0	0%	2	0%	2
Bachelor of Science (BS)	19	76%	6	24%	25	6%	25
Bachelors Degree	2	50%	2	50%	4	2%	4
Some Masters Level Work But No Degree	5	83%	1	17%	6	1%	6
Master of Arts (MA)	1	50%	1	50%	2	1%	2
Master of Science (MS)	2	50%	2	50%	4	2%	4
Masters in Business Administration (MBA)	14	88%	2	13%	16	2%	16
Some Doctoral Level Work But No Degree	3	100%	0	0%	3	0%	3
ABD - All But Dissertation	1	100%	0	0%	1	0%	1
Doctoral Degree	1	33%	2	67%	3	2%	3
Total	77	77%	23	23%	100	23%	100

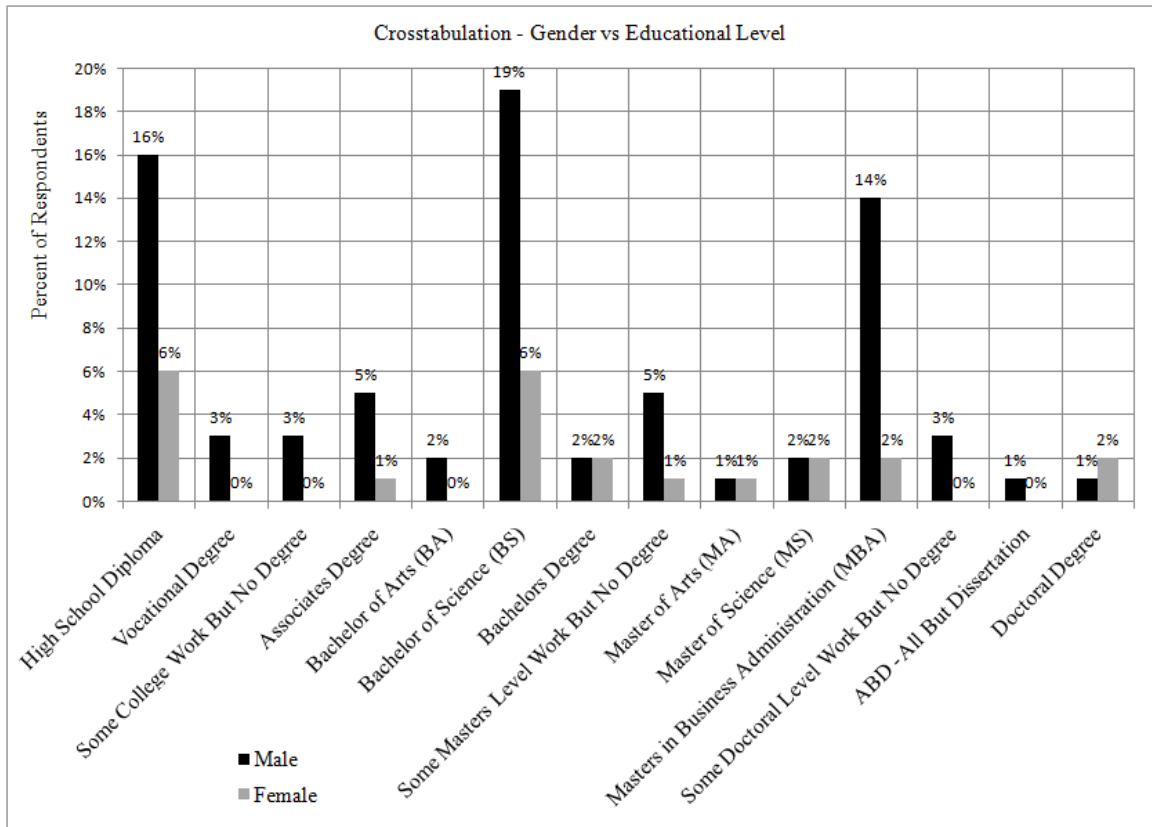


Figure F2. Crosstabulation of Gender vs. Educational Level.

Table F16. Crosstabulation of Age/Gender vs. PM Training Experiences reveals the means by which the survey respondents developed through project management training activities. In addition to the methods provided, respondents were provided an opportunity to use an Other–Explain category.

Table F16. Crosstabulation of Age/Gender vs. PM Training Experiences

		Project Management Training Experience(s)									
		Age									
Development through	Gender	30-34	35-39	40-44	45-49	50-54	55-59	60-64	Total	Total by Category	Percent by Category
Reading Materials	Male		2	6	3	4	9	8	32	41	100%
	Female	1		2	3	2		1	9		
Online Courses	Male		2	6	3	4	9	8	32	41	100%
	Female	1		2	3	2		1	9		
Commercial Vendor Training	Male		1	5	2	4	4	5	21	31	76%
	Female	1		2	4	2		1	10		
Employer Training	Male		1	4	3	3	8	7	26	34	83%
	Female	1		1	4	1		1	8		
College PM Courses	Male	1	1	2	2	3	4	5	18	22	54%
	Female			1	2	1			4		
College PM Certificate Program	Male		2	2	2	3	1		10	14	34%
	Female	1		1		2			4		
PM Association Training Seminars	Male		2	2	3	3	9	7	26	34	83%
	Female	1		1	3	2		1	8		
PM Association Events (lunch/dinner)	Male		2	3	3	3	6	7	24	30	73%
	Female	1		1	3	1			6		
PM Association Monthly Meetings	Male		1	5	3	3	5	7	24	29	71%
	Female	1		1	2	1			5		
PM Association Annual Seminar	Male		1	2	3	2	5	7	20	24	59%
	Female	1			2	1			4		
Other explain	Male			1			1	2	4	7	17%
	Female	1		1		1			3		

The Other-Explain category responses were:

1. Personal self-development through application of social science theory to analysis of org. & project needs.
2. Certification through the Department of Defense.
3. PMI Board Member.
4. Working with government organisations [sic] gives one ample opportunity.
5. Masters in Civil Engineering / Construction and Project Management Degree.
6. I have authored and delivered PM classes and PMP Exam classes for several organizations and PMI Chapters.
7. On the job, self-taught.

To ascertain more about the demographics of the survey respondents, a survey question was asked about their current position within their organization. Their responses are reflected in Table F17. Crosstabulation of Gender/Age vs. Organizational Position. The survey respondent group was, for the most part, spread across the full range of potential positions. The ‘Percent by Category’ column entry was computed based on the ‘Total by Category’ column entry divided by the 41 respondents to the survey question. An important note here is the ‘Percent by Category’ column exceeds 100% as a result of individuals, both male and female, responding to more than one position. This certainly could be common in a workplace environment where project management individuals are multi-tasked within a project and between projects (Frame, 1994; Kerzner, 2003; Lewis, 2003).

In addition, a survey question was asked about the survey respondents' type of involvement as to full-time versus part-time, type of Hard/Technical (Engineering/Scientific) versus Soft/Non-Technical (Interpersonal/People Management) skills, and their level of personal education and training. The results of this survey question are reflected in Table 19. Crosstabulation of Gender/Age vs. Involvement and Skills. In this survey question there were 53 respondents. Like the previous table, the same issue occurs with the percentage totaling more than 100% which can also be attributable to the previously cited multi-tasking within a project management environment.

Table F17. Crosstabulation of Gender/Age vs. Organizational Position

Organizational Position	Gender	Age							Total	Total by Category	Percent by Category
		30-34	35-39	40-44	45-49	50-54	55-59	60-64			
		Male									
Female											
Organization Project Management Champion or Sponsor	Male				2		2	1	5	8	20%
	Female			1	1	1			3		
Executive Level responsible for Project Management	Male			1	1	1	1	1	5	8	20%
	Female	1		1		1			3		
Client of Project Management Services	Male	1		3	2		2	5	13	16	39%
	Female				1	1		1	3		
Project Management Office (PMO) Leader	Male				1			1	2	3	7%
	Female							1	1		
Portfolio Manager over multiple Programs and Projects	Male			2	2	2	3	4	13	14	34%
	Female					1			1		
Program Manager over multiple Projects	Male					1	1	1	3	5	12%
	Female	1				1			2		
Program Manager over a major organizational Program	Male				1		2	3	6	8	20%
	Female				1	1			2		
Project Manager	Male						2	1	3	3	7%
	Female								0		
Project Team Leader	Male		1	3	2	2	5	4	17	20	49%
	Female				2	1			3		
Project Team Member	Male			1		1	1	1	4	5	12%
	Female			1					1		
Subject Matter Expert serving full-time on a Project Team	Male			2			1	1	4	4	10%
	Female								0		
Subject Matter Expert assisting Project Team when needed	Male		1	1			5		7	8	20%
	Female			1					1		

In the Web-based survey by Besner and Hobbs, experienced project practitioners revealed an organizational role of “. . . Team Member (8%), Project Manager (51%), Program Manager/ Director (24%), Other (17%)” (2006, p. 38). The difference between the Besner and Hobbs survey results and this survey project may be attributed to the different pool of respondents.

Table F18. Crosstabulation of Gender/Age vs. Involvement and Skills

		Involvement and Skills								Total by Category	Percent by Category
		Age									
Gender									Total		
	30-34	35-39	40-44	45-49	50-54	55-59	60-64				
Perform full-time project work	Male			2	1		2	2	7	8	15%
	Female					1			1		
Perform part-time project work in addition to other work	Male	1	2	8	4	6	11	9	41	53	100%
	Female	1		4	4	2		1	12		
Perform Hard/Technical (Engineering/Scientific) Skills related projects	Male		1	3	1	3	7	6	21	29	55%
	Female	1		1	3	2		1	8		
Perform Soft/Non-Technical (Interpersonal/People Management) Skills related work	Male	1		5	4	2	5	7	24	30	57%
	Female	1		2	1	1		1	6		
Do you have the educational background for the type of projects?	Male			5	1	2	3	2	13	17	32%
	Female			2	1			1	4		
Do you have the necessary project management training to meet project requirements	Male	1	1	7	3	5	10	8	35	43	81%
	Female			2	3	2		1	8		

All of the survey respondents replied they performed project work on a part-time basis in addition to other work. Interesting is their response about relatively equal performance of Hard/Technical (Engineering/ Scientific) Skills related work and Soft/Non-Technical (Interpersonal/People Management) Skills related work. Further, only 32% believe they have the educational background for the type of projects they are working. However, 81% believe they have the necessary project management training to meet the project requirements.

Engineering, Financial Services, and Transportation and Storage Industries were the highest occurring industries using project management principles according to the survey group in this research project.

Table F19. Crosstabulation of Gender/Age vs. Industry of Current Employment

		Industry of Current Employment								Total by Category	Percent by Category
		Age									
	Gender	30-34	35-39	40-44	45-49	50-54	55-59	60-64	Total		
Engineering	Male		1		2	1	1		5		
	Female					1			1		
Financial Services	Male		1	1			1	2	5		
	Female				1				1		
Food, Beverage, and Tobacco	Male						1		1		
	Female								0		
Health Services	Male								0		
	Female	1		1					2		
Manufacturing	Male					1		1	2		
	Female								0		
Media	Male		1	1					2		
	Female								0		
Oil & Gas	Male				1				1		
	Female								0		
Public Utilities	Male				1	1	1		3		
	Female				1				1		
Transportation & Storage	Male				1		2	2	5		
	Female					1			1		
Travel, Tourism, & Recreation	Male			1					1		
	Female								0		
Total by Gender	Male		3	3	5	3	6	5	25		
	Female	1		1	2	2			6		

APPENDIX G. COMPARISON OF PM COMPETENCY SKILLS STUDIES

A larger scale response rate could result in a different finding. For instance, in a previous project management competency dissertation study, Golob (2002, p. 132) found, . . . soft skill competencies are more important than hard skill competencies for inclusion in job descriptions, hiring, and promoting project managers. Of the ten most important competencies for inclusion in a job description, six were soft skill competencies. Of the ten most important competencies for hiring and promoting project managers, seven were soft skills competencies. (p. 133).

Golob's population was larger with 2,826 project management seminar attendees attending an annual PMI Symposium resulting in 193 survey respondents (2002, p. 74). As such, his survey respondents were a more diversified project management community with a broader range of background and experiences.

APPENDIX H. SOFT/NON-TECHNICAL (INTERPERSONAL/PEOPLE MANAGEMENT) SKILLS STUDIES

The following figures and tables are in support of Chapter 4.

Soft/Non-Technical Skills are those interpersonal/people management skills expected to be the competencies found in most industries, disciplines, and levels of leadership, management, and supervision. In his 2002 survey, Golob found, “The study revealed that generally soft skill competencies are more important than hard skill competencies. However, both types of competencies are required for a project manager to be successful in his/her job” (p. 114). Cowie writes, “. . . project management is taught as a set of hard skills – how to create Gant [sic] charts, how to split up a complex project and so on – and the softer, people skills essential to success are overlooked” (2003, p. 256). Recognizing there has been much written about the Hard/Technical (Engineering/Scientific) Skills, this survey project focused on the soft/non-technical skills needed by project managers.

The twelve Soft/Non-Technical (Interpersonal/People Management Skills) competencies identified within the survey are:

1. Communication Skills
2. Basic Computer Skills
3. Conflict Resolution Skills
4. Decision-Making Skills
5. Delegation Skills
6. Management Support Building Skills

7. Motivation Skills
8. Negotiation Skills
9. Organizational Skills
10. Organizational Political Skills
11. Problem-Solving Skills
12. Team-Building Skills

A survey conducted by Patota, Schwartz, and Schwartz, found companies used a wide range of competencies. From the list they selected,

1. “Developing People . . .
2. Communication Skills . . .
3. Teamwork . . .
4. Customer Service . . .
5. Organizational Objectives . . .
6. Managing Resources . . .
7. Problem-Solving . . .
8. Valuing Diversity . . .” (2007, p. 5).

Of their eight competencies, three (communications, teamwork, and problem-solving) are among the 12 competencies researched in this survey. Patota, et al, believe each organization has unique competency needs based on their specific situations (2007, p. 5). This belief is supported by the 2003 Association for the Advancement of Computing in Education (AACE) report which talks about competencies and many facets involved in the success of any project. In another survey involving project manager competency,

Brill, Bishop and Walker found,

Overall, respondents agreed that project management requires much more than just knowing how to define scope, create timelines, and manage budgets. . . . Of particular note, respondents indicated that a project manager must possess problem-solving expertise, leadership skills, context knowledge, and analytical, people, and communication expertise in addition to the more commonly emphasized project administration expertise (i.e., setting and managing scope, timelines, and budgets). (2006, p. 129)

Again, communication, people, and problem-solving skills are identified as needed by project managers.

In another research effort involving Information Systems (IS) project management activities it was found, “Some types of non-technical skills are perceived by IS professionals as more important than technical expertise” (Lee, Yen, Havelka, & Koh, 2001, p. 27). Project Manager competencies are prevalent in other project management writings (Cleland, 1994; Frame, 1995; Heerkens, 2002; Kerzner, 2003; Lewis, 2000; PMI, 2000; Shtub, et al, 1994; Wysocki, et al, 2000) and research studies (Bauer, 2005; GAO, 2001; Golob, 2002; Krahn, 2005; Rodriguez, 2005). The degree to which specific competencies are identified depends upon the survey respondents’ background, experiences, and knowledge.

APPENDIX I. COMMUNICATION SKILLS

The following figures and tables are in support of Chapter 4.

Table I1. Crosstabulation of Communication Skills for PD

PERSONAL VIEWPOINT (PV) about Communication Skills: Project Manager must possess effective oral and written communication skills: Identify in Position Description					
ORGANIZATIONAL USE (OU) of Communication Skills: Requires project management staff to have effective oral and written communication skills: Identified in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	20	13	1	1	35
Agree	1	3	1	0	5
No Opinion	0	0	0	0	0
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	21	16	2	1	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	50.0%	32.5%	2.5%	2.5%	87.5%
Agree	2.5%	7.5%	2.5%	0.0%	12.5%
No Opinion	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	52.5%	40.0%	5.0%	2.5%	100.0%

Table I2. Descriptive Statistics of Communication Skills for PD

Communication Skills – Position Description	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.1250	.33493	1.00	2.00
Organizational Use	40	1.5750	.71208	1.00	4.00

Table I3. Test Statistics of Communication Skills for PD

Test	Personal Viewpoint	Organizational Use
Chi-Square	22.500 ^a	30.200 ^b
df	1	3
Asymp. Sig.	.000	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 20.0.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table I4. Communication Skills of PV vs. OU for PD

Communication Skills – Position Description			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	35	20.0	15.0
Agree	5	20.0	-15.0
Total	40		
Organizational Use			
Always	21	10.0	11.0
Frequently	16	10.0	6.0
Seldom	2	10.0	-8.0
Never	1	10.0	-9.0
Total	40		

Table I5. Crosstabulation of Communication Skills for IH

PERSONAL VIEWPOINT (PV) about Communication Skills: Project Manager must possess effective oral and written communication skills: Use for Hiring					
ORGANIZATIONAL USE (OU) of Communication Skills: Requires project management staff to have effective oral and written communication skills: Used for Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	16	11	3	1	31
Agree	0	6	2	0	8
No Opinion	0	0	0	0	0
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	16	17	5	1	39
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	41.0%	28.2%	7.7%	2.6%	79.5%
Agree	0.0%	15.4%	5.1%	0.0%	20.5%
No Opinion	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	41.0%	43.6%	12.8%	2.6%	100.0%

Table I6. Descriptive Statistics of Communication Skills for IH

Communication Skills – Hiring	N	Mean	Std Dev	Min	Max
Personal Viewpoint	39	1.2051	.40907	1.00	2.00
Organizational Use	40	1.7500	.77625	1.00	4.00

Table I7. Test Statistics of Communication Skills for IH

Test	Personal Viewpoint	Organizational Use
Chi-Square	13.564 ^a	20.400 ^b
df	1	3
Asymp. Sig.	.000	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 19.5.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table I8. Communication Skills of PV vs. OU for IH

Communication Skills – Hiring			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	31	19.5	11.5
Agree	8	19.5	-11.5
Total	39		
Organizational Use			
Always	17	10.0	7.0
Frequently	17	10.0	7.0
Seldom	5	10.0	-5.0
Never	1	10.0	-9.0
Total	40		

Table I9. Crosstabulation of Communication Skills for IP

PERSONAL VIEWPOINT (PV) about Communication Skills: Project Manager must possess effective oral and written communication skills: Use for Promotion					
ORGANIZATIONAL USE (OU) of Communication Skills: Requires project management staff to have effective oral and written communication skills: Used for Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	17	11	2	1	31
Agree	0	6	2	0	8
No Opinion	0	0	0	0	0
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	17	17	4	1	39
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	43.6%	28.2%	5.1%	2.6%	79.5%
Agree	0.0%	15.4%	5.1%	0.0%	20.5%
No Opinion	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	43.6%	43.6%	10.3%	2.6%	100.0%

Table I10. Descriptive Statistics of Communication Skills for IP

Communication Skills - Promotion	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.2000	.40510	1.00	2.00
Organizational Use	39	1.7179	.75911	1.00	4.00

Table I11. Test Statistics of Communication Skills for IP

Test	Personal Viewpoint	Organizational Use
Chi-Square	14.400 ^a	22.026 ^b
df	1	3
Asymp. Sig.	.000	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 20.0.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 9.8.

Table I12. Communication Skills of PV vs. OU for IP

Communication Skills - Promotion			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	32	20.0	12.0
Agree	8	20.0	-12.0
Total	40		
Organizational Use			
Always	17	9.8	7.2
Frequently	17	9.8	7.2
Seldom	4	9.8	-5.8
Never	1	9.8	-8.8
Total	39		

APPENDIX J. BASIC COMPUTER SKILLS

The following figures and tables are in support of Chapter 4.

Table J1. Crosstabulation of Computer Skills for PD

PERSONAL VIEWPOINT (PV) about Basic Computer Skills: Project Manager must possess basic computer skills (word processing, spreadsheets, databases) to manage any type of project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Basic Computer Skills: Requires project management staff to possess basic computer skills (word processing, spreadsheets, databases) to manage any type of project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	17	7	1	0	25
Agree	2	7	2	0	11
No Opinion	0	0	1	1	2
Disagree	0	2	0	0	2
Strongly Disagree	0	0	0	0	0
Total	19	16	4	1	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	42.5%	17.5%	2.5%	0.0%	62.5%
Agree	5.0%	17.5%	5.0%	0.0%	27.5%
No Opinion	0.0%	0.0%	2.5%	2.5%	5.0%
Disagree	0.0%	5.0%	0.0%	0.0%	5.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	47.5%	40.0%	10.0%	2.5%	100.0%

Table J2. Descriptive Statistics of Computer Skills for PD

Computer Skills – Position Description	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.5250	.81610	1.00	4.00
Organizational Use	40	1.6750	.76418	1.00	4.00

Table J3. Test Statistics of Computer Skills for PD

Test	Personal Viewpoint	Organizational Use
Chi-Square	35.400 ^a	23.400 ^a
df	3	3
Asymp. Sig.	.000	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table J4. Computer Skills of PV vs. OU for PD

Computer Skills – Position Description			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	25	10.0	15.0
Agree	11	10.0	1.0
No Opinion	2	10.0	-8.0
Disagree	2	10.0	-8.0
Total	40		
Organizational Use			
Always	19	10.0	9.0
Frequently	16	10.0	6.0
Seldom	4	10.0	-6.0
Never	1	10.0	-9.0
Total	40		

Table J5. Crosstabulation of Computer Skills for IH

PERSONAL VIEWPOINT (PV) about Basic Computer Skills: Project Manager must possess basic computer skills (word processing, spreadsheets, databases) to manage any type of project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Basic Computer Skills: Requires project management staff to possess basic computer skills (word processing, spreadsheets, databases) to manage any type of project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	17	11	2	1	31
Agree	0	6	2	0	8
No Opinion	0	0	0	0	0
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	17	17	4	1	39
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	43.6%	28.2%	5.1%	2.6%	79.5%
Agree	0.0%	15.4%	5.1%	0.0%	20.5%
No Opinion	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	43.6%	43.6%	10.3%	2.6%	100.0%

Table J6. Descriptive Statistics of Computer Skills for IH

Computer Skills – Hiring	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.4750	.71567	1.00	4.00
Organizational Use	40	1.7000	.72324	1.00	4.00

Table J7. Test Statistics of Computer Skills for IH

Test	Personal Viewpoint	Organizational Use
Chi-Square	37.400 ^a	26.000 ^a
df	3	3
Asymp. Sig.	.000	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table J8. Computer Skills of PV vs. OU for IH

Computer Skills - Hiring			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	25	10.0	15.0
Agree	12	10.0	2.0
No Opinion	2	10.0	-8.0
Disagree	1	10.0	-9.0
Total	40		
Organizational Use			
Always	17	10.0	7.0
Frequently	19	10.0	9.0
Seldom	3	10.0	-7.0
Never	1	10.0	-9.0
Total	40		

Table J9. Crosstabulation of Computer Skills for IP

PERSONAL VIEWPOINT (PV) about Basic Computer Skills: Project Manager must possess basic computer skills (word processing, spreadsheets, databases) to manage any type of project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Basic Computer Skills: Requires project management staff to possess basic computer skills (word processing, spreadsheets, databases) to manage any type of project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	17	7	1	0	25
Agree	2	7	2	0	11
No Opinion	0	0	1	1	2
Disagree	0	2	0	0	2
Strongly Disagree	0	0	0	0	0
Total	19	16	4	1	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	42.5%	17.5%	2.5%	0.0%	62.5%
Agree	5.0%	17.5%	5.0%	0.0%	27.5%
No Opinion	0.0%	0.0%	2.5%	2.5%	5.0%
Disagree	0.0%	5.0%	0.0%	0.0%	5.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	47.5%	40.0%	10.0%	2.5%	100.0%

Table J10. Descriptive Statistics of Computer Skills for IP

Computer Skills – Promotion	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.5250	.87669	1.00	4.00
Organizational Use	40	1.8000	.88289	1.00	4.00

Table J11. Test Statistics of Computer Skills for IP

Test	Personal Viewpoint	Organizational Use
Chi-Square	38.600 ^a	16.000 ^a
df	3	3
Asymp. Sig.	.000	.001

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table J12. Computer Skills of PV vs. OU for IP

Computer Skills – Promotion			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	26	10.0	16.0
Agree	10	10.0	.0
No Opinion	1	10.0	-9.0
Disagree	3	10.0	-7.0
Total	40		
Organizational Use			
Always	18	10.0	8.0
Frequently	14	10.0	4.0
Seldom	6	10.0	-4.0
Never	2	10.0	-8.0
Total	40		

APPENDIX K. CONFLICT RESOLUTION SKILLS

The following figures and tables are in support of Chapter 4.

Table K1. Crosstabulation of Conflict Resolution Skills for PD

PERSONAL VIEWPOINT (PV) about Conflict Resolution Skills: Project Manager must possess effective conflict resolution skills for resolving team and organizational conflicts: Use in Position Description					
ORGANIZATIONAL USE (OU) of Conflict Resolution Skills: Requires project management staff to have effective conflict resolution skills for resolving team and organizational conflicts: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	6	10	2	1	19
Agree	2	8	7	0	17
No Opinion	0	1	2	1	4
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	8	19	11	2	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	15.0%	25.0%	5.0%	2.5%	47.5%
Agree	5.0%	20.0%	17.5%	0.0%	42.5%
No Opinion	0.0%	2.5%	5.0%	2.5%	10.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	20.0%	47.5%	27.5%	5.0%	100.0%

Table K2. Descriptive Statistics of Conflict Resolution Skills for PD

Conflict Resolution Skills – Position Description	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.6250	.66747	1.00	3.00
Organizational Use	40	2.1750	.81296	1.00	4.00

Table K3. Test Statistics of Conflict Resolution Skills for PD

Test	Personal Viewpoint	Organizational Use
Chi-Square	9.950 ^a	15.000 ^b
df	2	3
Asymp. Sig.	.007	.002

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 13.3.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table K4. Conflict Resolution Skills of PV vs. OU for PD

Conflict Resolution Skills – Position Description			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	19	13.3	5.7
Agree	17	13.3	3.7
No Opinion	4	13.3	-9.3
Total	40		
Organizational Use			
Always	8	10.0	-2.0
Frequently	19	10.0	9.0
Seldom	11	10.0	1.0
Never	2	10.0	-8.0
Total	40		

Table K5. Crosstabulation of Conflict Resolution Skills for IH

PERSONAL VIEWPOINT (PV) about Conflict Resolution Skills: Project Manager must possess effective conflict resolution skills for resolving team and organizational conflicts: Use in Hiring					
ORGANIZATIONAL USE (OU) of Conflict Resolution Skills: Requires project management staff to have effective conflict resolution skills for resolving team and organizational conflicts: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	4	6	2	2	14
Agree	2	11	6	1	20
No Opinion	0	0	4	0	4
Disagree	0	1	0	1	2
Strongly Disagree	0	0	0	0	0
Total	6	18	12	4	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	10.0%	15.0%	5.0%	5.0%	35.0%
Agree	5.0%	27.5%	15.0%	2.5%	50.0%
No Opinion	0.0%	0.0%	10.0%	0.0%	10.0%
Disagree	0.0%	2.5%	0.0%	2.5%	5.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	15.0%	45.0%	30.0%	10.0%	100.0%

Table K6. Descriptive Statistics of Conflict Resolution Skills for IH

Conflict Resolution Skills – Hiring	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.8500	.80224	1.00	4.00
Organizational Use	40	2.3500	.86380	1.00	4.00

Table K7. Test Statistics of Conflict Resolution Skills for IH

Test	Personal Viewpoint	Organizational Use
Chi-Square	21.600 ^a	12.000 ^a
df	3	3
Asymp. Sig.	.000	.007

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table K8. Conflict Resolution of PV vs. OU for IH

Conflict Resolution Skills – Hiring			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	14	10.0	4.0
Agree	20	10.0	10.0
No Opinion	4	10.0	-6.0
Disagree	2	10.0	-8.0
Total	40		
Organizational Use			
Always	6	10.0	-4.0
Frequently	18	10.0	8.0
Seldom	12	10.0	2.0
Never	4	10.0	-6.0
Total	40		

Table K9. Crosstabulation of Conflict Resolution Skills for IP

PERSONAL VIEWPOINT (PV) about Conflict Resolution Skills: Project Manager must possess effective conflict resolution skills for resolving team and organizational conflicts: Use in Promotion					
ORGANIZATIONAL USE (OU) of Conflict Resolution Skills: Requires project management staff to have effective conflict resolution skills for resolving team and organizational conflicts: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	5	5	3	2	15
Agree	4	8	6	0	18
No Opinion	0	1	3	1	5
Disagree	0	1	0	1	2
Strongly Disagree	0	0	0	0	0
Total	9	15	12	4	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	12.5%	12.5%	7.5%	5.0%	37.5%
Agree	10.0%	20.0%	15.0%	0.0%	45.0%
No Opinion	0.0%	2.5%	7.5%	2.5%	12.5%
Disagree	0.0%	2.5%	0.0%	2.5%	5.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	22.5%	37.5%	30.0%	10.0%	100.0%

Table K10. Descriptive Statistics of Conflict Resolution Skills for IP

Conflict Resolution Skills - Promotion	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.8500	.83359	1.00	4.00
Organizational Use	40	2.2750	.93336	1.00	4.00

Table K11 Test Statistics of Conflict Resolution Skills for IP

Test	Personal Viewpoint	Organizational Use
Chi-Square	17.800 ^a	6.600 ^a
df	3	3
Asymp. Sig.	.000	.086

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table K12. Conflict Resolution Skills of PV vs. OU for IP

Conflict Resolution Skills – Promotion			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	15	10.0	5.0
Agree	18	10.0	8.0
No Opinion	5	10.0	-5.0
Disagree	2	10.0	-8.0
Total	40		
Organizational Use			
Always	9	10.0	-1.0
Frequently	15	10.0	5.0
Seldom	12	10.0	2.0
Never	4	10.0	-6.0
Total	40		

APPENDIX L. DECISION-MAKING SKILLS

The following figures and tables are in support of Chapter 4.

Table L1. Crosstabulation for Decision-Making Skills for PD

PERSONAL VIEWPOINT (PV) about Decision Making Skills: Project Manager must possess effective decision making skills for making good choices in managing a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Decision Making Skills: Requires project management staff to have effective decision making skills for making good choices in managing a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	13	9	2	2	26
Agree	0	10	3	0	13
No Opinion	0	0	1	0	1
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	13	19	6	2	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	32.5%	22.5%	5.0%	5.0%	65.0%
Agree	0.0%	25.0%	7.5%	0.0%	32.5%
No Opinion	0.0%	0.0%	2.5%	0.0%	2.5%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	32.5%	47.5%	15.0%	5.0%	100.0%

Table L2. Descriptive Statistics of Decision-Making Skills of PD

Decision-Making Skills – Position Description	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.3750	.54006	1.00	3.00
Organizational Use	40	1.9250	.82858	1.00	4.00

Table L3. Test Statistics of Decision-Making Skills for PD

Test	Personal Viewpoint	Organizational Use
Chi-Square	23.450 ^a	17.000 ^b
df	2	3
Asymp. Sig.	.000	.001

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 13.3.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table L4. Decision-Making Skills of PV vs. OUS for PD

Decision-Making Skills – Position Description			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	26	13.3	12.7
Agree	13	13.3	-.3
No Opinion	1	13.3	-12.3
Total	40		
Organizational Use			
Always	13	10.0	3.0
Frequently	19	10.0	9.0
Seldom	6	10.0	-4.0
Never	2	10.0	-8.0
Total	40		

Table L5. Crosstabulation of Decision-Making Skills for IH

PERSONAL VIEWPOINT (PV) about Decision Making Skills: Project Manager must possess effective decision making skills for making good choices in managing a project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Decision Making Skills: Requires project management staff to have effective decision making skills for making good choices in managing a project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	10	7	3	1	21
Agree	0	9	5	1	15
No Opinion	0	1	1	0	2
Disagree	0	0	1	0	1
Strongly Disagree	0	0	0	0	0
Total	10	17	10	2	39
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	25.6%	17.9%	7.7%	2.6%	53.8%
Agree	0.0%	23.1%	12.8%	2.6%	38.5%
No Opinion	0.0%	2.6%	2.6%	0.0%	5.1%
Disagree	0.0%	0.0%	2.6%	0.0%	2.6%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	25.6%	43.6%	25.6%	5.1%	100.0%

Table L6. Descriptive Statistics of Decision-Making Skills for IH

Decision-Making Skills – Hiring	N	Mean	Std Dev	Min	Max
Personal Viewpoint	39	1.5641	.71800	1.00	4.00
Organizational Use	40	2.0750	.85896	1.00	4.00

Table L7. Test Statistics of Decision-Making Skills for IH

Test	Personal Viewpoint	Organizational Use
Chi-Square	29.821 ^a	11.400 ^b
df	3	3
Asymp. Sig.	.000	.010

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 9.8.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table L8. Decision-Making Skills of PV vs. OU for IH

Decision-Making Skills – Hiring			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	21	9.8	11.2
Agree	15	9.8	5.2
No Opinion	2	9.8	-7.8
Disagree	1	9.8	-8.8
Total	39		
Organizational Use			
Always	11	10.0	1.0
Frequently	17	10.0	7.0
Seldom	10	10.0	.0
Never	2	10.0	-8.0
Total	40		

Table L9. Crosstabulation of Decision-Making Skills for IP

PERSONAL VIEWPOINT (PV) about Decision Making Skills: Project Manager must possess effective decision making skills for making good choices in managing a project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Decision Making Skills: Requires project management staff to have effective decision making skills for making good choices in managing a project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	12	7	4	1	24
Agree	1	8	4	2	15
No Opinion	0	0	0	0	0
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	13	15	8	3	39
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	30.8%	17.9%	10.3%	2.6%	61.5%
Agree	2.6%	20.5%	10.3%	5.1%	38.5%
No Opinion	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	33.3%	38.5%	20.5%	7.7%	100.0%

Table L10. Descriptive Statistics of Decision-Making Skills for IP

Decision-Making Skills – Promotion	N	Mean	Std Dev	Min	Max
Personal Viewpoint	39	1.3846	.49286	1.00	2.00
Organizational Use	40	2.0000	.93370	1.00	4.00

Table L11. Test Statistics of Decision-Making Skills for IP

Test	Personal Viewpoint	Organizational Use
Chi-Square	2.077 ^a	9.400 ^b
df	1	3
Asymp. Sig.	.150	.024

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 19.5.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table L12. Decision-Making Skills of PV vs. OU for IP

Decision-Making Skills - Promotion			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	24	19.5	4.5
Agree	15	19.5	-4.5
Total	39		
Organizational Use			
Always	14	10.0	4.0
Frequently	15	10.0	5.0
Seldom	8	10.0	-2.0
Never	3	10.0	-7.0
Total	40		

APPENDIX M. DELEGATION SKILLS

The following figures and tables are in support of Chapter 4.

Table M1. Crosstabulation of Delegation Skills for PD

PERSONAL VIEWPOINT (PV) about Delegation Skills: Project Manager must possess effective delegation skills in delegating work among team members in managing a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Delegation Skills: Requires project management staff to have effective delegation skills in delegating work among team members in managing a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	7	5	3	1	16
Agree	0	11	7	1	19
No Opinion	0	0	2	3	5
Disagree	0	0	0	2	2
Strongly Disagree	0	0	0	0	0
Total	7	16	12	7	42
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	16.7%	11.9%	7.1%	2.4%	38.1%
Agree	0.0%	26.2%	16.7%	2.4%	45.2%
No Opinion	0.0%	0.0%	4.8%	7.1%	11.9%
Disagree	0.0%	0.0%	0.0%	4.8%	4.8%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	16.7%	38.1%	28.6%	16.7%	100.0%

Table M2. Descriptive Statistics of Delegation Skills for PD

Delegation Skills – Position Description	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.7250	.67889	1.00	3.00
Organizational Use	40	2.3750	.92508	1.00	4.00

Table M3. Test Statistics of Delegation Skills for PD

Test	Personal Viewpoint	Organizational Use
Chi-Square	8.150 ^a	7.400 ^b
df	2	3
Asymp. Sig.	.017	.060

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 13.3.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table M4. Delegation Skills of PV vs. OU for PD

Delegation Skills – Position Description			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	16	13.3	2.7
Agree	19	13.3	5.7
No Opinion	5	13.3	-8.3
Total	40		
Organizational Use			
Always	7	10.0	-3.0
Frequently	16	10.0	6.0
Seldom	12	10.0	2.0
Never	5	10.0	-5.0
Total	40		

Table M5. Crosstabulation of Delegation Skills for IH

PERSONAL VIEWPOINT (PV) about Delegation Skills: Project Manager must possess effective delegation skills in delegating work among team members in managing a project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Delegation Skills: Requires project management staff to have effective delegation skills in delegating work among team members in managing a project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	5	4	3	1	13
Agree	0	10	6	1	17
No Opinion	0	1	4	3	8
Disagree	0	0	0	2	2
Strongly Disagree	0	0	0	0	0
Total	5	15	13	7	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	12.5%	10.0%	7.5%	2.5%	32.5%
Agree	0.0%	25.0%	15.0%	2.5%	42.5%
No Opinion	0.0%	2.5%	10.0%	7.5%	20.0%
Disagree	0.0%	0.0%	0.0%	5.0%	5.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	12.5%	37.5%	32.5%	17.5%	100.0%

Table M6. Descriptive Statistics of Delegation Skills for IH

Delegation Skills - Hiring	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.9750	.86194	1.00	4.00
Organizational Use	40	2.5500	.93233	1.00	4.00

Table M7. Test Statistics of Delegation Skills for IH

Test	Personal Viewpoint	Organizational Use
Chi-Square	12.600 ^a	6.800 ^a
df	3	3
Asymp. Sig.	.006	.079

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table M8. Delegation Skills of PV vs. OU for IH

Delegation Skills – Hiring			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	13	10.0	3.0
Agree	17	10.0	7.0
No Opinion	8	10.0	-2.0
Disagree	2	10.0	-8.0
Total	40		
Organizational Use			
Always	5	10.0	-5.0
Frequently	15	10.0	5.0
Seldom	13	10.0	3.0
Never	7	10.0	-3.0
Total	40		

Table M9. Crosstabulation Skills of Delegation Skills for IP

PERSONAL VIEWPOINT (PV) about Delegation Skills: Project Manager must possess effective delegation skills in delegating work among team members in managing a project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Delegation Skills: Requires project management staff to have effective delegation skills in delegating work among team members in managing a project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	5	4	4	1	14
Agree	0	9	8	1	18
No Opinion	0	1	2	1	4
Disagree	0	0	2	2	4
Strongly Disagree	0	0	0	0	0
Total	5	14	16	5	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	12.5%	10.0%	10.0%	2.5%	35.0%
Agree	0.0%	22.5%	20.0%	2.5%	45.0%
No Opinion	0.0%	2.5%	5.0%	2.5%	10.0%
Disagree	0.0%	0.0%	5.0%	5.0%	10.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	12.5%	35.0%	40.0%	12.5%	100.0%

Table M10. Descriptive Statistics of Delegation Skills for IP

Delegation Skills – Promotion	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.9500	.93233	1.00	4.00
Organizational Use	40	2.5250	.87669	1.00	4.00

Table M11. Test Statistics of Delegation Skills for IP

Test	Personal Viewpoint	Organizational Use
Chi-Square	15.200 ^a	10.200 ^a
df	3	3
Asymp. Sig.	.002	.017

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table M12. Delegation Skills of PV vs. OU for IP

Delegation – Promotion			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	14	10.0	4.0
Agree	18	10.0	8.0
No Opinion	4	10.0	-6.0
Disagree	4	10.0	-6.0
Total	40		
Organizational Use			
Always	5	10.0	-5.0
Frequently	14	10.0	4.0
Seldom	16	10.0	6.0
Never	5	10.0	-5.0
Total	40		

APPENDIX N. MANAGEMENT SUPPORT BUILDING SKILLS

The following figures and tables are in support of Chapter 4.

Table N1. Crosstabulation of Management Support Building Skills for PD

PERSONAL VIEWPOINT (PV) about Management Support Building Skills: Project Manager must possess effective skills for building management support among the organizational executive/leadership staff to manage a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Management Support Building Skills: Requires project management staff to have effective skills for building management support among the organizational executive/leadership staff to manage a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	8	8	7	1	24
Agree	0	9	4	0	13
No Opinion	0	0	0	2	2
Disagree	0	0	1	0	1
Strongly Disagree	0	0	0	0	0
Total	8	17	12	3	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	20.0%	20.0%	17.5%	2.5%	60.0%
Agree	0.0%	22.5%	10.0%	0.0%	32.5%
No Opinion	0.0%	0.0%	0.0%	5.0%	5.0%
Disagree	0.0%	0.0%	2.5%	0.0%	2.5%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	20.0%	42.5%	30.0%	7.5%	100.0%

Table N2. Descriptive Statistics of Management Support Building Skills for PD

Management Support Building Skills – Position Description	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.5000	.71611	1.00	4.00
Organizational Use	40	2.2500	.86972	1.00	4.00

Table N3. Test Statistics of Management Support Building Skills for PD

Test	Personal Viewpoint	Organizational Use
Chi-Square	35.000 ^a	10.600 ^a
df	3	3
Asymp. Sig.	.000	.014

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table N4. Management Support Building Skills of PV vs. OU for PD

Management Support Building Skills – Position Description			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	24	10.0	14.0
Agree	13	10.0	3.0
No Opinion	2	10.0	-8.0
Disagree	1	10.0	-9.0
Total	40		
Organizational Use			
Always	8	10.0	-2.0
Frequently	17	10.0	7.0
Seldom	12	10.0	2.0
Never	3	10.0	-7.0
Total	40		

Table N5. Crosstabulation of Management Support Building Skills for IH

PERSONAL VIEWPOINT (PV) about Management Support Building Skills: Project Manager must possess effective skills for building management support among the organizational executive/leadership staff to manage a project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Management Support Building Skills: Requires project management staff to have effective skills for building management support among the organizational executive/leadership staff to manage a project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	6	7	5	2	20
Agree	0	8	4	0	12
No Opinion	0	2	1	1	4
Disagree	0	0	3	1	4
Strongly Disagree	0	0	0	0	0
Total	6	17	13	4	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	15.0%	17.5%	12.5%	5.0%	50.0%
Agree	0.0%	20.0%	10.0%	0.0%	30.0%
No Opinion	0.0%	5.0%	2.5%	2.5%	10.0%
Disagree	0.0%	0.0%	7.5%	2.5%	10.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	15.0%	42.5%	32.5%	10.0%	100.0%

Table N6. Descriptive Statistics of Management Support Building Skills for IH

Management Support Building Skills – Hiring	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.8000	.99228	1.00	4.00
Organizational Use	40	2.3750	.86787	1.00	4.00

Table N7. Test Statistics of Management Support Building Skills for IH

Test	Personal Viewpoint	Organizational Use
Chi-Square	17.600 ^a	11.000 ^a
df	3	3
Asymp. Sig.	.001	.012

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table N8. Management Support Building Skills of PV vs. OU for IH

Management Support Building Skills – Hiring			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	20	10.0	10.0
Agree	12	10.0	2.0
No Opinion	4	10.0	-6.0
Disagree	4	10.0	-6.0
Total	40		
Organizational Use			
Always	6	10.0	-4.0
Frequently	17	10.0	7.0
Seldom	13	10.0	3.0
Never	4	10.0	-6.0
Total	40		

Table N9. Crosstabulation of Management Support Building Skills for IP

PERSONAL VIEWPOINT (PV) about Management Support Building Skills: Project Manager must possess effective skills for building management support among the organizational executive/leadership staff to manage a project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Management Support Building Skills: Requires project management staff to have effective skills for building management support among the organizational executive/leadership staff to manage a project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	10	9	4	2	25
Agree	0	8	1	0	9
No Opinion	0	1	0	1	2
Disagree	0	1	3	0	4
Strongly Disagree	0	0	0	0	0
Total	10	19	8	3	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	25.0%	22.5%	10.0%	5.0%	62.5%
Agree	0.0%	20.0%	2.5%	0.0%	22.5%
No Opinion	0.0%	2.5%	0.0%	2.5%	5.0%
Disagree	0.0%	2.5%	7.5%	0.0%	10.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	25.0%	47.5%	20.0%	7.5%	100.0%

Table N10. Descriptive Statistics of Management Support Building Skills for IP

Management Support Building Skills – Promotion	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.6250	.97895	1.00	4.00
Organizational Use	40	2.1000	.87119	1.00	4.00

Table N11. Test Statistics of Management Support Building Skills for IP

Test	Personal Viewpoint	Organizational Use
Chi-Square	32.600 ^a	13.400 ^a
df	3	3
Asymp. Sig.	.000	.004

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table N12. Management Support Building Skills of PV vs. OU for IP

Management Support Building Skills – Promotion			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	25	10.0	15.0
Agree	9	10.0	-1.0
No Opinion	2	10.0	-8.0
Disagree	4	10.0	-6.0
Total	40		
Organizational Use			
Always	10	10.0	.0
Frequently	19	10.0	9.0
Seldom	8	10.0	-2.0
Never	3	10.0	-7.0
Total	40		

APPENDIX O. MOTIVATION SKILLS

The following figures and tables are in support of Chapter 4.

Table O1. Crosstabulation of Motivation Skills for PD

PERSONAL VIEWPOINT (PV) about Motivation Skills: Project Manager must possess effective skills for motivating a diverse, possibly global, staff to manage a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Motivation Skills: Requires project management staff to have effective skills for motivating a diverse, possibly global, staff to manage a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	11	2	5	1	19
Agree	1	8	10	0	19
No Opinion	0	0	1	0	1
Disagree	0	0	0	1	1
Strongly Disagree	0	0	0	0	0
Total	12	10	16	2	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	27.5%	5.0%	12.5%	2.5%	47.5%
Agree	2.5%	20.0%	25.0%	0.0%	47.5%
No Opinion	0.0%	0.0%	2.5%	0.0%	2.5%
Disagree	0.0%	0.0%	0.0%	2.5%	2.5%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	30.0%	25.0%	40.0%	5.0%	100.0%

Table O2. Descriptive Statistics of Motivation Skills for PD

Motivation Skills – Position Description	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.6000	.67178	1.00	4.00
Organizational Use	40	2.2000	.93918	1.00	4.00

Table O3. Test Statistics of Motivation Skills for PD

Test	Personal Viewpoint	Organizational Use
Chi-Square	32.400 ^a	10.400 ^a
df	3	3
Asymp. Sig.	.000	.015

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table O4. Motivation Skills of PV vs. OU for PD

Motivation Skills –Position Description			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	19	10.0	9.0
Agree	19	10.0	9.0
No Opinion	1	10.0	-9.0
Disagree	1	10.0	-9.0
Total	40		
Organizational Use			
Always	12	10.0	2.0
Frequently	10	10.0	.0
Seldom	16	10.0	6.0
Never	2	10.0	-8.0
Total	40		

Table O5. Crosstabulation of Motivation Skills for IH

PERSONAL VIEWPOINT (PV) about Motivation Skills: Project Manager must possess effective skills for motivating a diverse, possibly global, staff to manage a project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Motivation Skills: Requires project management staff to have effective skills for motivating a diverse, possibly global, staff to manage a project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	8	3	5	1	17
Agree	0	7	8	0	15
No Opinion	0	2	2	1	5
Disagree	0	0	1	2	3
Strongly Disagree	0	0	0	0	0
Total	8	12	16	4	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	20.0%	7.5%	12.5%	2.5%	42.5%
Agree	0.0%	17.5%	20.0%	0.0%	37.5%
No Opinion	0.0%	5.0%	5.0%	2.5%	12.5%
Disagree	0.0%	0.0%	2.5%	5.0%	7.5%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	20.0%	30.0%	40.0%	10.0%	100.0%

Table O6. Descriptive Statistics of Motivation Skills for IH

Motivation Skills - Hiring	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.8500	.92126	1.00	4.00
Organizational Use	40	2.4000	.92819	1.00	4.00

Table O7. Test Statistics of Motivation Skills for IH

Test	Personal Viewpoint	Organizational Use
Chi-Square	14.800 ^a	8.000 ^a
df	3	3
Asymp. Sig.	.002	.046

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table O8. Motivation Skills of PV vs. OU for IH

Motivation Skills – Hiring			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	17	10.0	7.0
Agree	15	10.0	5.0
No Opinion	5	10.0	-5.0
Disagree	3	10.0	-7.0
Total	40		
Organizational Use			
Always	8	10.0	-2.0
Frequently	12	10.0	2.0
Seldom	16	10.0	6.0
Never	4	10.0	-6.0
Total	40		

Table O9. Crosstabulation of Motivation Skills for IP

PERSONAL VIEWPOINT (PV) about Motivation Skills: Project Manager must possess effective skills for motivating a diverse, possibly global, staff to manage a project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Motivation Skills: Requires project management staff to have effective skills for motivating a diverse, possibly global, staff to manage a project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	9	5	4	1	19
Agree	2	5	7	1	15
No Opinion	0	2	1	0	3
Disagree	0	1	1	1	3
Strongly Disagree	0	0	0	0	0
Total	11	13	13	3	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	22.5%	12.5%	10.0%	2.5%	47.5%
Agree	5.0%	12.5%	17.5%	2.5%	37.5%
No Opinion	0.0%	5.0%	2.5%	0.0%	7.5%
Disagree	0.0%	2.5%	2.5%	2.5%	7.5%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	27.5%	32.5%	32.5%	7.5%	100.0%

Table O10. Descriptive Statistics of Motivation Skills for IP

Motivation Skills - Promotion	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.7500	.89872	1.00	4.00
Organizational Use	40	2.2000	.93918	1.00	4.00

Table O11. Test Statistics of Motivation Skills for IP

Test	Personal Viewpoint	Organizational Use
Chi-Square	20.400 ^a	6.800 ^a
Df	3	3
Asymp. Sig.	.000	.079

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table O12. Motivation Skills of PV vs. OU for IP

Motivation Skills – Promotion			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	19	10.0	9.0
Agree	15	10.0	5.0
No Opinion	3	10.0	-7.0
Disagree	3	10.0	-7.0
Total	40		
Organizational Use			
Always	11	10.0	1.0
Frequently	13	10.0	3.0
Seldom	13	10.0	3.0
Never	3	10.0	-7.0
Total	40		

APPENDIX P. NEGOTIATION SKILLS

The following figures and tables are in support of Chapter 4.

Table P1. Crosstabulation of Negotiation Skills for PD

PERSONAL VIEWPOINT (PV) about Negotiation Skills: Project Manager must possess effective skills for negotiating complex and diverse issues to manage a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Negotiation Skills: Requires project management staff to have effective skills for negotiating complex and diverse issues to manage a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	8	3	9	1	21
Agree	0	8	7	0	15
No Opinion	0	0	2	1	3
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	8	11	18	2	39
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	20.5%	7.7%	23.1%	2.6%	53.8%
Agree	0.0%	20.5%	17.9%	0.0%	38.5%
No Opinion	0.0%	0.0%	5.1%	2.6%	7.7%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	20.5%	28.2%	46.2%	5.1%	100.0%

Table P2. Descriptive Statistics of Negotiation Skills for PD

Negotiation Skills – Position Description	N	Mean	Std Dev	Min	Max
Personal Viewpoint	39	1.5385	.64262	1.00	3.00
Organizational Use	39	2.3590	.87320	1.00	4.00

Table P3. Test Statistics of Negotiation Skills for PD

Test	Personal Viewpoint	Organizational Use
Chi-Square	12.923 ^a	13.615 ^b
df	2	3
Asymp. Sig.	.002	.003

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 13.0.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 9.8.

Table P4. Negotiation Skills of PV vs. OU for PD

Negotiation Skills – Position Description			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	21	13.0	8.0
Agree	15	13.0	2.0
No Opinion	3	13.0	-10.0
Total	39		
Organizational Use			
Always	8	9.8	-1.8
Frequently	11	9.8	1.2
Seldom	18	9.8	8.2
Never	2	9.8	-7.8
Total	39		

Table P5. Crosstabulation of Negotiation Skills for IH

PERSONAL VIEWPOINT (PV) about Negotiation Skills: Project Manager must possess effective skills for negotiating complex and diverse issues to manage a project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Negotiation Skills: Requires project management staff to have effective skills for negotiating complex and diverse issues to manage a project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	5	4	6	2	17
Agree	0	7	8	1	16
No Opinion	0	3	1	1	5
Disagree	0	0	0	1	1
Strongly Disagree	0	0	0	0	0
Total	5	14	15	5	39
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	12.8%	10.3%	15.4%	5.1%	43.6%
Agree	0.0%	17.9%	20.5%	2.6%	41.0%
No Opinion	0.0%	7.7%	2.6%	2.6%	12.8%
Disagree	0.0%	0.0%	0.0%	2.6%	2.6%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	12.8%	35.9%	38.5%	12.8%	100.0%

Table P6. Descriptive Statistics of Negotiation Skills for IH

Negotiation Skills - Hiring	N	Mean	Std Dev	Min	Max
Personal Viewpoint	39	1.7436	.78532	1.00	4.00
Organizational Use	39	2.5128	.88472	1.00	4.00

Table P7. Test Statistics of Negotiation Skills for IH

Test	Personal Viewpoint	Organizational Use
Chi-Square	19.564 ^a	9.308 ^a
df	3	3
Asymp. Sig.	.000	.025

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 9.8.

Table P8. Negotiation Skills of PV vs. OU for IH

Negotiation Skills – Hiring			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	17	9.8	7.2
Agree	16	9.8	6.2
No Opinion	5	9.8	-4.8
Disagree	1	9.8	-8.8
Total	39		
Organizational Use			
Always	5	9.8	-4.8
Frequently	14	9.8	4.2
Seldom	15	9.8	5.2
Never	5	9.8	-4.8
Total	39		

Table P9. Crosstabulation of Negotiation Skills for IP

PERSONAL VIEWPOINT (PV) about Negotiation Skills: Project Manager must possess effective skills for negotiating complex and diverse issues to manage a project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Negotiation Skills: Requires project management staff to have effective skills for negotiating complex and diverse issues to manage a project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	7	5	6	1	19
Agree	1	6	7	0	14
No Opinion	0	2	1	1	4
Disagree	0	0	0	1	1
Strongly Disagree	0	0	0	0	0
Total	8	13	14	3	38
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	18.4%	13.2%	15.8%	2.6%	50.0%
Agree	2.6%	15.8%	18.4%	0.0%	36.8%
No Opinion	0.0%	5.3%	2.6%	2.6%	10.5%
Disagree	0.0%	0.0%	0.0%	2.6%	2.6%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	21.1%	34.2%	36.8%	7.9%	100.0%

Table P10. Descriptive Statistics of Negotiation Skills for IP

Negotiation Skills - Promotion	N	Mean	Std Dev	Min	Max
Personal Viewpoint	38	1.6579	.78072	1.00	4.00
Organizational Use	39	2.3590	.93153	1.00	4.00

Table P11. Test Statistics of Negotiation Skills for IP

Test	Personal Viewpoint	Organizational Use
Chi-Square	22.421 ^a	6.641 ^b
df	3	3
Asymp. Sig.	.000	.084

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 9.5.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 9.8.

Table P12. Negotiation Skills of PV vs. OU for IP

Negotiation Skills – Promotion			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	19	9.5	9.5
Agree	14	9.5	4.5
No Opinion	4	9.5	-5.5
Disagree	1	9.5	-8.5
Total	38		
Organizational Use			
Always	8	9.8	-1.8
Frequently	13	9.8	3.2
Seldom	14	9.8	4.2
Never	4	9.8	-5.8
Total	39		

APPENDIX Q. ORGANIZATIONAL SKILLS

The following figures and tables are in support of Chapter 4.

Table Q1. Crosstabulation of Organizational Skills for PD

PERSONAL VIEWPOINT (PV) about Organizational Skills: Project Manager must possess organizational skills to effectively manage a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Organizational Skills: Requires project management staff to have organizational skills to effectively manage a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	9	14	1	2	26
Agree	0	8	3	0	11
No Opinion	0	0	1	1	2
Disagree	0	1	0	0	1
Strongly Disagree	0	0	0	0	0
Total	9	23	5	3	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	22.5%	35.0%	2.5%	5.0%	65.0%
Agree	0.0%	20.0%	7.5%	0.0%	27.5%
No Opinion	0.0%	0.0%	2.5%	2.5%	5.0%
Disagree	0.0%	2.5%	0.0%	0.0%	2.5%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	22.5%	57.5%	12.5%	7.5%	100.0%

Table Q2. Descriptive Statistics of Organizational Skills for PD

Organizational Skills – Position Description	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.4500	.71432	1.00	4.00
Organizational Use	40	2.0500	.81492	1.00	4.00

Table Q3. Test Statistics of Organizational Skills for PD

Test	Personal Viewpoint	Organizational Use
Chi-Square	40.200 ^a	24.400 ^a
df	3	3
Asymp. Sig.	.000	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table Q4. Organizational Skills of PV vs. OU for PD

Organizational Skills – Positional Description			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	26	10.0	16.0
Agree	11	10.0	1.0
No Opinion	2	10.0	-8.0
Disagree	1	10.0	-9.0
Total	40		
Organizational Use			
Always	9	10.0	-1.0
Frequently	23	10.0	13.0
Seldom	5	10.0	-5.0
Never	3	10.0	-7.0
Total	40		

Table Q5. Crosstabulation of Organizational Skills for IH

PERSONAL VIEWPOINT (PV) about Organizational Skills: Project Manager must possess organizational skills to effectively manage a project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Organizational Skills: Requires project management staff to have organizational skills to effectively manage a project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	7	11	3	2	23
Agree	0	7	6	0	13
No Opinion	0	1	1	1	3
Disagree	0	0	1	0	1
Strongly Disagree	0	0	0	0	0
Total	7	19	11	3	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	17.5%	27.5%	7.5%	5.0%	57.5%
Agree	0.0%	17.5%	15.0%	0.0%	32.5%
No Opinion	0.0%	2.5%	2.5%	2.5%	7.5%
Disagree	0.0%	0.0%	2.5%	0.0%	2.5%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	17.5%	47.5%	27.5%	7.5%	100.0%

Table Q6. Description Statistics of Organizational Skills for IH

Organizational Skills – Hiring	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.5500	.74936	1.00	4.00
Organizational Use	40	2.2500	.83972	1.00	4.00

Table Q7. Test Statistics of Organizational Skills for IH

Test	Personal Viewpoint	Organizational Use
Chi-Square	30.800 ^a	14.000 ^a
df	3	3
Asymp. Sig.	.000	.003

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table Q8. Organizational Skills of PV vs. OU for IH

Organizational Skills – Hiring			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	23	10.0	13.0
Agree	13	10.0	3.0
No Opinion	3	10.0	-7.0
Disagree	1	10.0	-9.0
Total	40		
Organizational Use			
Always	7	10.0	-3.0
Frequently	19	10.0	9.0
Seldom	11	10.0	1.0
Never	3	10.0	-7.0
Total	40		

Table Q9. Crosstabulation of Organizational Skills for IP

PERSONAL VIEWPOINT (PV) about Organizational Skills: Project Manager must possess organizational skills to effectively manage a project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Organizational Skills: Requires project management staff to have organizational skills to effectively manage a project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	7	11	4	2	24
Agree	1	7	4	0	12
No Opinion	0	1	1	1	3
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	8	19	9	3	39
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	17.9%	28.2%	10.3%	5.1%	61.5%
Agree	2.6%	17.9%	10.3%	0.0%	30.8%
No Opinion	0.0%	2.6%	2.6%	2.6%	7.7%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	20.5%	48.7%	23.1%	7.7%	100.0%

Table Q10. Descriptive Statistics of Organizational Skills for IP

Organizational Skills - Promotion	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.4750	.64001	1.00	3.00
Organizational Use	39	2.1795	.85446	1.00	4.00

Table Q11. Test Statistics of Organizational Skills for IP

Test	Personal Viewpoint	Organizational Use
Chi-Square	16.550 ^a	13.821 ^b
df	2	3
Asymp. Sig.	.000	.003

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 13.3.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 9.8.

Table Q12. Organizational Skills of PV vs. OU for IP

Organizational Skills – Promotion			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	24	13.3	10.7
Agree	13	13.3	-.3
No Opinion	3	13.3	-10.3
Total	40		
Organizational Use			
Always	8	9.8	-1.8
Frequently	19	9.8	9.2
Seldom	9	9.8	-.8
Never	3	9.8	-6.8
Total	39		

APPENDIX R. ORGANIZATIONAL POLITICAL SKILLS

The following figures and tables are in support of Chapter 4.

Table R1. Crosstabulation of Organizational Political Skills for PD

PERSONAL VIEWPOINT (PV) about Organizational Political Skills: Project Manager must possess organizational skills to effectively manage a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Organizational Political Skills: Requires project management staff to have organizational skills to effectively manage a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	7	6	7	3	23
Agree	0	5	4	1	10
No Opinion	0	0	3	2	5
Disagree	0	0	1	0	1
Strongly Disagree	0	0	0	1	1
Total	7	11	15	7	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	17.5%	15.0%	17.5%	7.5%	57.5%
Agree	0.0%	12.5%	10.0%	2.5%	25.0%
No Opinion	0.0%	0.0%	7.5%	5.0%	12.5%
Disagree	0.0%	0.0%	2.5%	0.0%	2.5%
Strongly Disagree	0.0%	0.0%	0.0%	2.5%	2.5%
Total	17.5%	27.5%	37.5%	17.5%	100.0%

Table R2. Descriptive Statistics of Organizational Political Skills for PD

Organizational Political Skills – Position Description	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.6750	.97106	1.00	5.00
Organizational Use	40	2.5500	.98580	1.00	4.00

Table R3. Test Statistics of Organizational Political Skills for PD

Test	Personal Viewpoint	Organizational Viewpoint
Chi-Square	42.000 ^a	4.400 ^b
df	4	3
Asymp. Sig.	.000	.221

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 8.0.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table R4. Organizational Political Skills of PV vs. OU for PD

Organizational Political Skills – Position Description			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	23	8.0	15.0
Agree	10	8.0	2.0
No Opinion	5	8.0	-3.0
Disagree	1	8.0	-7.0
Strongly Disagree	1	8.0	-7.0
Total	40		
Organizational Use			
Always	7	10.0	-3.0
Frequently	11	10.0	1.0
Seldom	15	10.0	5.0
Never	7	10.0	-3.0
Total	40		

Table R5. Crosstabulation of Organizational Political Skills for IH

PERSONAL VIEWPOINT (PV) about Organizational Political Skills: Project Manager must possess organizational political skills of meeting the organizational leadership's expectations to manage any type of project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Organizational Political Skills: Requires project management staff to have organizational political skills of meeting the organizational leadership's expectations: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	6	6	5	2	19
Agree	0	6	5	2	13
No Opinion	0	1	2	3	6
Disagree	0	1	1	0	2
Strongly Disagree	0	0	0	0	0
Total	6	14	13	7	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	15.0%	15.0%	12.5%	5.0%	47.5%
Agree	0.0%	15.0%	12.5%	5.0%	32.5%
No Opinion	0.0%	2.5%	5.0%	7.5%	15.0%
Disagree	0.0%	2.5%	2.5%	0.0%	5.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	15.0%	35.0%	32.5%	17.5%	100.0%

Table R6. Descriptive Statistics of Organizational Political Skills for IH

Organizational Political Skills – Hiring	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.7750	.89120	1.00	4.00
Organizational Use	40	2.5250	.96044	1.00	4.00

Table R7. Test Statistics of Organizational Political Skills for IH

Test	Personal Viewpoint	Organizational Use
Chi-Square	17.000 ^a	5.000 ^a
df	3	3
Asymp. Sig.	.001	.172

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table R8. Organizational Political Skills of PV vs. OU for IH

Organizational Political Skills – Hiring			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	19	10.0	9.0
Agree	13	10.0	3.0
No Opinion	6	10.0	-4.0
Disagree	2	10.0	-8.0
Total	40		
Organizational Use			
Always	6	10.0	-4.0
Frequently	14	10.0	4.0
Seldom	13	10.0	3.0
Never	7	10.0	-3.0
Total	40		

Table R9. Crosstabulation of Organizational Political Skills for IP

PERSONAL VIEWPOINT (PV) about Organizational Political Skills: Project Manager must possess organizational political skills of meeting the organizational leadership's expectations to manage any type of project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Organizational Political Skills: Requires project management staff to have organizational political skills of meeting the organizational leadership's expectations: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	7	7	6	2	22
Agree	2	4	2	1	9
No Opinion	1	1	3	2	7
Disagree	1	0	0	1	2
Strongly Disagree	0	0	0	0	0
Total	11	12	11	6	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	17.5%	17.5%	15.0%	5.0%	55.0%
Agree	5.0%	10.0%	5.0%	2.5%	22.5%
No Opinion	2.5%	2.5%	7.5%	5.0%	17.5%
Disagree	2.5%	0.0%	0.0%	2.5%	5.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	27.5%	30.0%	27.5%	15.0%	100.0%

Table R10. Descriptive Statistics of Organizational Political Skills for IP

Organizational Political Skills - Promotion	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.7250	.93336	1.00	4.00
Organizational Use	40	2.3000	1.04268	1.00	4.00

Table R11. Test Statistics of Organizational Political Skills for IP

Test	Personal Viewpoint	Organizational Use
Chi-Square	21.800 ^a	2.200 ^a
df	3	3
Asymp. Sig.	.000	.532

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table R12. Organizational Political Skills of PV vs. OU for IP

Organizational Political Skills - Promotion			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	22	10.0	12.0
Agree	9	10.0	-1.0
No Opinion	7	10.0	-3.0
Disagree	2	10.0	-8.0
Total	40		
Organizational Use			
Always	11	10.0	1.0
Frequently	12	10.0	2.0
Seldom	11	10.0	1.0
Never	6	10.0	-4.0
Total	40		

APPENDIX S. PROBLEM-SOLVING SKILLS

The following figures and tables are in support of Chapter 4.

Table S1. Crosstabulation of Problem-Solving Skills for PD

PERSONAL VIEWPOINT (PV) about Problem Solving Skills: Project Manager must possess problem solving skills for resolving complex problems in managing a project: Use in Position Description					
ORGANIZATIONAL USE (OU) of Problem Solving Skills: Requires project management staff to have problem solving skills for resolving complex problems in managing a project: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	10	8	6	1	25
Agree	0	10	5	0	15
No Opinion	0	0	0	0	0
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	10	18	11	1	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	25.0%	20.0%	15.0%	2.5%	62.5%
Agree	0.0%	25.0%	12.5%	0.0%	37.5%
No Opinion	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	25.0%	45.0%	27.5%	2.5%	100.0%

Table S2. Descriptive Statistics of Problem-Solving Skills for PD

Problem-Solving Skills – Position Description	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.3750	.49029	1.00	2.00
Organizational Use	40	2.0750	.79703	1.00	4.00

Table S3. Test Statistics of Problem-Solving Skills for PD

Test	Personal Viewpoint	Organizational Use
Chi-Square	2.500 ^a	14.600 ^b
df	1	3
Asymp. Sig.	.114	.002

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 20.0.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table S4. Problem-Solving Skills of PV vs. OU for PD

Problem-Solving Skills – Position Description			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	25	20.0	5.0
Agree	15	20.0	-5.0
Total	40		
Organizational Use			
Always	10	10.0	.0
Frequently	18	10.0	8.0
Seldom	11	10.0	1.0
Never	1	10.0	-9.0
Total	40		

Table S5. Crosstabulation of Problem-Solving Skills for IH

PERSONAL VIEWPOINT (PV) about Problem Solving Skills: Project Manager must possess problem solving skills for resolving complex problems in managing a project: Use in Hiring					
ORGANIZATIONAL USE (OU) of Problem Solving Skills: Requires project management staff to have problem solving skills for resolving complex problems in managing a project: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	7	6	4	3	20
Agree	2	11	6	0	19
No Opinion	0	1	0	0	1
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	9	18	10	3	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	17.5%	15.0%	10.0%	7.5%	50.0%
Agree	5.0%	27.5%	15.0%	0.0%	47.5%
No Opinion	0.0%	2.5%	0.0%	0.0%	2.5%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	22.5%	45.0%	25.0%	7.5%	100.0%

Table S6. Descriptive Statistics of Problem-Solving Skills for IH

Problem-Solving Skills - Hiring	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.5250	.55412	1.00	3.00
Organizational Use	40	2.1750	.87376	1.00	4.00

Table S7. Test Statistics of Problem-Solving for IH

Test	Personal Viewpoint	Organizational Use
Chi-Square	17.150 ^a	11.400 ^b
df	2	3
Asymp. Sig.	.000	.010

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 13.3.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table S8. Problem-Solving Skills of PV vs. OU for IH

Problem-Solving Skills – Hiring			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	20	13.3	6.7
Agree	19	13.3	5.7
No Opinion	1	13.3	-12.3
Total	40		
Organizational Use			
Always	9	10.0	-1.0
Frequently	18	10.0	8.0
Seldom	10	10.0	.0
Never	3	10.0	-7.0
Total	40		

Table S9. Crosstabulation of Problem-Solving Skills for IP

PERSONAL VIEWPOINT (PV) about Problem Solving Skills: Project Manager must possess problem solving skills for resolving complex problems in managing a project: Use in Promotion					
ORGANIZATIONAL USE (OU) of Problem Solving Skills: Requires project management staff to have problem solving skills for resolving complex problems in managing a project: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	10	5	5	2	22
Agree	0	9	6	0	0
No Opinion	0	1	0	0	1
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	10	15	11	2	38
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	26.3%	13.2%	13.2%	5.3%	57.9%
Agree	0.0%	23.7%	15.8%	0.0%	39.5%
No Opinion	0.0%	2.6%	0.0%	0.0%	2.6%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	26.3%	39.5%	28.9%	5.3%	100.0%

Table S10. Descriptive Statistics of Problem-Solving Skills for IP

Problem-Solving Skills – Promotion	N	Mean	Std Dev	Min	Max
Personal Viewpoint	39	1.4615	.55470	1.00	3.00
Organizational Use	39	2.1795	.91398	1.00	4.00

Table S11. Test Statistics of Problem-Solving Skills for IP

Test	Personal Viewpoint	Organizational Use
Chi-Square	18.000 ^a	7.667 ^b
df	2	3
Asymp. Sig.	.000	.053

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 13.0.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 9.8.

Table S12. Problem-Solving Skills of PV vs. OU for IP

Problem-Solving Skills - Promotion			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	22	13.0	9.0
Agree	16	13.0	3.0
No Opinion	1	13.0	-12.0
Total	39		
Organizational Use			
Always	10	9.8	.2
Frequently	15	9.8	5.2
Seldom	11	9.8	1.2
Never	3	9.8	-6.8
Total	39		

APPENDIX T. TEAM-BUILDING SKILLS

The following figures and tables are in support of Chapter 4.

Table T1. Crosstabulation of Team-Building Skills for PD

PERSONAL VIEWPOINT (PV) about Team Building Skills: Project Manager must possess team building skills for developing, coaching and mentoring project team members to effectively perform and meet expectations: Use in Position Description					
ORGANIZATIONAL USE (OU) of Team Building Skills: Requires project management staff to have team building skills for developing, coaching and mentoring project team members to effectively perform and meet expectations: Used in Position Description					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	9	7	3	2	21
Agree	0	9	7	1	17
No Opinion	0	0	2	0	2
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	9	16	12	3	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	22.5%	17.5%	7.5%	5.0%	52.5%
Agree	0.0%	22.5%	17.5%	2.5%	42.5%
No Opinion	0.0%	0.0%	5.0%	0.0%	5.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	22.5%	40.0%	30.0%	7.5%	100.0%

Table T2. Descriptive Statistics of Team-Building Skills for PD

Team-Building Skills – Position Description	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.5250	.59861	1.00	3.00
Organizational Use	40	2.2250	.89120	1.00	4.00

Table T3. Test Statistics of Team-Building Skills for PD

Test	Personal Viewpoint	Organizational Use
Chi-Square	15.050 ^a	9.000 ^b
df	2	3
Asymp. Sig.	.001	.029

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 13.3.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table T4. Team-Building Skills of PV vs. OU for PD

Team-Building Skills – Position Description			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	21	13.3	7.7
Agree	17	13.3	3.7
No Opinion	2	13.3	-11.3
Total	40		
Organizational Use			
Always	9	10.0	-1.0
Frequently	16	10.0	6.0
Seldom	12	10.0	2.0
Never	3	10.0	-7.0
Total	40		

Table T5. Crosstabulation of Team-Building Skills for IH

PERSONAL VIEWPOINT (PV) about Team Building Skills: Project Manager must possess team building skills for developing, coaching and mentoring project team members to effectively perform and meet expectations: Use in Hiring					
ORGANIZATIONAL USE (OU) of Team Building Skills: Requires project management staff to have team building skills for developing, coaching and mentoring project team members to effectively perform and meet expectations: Used in Hiring					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	5	8	2	3	18
Agree	0	9	10	0	19
No Opinion	0	1	1	1	3
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	5	18	13	4	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	12.5%	20.0%	5.0%	7.5%	45.0%
Agree	0.0%	22.5%	25.0%	0.0%	47.5%
No Opinion	0.0%	2.5%	2.5%	2.5%	7.5%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	12.5%	45.0%	32.5%	10.0%	100.0%

Table T6. Descriptive Statistics of Team-Building Skills for IH

Team-Building Skills – Hiring	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.6250	.62788	1.00	3.00
Organizational Use	40	2.4000	.84124	1.00	4.00

Table T7. Test Statistics of Team-Building Skills for IH

Test	Personal Viewpoint	Organizational Use
Chi-Square	12.050 ^a	13.400 ^b
df	2	3
Asymp. Sig.	.002	.004

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 13.3.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table T8. Team-Building Skills of PV vs. OU for IH

Team-Building Skills – Initial Hiring			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	18	13.3	4.7
Agree	19	13.3	5.7
No Opinion	3	13.3	-10.3
Total	40		
Organizational Use			
Always	5	10.0	-5.0
Frequently	18	10.0	8.0
Seldom	13	10.0	3.0
Never	4	10.0	-6.0
Total	40		

Table T9. Crosstabulation of Team-Building Skills for IP

PERSONAL VIEWPOINT (PV) about Team Building Skills: Project Manager must possess team building skills for developing, coaching and mentoring project team members to effectively perform and meet expectations: Use in Promotion					
ORGANIZATIONAL USE (OU) of Team Building Skills: Requires project management staff to have team building skills for developing, coaching and mentoring project team members to effectively perform and meet expectations: Used in Promotion					
Personal Viewpoint	Organizational Use				Total
	Always	Frequently	Seldom	Never	
Strongly Agree	7	6	7	4	24
Agree	0	7	7	0	0
No Opinion	0	1	0	1	2
Disagree	0	0	0	0	0
Strongly Disagree	0	0	0	0	0
Total	7	14	14	5	40
Percentages					
	Always	Frequently	Seldom	Never	Total
Strongly Agree	17.5%	15.0%	17.5%	10.0%	60.0%
Agree	0.0%	17.5%	17.5%	0.0%	35.0%
No Opinion	0.0%	2.5%	0.0%	2.5%	5.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Strongly Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Total	17.5%	35.0%	35.0%	12.5%	100.0%

Table T10. Descriptive Statistics of Team-Building Skills for IP

Team-Building Skills - Promotion	N	Mean	Std Dev	Min	Max
Personal Viewpoint	40	1.4500	.59700	1.00	3.00
Organizational Use	40	2.4250	.93060	1.00	4.00

Table T11. Test Statistics of Team-Building Skills for IP

Test	Personal Viewpoint	Organizational Use
Chi-Square	18.200 ^a	6.600 ^b
df	2	3
Asymp. Sig.	.000	.086

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 13.3.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

Table T12. Team-Building Skills of PV vs. OU for IP

Team-Building Skills – Internal Promotion			
	Observed N	Expected N	Residual
Personal Viewpoint			
Strongly Agree	24	13.3	10.7
Agree	14	13.3	.7
No Opinion	2	13.3	-11.3
Total	40		
Organizational Use			
Always	7	10.0	-3.0
Frequently	14	10.0	4.0
Seldom	14	10.0	4.0
Never	5	10.0	-5.0
Total	40		

APPENDIX U. PM COMPETENCY VALUE GRID

The following table reflects the 12 competencies descriptive statistics derived from the SPSS Graduate Package Version 16 software:

Table U1. Competency Descriptive Statistics

	Descriptive Statistics											
	N	Range	Min	Max	Sum	Mean	Std Dev	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Communication Skills	40	7	1	8	85	2.125	1.9766	3.9071	1.8515	0.3738	2.3147	0.7326
Computer Skills	40	7	1	8	85	2.125	1.9766	3.9071	1.8515	0.3738	2.3147	0.7326
Conflict Resolution Skills	40	9	2	11	252	6.3	2.5641	6.5744	0.0035	0.3738	-1.0459	0.7326
Decision Making Skills	40	9	1	10	178	4.45	2.2182	4.9205	0.6115	0.3738	-0.2509	0.7326
Delegation Skills	40	9	2	11	308	7.7	2.5840	6.6769	-0.3075	0.3738	-1.0347	0.7326
Management Support Building Skills	40	10	1	11	257	6.425	3.2651	10.6609	0.0464	0.3738	-1.3787	0.7326
Motivation Skills	40	9	2	11	290	7.25	2.3616	5.5769	-0.3151	0.3738	-0.7259	0.7326
Negotiation Skills	40	8	3	11	328	8.2	2.3880	5.7026	-0.5585	0.3738	-0.8284	0.7326
Organizational Skills	40	10	1	11	295	7.375	3.1189	9.7276	-0.4056	0.3738	-1.0177	0.7326
Organizational Political Skills	40	10	1	11	193	4.825	3.1451	9.8917	0.5134	0.3738	-0.9827	0.7326
Problem Solving Skills	40	10	1	11	246	6.15	3.0175	9.1051	-0.2573	0.3738	-1.2766	0.7326
Team Building Skills	40	10	1	11	208	5.2	2.8930	8.3692	0.4257	0.3738	-0.9071	0.7326

Table U2. Competency Value and Importance by Factor

Competency	Importance		
	Position Description	Hiring	Promotion
Communication Skills	93%	85%	87%
	Most Important		
Basic Computer Skills	83%	87%	83%
	Most Important		
Conflict Resolution Skills	65%	55%	55%
	Most Important	Least Important	
Decision Making Skills	80%	67%	72%
	Most Important		
Delegation Skills	55%	48%	45%
	Least Important		
Management Support Building Skills	63%	55%	68%
	Most Important	Least Important	Most Important
Motivation Skills	55%	45%	53%
	Least Important		
Negotiation Skills	49%	41%	50%
	Least Important		
Organizational Skills	78%	65%	67%
	Most Important		
Organizational Political Skills	45%	45%	50%
	Least Important		
Problem Solving Skills	70%	65%	63%
	Most Important		
Team Building Skills	63%	55%	50%
	Most Important	Least Important	
Average	67%	59%	62%

Table U3. Competency Importance by Factor

Competency	Importance		
	Position Description	Hiring	Promotion
Communication Skills	Most	Most	Most
Basic Computer Skills	Most	Most	Most
Conflict Resolution Skills	Most	Least	Least
Decision Making Skills	Most	Most	Most
Delegation Skills	Least	Least	Least
Management Support Building Skills	Most	Least	Most
Motivation Skills	Least	Least	Least
Negotiation Skills	Least	Least	Least
Organizational Skills	Most	Most	Most
Organizational Political Skills	Least	Least	Least
Problem Solving Skills	Most	Most	Most
Team Building Skills	Most	Least	Least

Table U4. Competency Importance

Value	Number of Competencies		
	Position Description	Hiring	Promotion
Most Important	8	5	6
Least Important	4	7	6

APPENDIX V. HARD/TECHNICAL (ENGINEERING/SCIENTIFIC) SKILLS

Table V1. Personal Viewpoint of Hard/Technical Skills by Industry for PD

Hard/Technical (Engineering/Scientific) Skills - Identify in Position Description							
Industry		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Total
Engineering	Yes	0	4	0	1	0	5
	No	6	18	1	9	1	35
	Total	6	22	1	10	1	40
Financial Services	Yes	1	4	0	0	1	6
	No	5	18	1	10	0	34
	Total	6	22	1	10	1	40
Food, Beverage, and Tobacco	Yes	0	0	0	0	0	0
	No	6	22	1	10	1	40
	Total	6	22	1	10	1	40
Health Services	Yes	1	0	0	1	0	2
	No	5	22	1	9	1	38
	Total	6	22	1	10	1	40
Manufacturing	Yes	1	1	0	0	0	2
	No	5	21	1	10	1	38
	Total	6	22	1	10	1	40
Media	Yes	0	1	0	1	0	2
	No	6	21	1	9	1	38
	Total	6	22	1	10	1	40
Oil & Gas	Yes	0	1	0	0	0	1
	No	6	21	1	10	1	39
	Total	6	22	1	10	1	40
Public Utilities	Yes	0	3	0	1	0	4
	No	6	19	1	9	1	36
	Total	6	22	1	10	1	40
Transportation & Storage	Yes	0	1	1	4	0	6
	No	6	21	0	6	1	34
	Total	6	22	1	10	1	40
Travel, Tourism, & Recreation	Yes	0	1	0	0	0	1
	No	6	21	1	10	1	39
	Total	6	22	1	10	1	40
Total	Yes	3	16	1	8	1	29
	No	57	204	9	92	9	371
	Total	60	220	10	100	10	400

Table V2. Personal Viewpoint of Hard/Technical Skills by Industry for Hiring

Hard/Technical (Engineering/Scientific) Skills - Use for Hiring							
Industry		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Total
Engineering	Yes	0	4	1	0	0	5
	No	5	15	3	10	1	34
	Total	5	19	4	10	1	39
Financial Services	Yes	1	3	0	1	1	6
	No	4	16	4	9	0	33
	Total	5	19	4	10	1	39
Food, Beverage, and Tobacco	Yes	0	0	0	0	0	0
	No	5	19	4	10	1	39
	Total	5	19	4	10	1	39
Health Services	Yes	0	1	0	1	0	2
	No	5	18	4	9	1	37
	Total	5	19	4	10	1	39
Manufacturing	Yes	1	0	1	0	0	2
	No	4	19	3	10	1	37
	Total	5	19	4	10	1	39
Media	Yes	0	1	0	1	0	2
	No	5	18	4	9	1	37
	Total	5	19	4	10	1	39
Oil & Gas	Yes	0	1	0	0	0	1
	No	5	18	4	10	1	38
	Total	5	19	4	10	1	39
Public Utilities	Yes	0	2	0	2	0	4
	No	5	17	4	8	1	35
	Total	5	19	4	10	1	39
Transportation & Storage	Yes	0	2	2	2	0	6
	No	5	17	2	8	1	33
	Total	5	19	4	10	1	39
Travel, Tourism, & Recreation	Yes	0	1	0	0	0	1
	No	5	18	4	10	1	38
	Total	5	19	4	10	1	39
Total	Yes	2	15	4	7	1	29
	No	48	175	36	93	9	361
	Total	50	190	40	100	10	390

Table V3. Personal Viewpoint of Hard/Technical Skills by Industry for IP

Hard/Technical (Engineering/Scientific) Skills - Use for Internal Promotion							
Industry		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Total
Travel, Tourism, & Recreation	Yes	0	1	0	0	0	1
	No	5	18	2	12	1	38
	Total	5	19	2	12	1	39
Engineering	Yes	0	3	0	2	0	5
	No	5	16	2	10	1	34
	Total	5	19	2	12	1	39
Financial Services	Yes	1	2	0	2	1	6
	No	4	17	2	10	0	33
	Total	5	19	2	12	1	39
Food, Beverage, and Tobacco	Yes	0	0	0	0	0	0
	No	5	19	2	12	1	39
	Total	5	19	2	12	1	39
Health Services	Yes	0	1	0	1	0	2
	No	5	18	2	11	1	37
	Total	5	19	2	12	1	39
Manufacturing	Yes	1	0	1	0	0	2
	No	4	19	1	12	1	37
	Total	5	19	2	12	1	39
Media	Yes	0	0	0	2	0	2
	No	5	19	2	10	1	37
	Total	5	19	2	12	1	39
Oil & Gas	Yes	0	1	0	0	0	1
	No	5	18	2	12	1	38
	Total	5	19	2	12	1	39
Transportation & Storage	Yes	0	1	1	4	0	6
	No	5	18	1	8	1	33
	Total	5	19	2	12	1	39
Travel, Tourism, & Recreation	Yes	0	1	0	0	0	1
	No	5	18	2	12	1	38
	Total	5	19	2	12	1	39
Total	Yes	2	10	2	11	1	26
	No	48	180	18	109	9	364
	Total	50	190	20	120	10	390

Table V4. PV-OU of Hard/Technical Skills for Position Description

Hard/Technical (Engineering/Scientific) Skills - Identified in Position Description						
ORGANIZATIONAL USE						
		Always	Frequently	Seldom	Never	Total
PERSONAL VIEWPOINT	Strongly Agree	1	5	0	0	6
	Agree	4	18	0	0	22
	No Opinion	0	1	0	0	1
	Disagree	1	3	4	2	10
	Strongly Disagree	1	0	0	0	1
	Total	7	27	4	2	40

Table V5. Hard/Technical Skills of Identified in PD for Chi-Square Test

Hard/Technical Skills - PV to OU - Position Description			
Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.19977553	12	0.010056375
Likelihood Ratio	24.16353107	12	0.019323777
Linear-by-Linear Association	5.724153581	1	0.016733101
N of Valid Cases	40		

a. 18 cells (90.0%) have expected count less than 5. The minimum expected count is .05.

Table V6. PV-OU of Hard/Technical Skills for Hiring

Hard/Technical (Engineering/Scientific) Skills - Used for Hiring						
ORGANIZATIONAL USE						
		Always	Frequently	Seldom	Never	Total
PERSONAL VIEWPOINT	Strongly Agree	1	4	0	0	5
	Agree	4	15	0	0	19
	No Opinion	0	3	1	0	4
	Disagree	2	3	3	2	10
	Strongly Disagree	1	0	0	0	1
	Total	8	25	4	2	39

Table V7. Chi-Square Test of Hard/Technical Skills Used for Hiring

Hard/Technical Skills - PV to OU - Hiring			
Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.29744737	12	0.061664348
Likelihood Ratio	21.29730625	12	0.046192728
Linear-by-Linear Association	3.37575928	1	0.066162087
N of Valid Cases	39		
a. 18 cells (90.0%) have expected count less than 5. The minimum expected count is .05.			

Table V8. PV-OU of Hard/Technical Skills for Internal Promotion

Hard/Technical (Engineering/Scientific) Skills - Used for Internal Promotion						
ORGANIZATIONAL USE						
		Always	Frequently	Seldom	Never	Total
PERSONAL VIEWPOINT	Strongly Agree	1	3	1	0	5
	Agree	2	16	1	0	19
	No Opinion	0	1	1	0	2
	Disagree	2	4	4	2	12
	Strongly Disagree	1	0	0	0	1
	Total	6	24	7	2	39

Table V9. Chi-Square Test of Hard/Technical Skills Used for Internal Promotion –

Hard/Technical Skills - PV to OU - Promotion			
Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.25579574	12	0.108141549
Likelihood Ratio	17.11436024	12	0.145345866
Linear-by-Linear Association	1.817144207	1	0.177653586
N of Valid Cases	39		
a. 18 cells (90.0%) have expected count less than 5. The minimum expected count is .05.			

APPENDIX W. SOFT/NON-TECHNICAL (INTERPERSONAL/PEOPLE
MANAGEMENT) SKILLS

Table W1. Personal Viewpoint of Soft/Non-Tech Skills by Industry for PD

Soft/Non-Technical (Interpersonal/People Management) Skills - Identify in Position Description							
Industry		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Total
Engineering	Yes	2	2	0	1	0	5
	No	21	13	1	0	0	35
	Total	23	15	1	1	0	40
Financial Services	Yes	5	1	0	0	0	6
	No	18	14	1	1	0	34
	Total	23	15	1	1	0	40
Food, Beverage, and Tobacco	Yes	0	0	0	0	0	0
	No	23	15	1	1	0	40
	Total	23	15	1	1	0	40
Health Services	Yes	0	1	1	0	0	2
	No	23	14	0	1	0	38
	Total	23	15	1	1	0	40
Manufacturing	Yes	2	0	0	0	0	2
	No	21	15	1	1	0	38
	Total	23	15	1	1	0	40
Media	Yes	2	0	0	0	0	2
	No	21	15	1	1	0	38
	Total	23	15	1	1	0	40
Oil & Gas	Yes	0	1	0	0	0	1
	No	23	14	1	1	0	39
	Total	23	15	1	1	0	40
Transportation & Storage	Yes	3	3	0	0	0	6
	No	20	12	1	1	0	34
	Total	23	15	1	1	0	40
Travel, Tourism, & Recreation	Yes	0	1	0	0	0	1
	No	23	14	1	1	0	39
	Total	23	15	1	1	0	40
Total	Yes	14	9	1	1	0	25
	No	193	126	8	8	0	335
	Total	207	135	9	9	0	360

Table W-2. Personal Viewpoint of Soft/Non-Tech Skills by Industry for Hiring

Soft/Non-Technical (Interpersonal/People Management) Skills - Use for Hiring							
Industry		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Total
Engineering	Yes	2	3	0	0	0	5
	No	18	17	0	0	0	35
	Total	20	20	0	0	0	40
Financial Services	Yes	5	1	0	0	0	6
	No	15	19	0	0	0	34
	Total	20	20	0	0	0	40
Food, Beverage, and Tobacco	Yes	0	0	0	0	0	0
	No	20	20	0	0	0	40
	Total	20	20	0	0	0	40
Health Services	Yes	0	2	0	0	0	2
	No	20	18	0	0	0	38
	Total	20	20	0	0	0	40
Manufacturing	Yes	1	1	0	0	0	2
	No	19	19	0	0	0	38
	Total	20	20	0	0	0	40
Media	Yes	2	0	0	0	0	2
	No	18	20	0	0	0	38
	Total	20	20	0	0	0	40
Oil & Gas	Yes	0	1	0	0	0	1
	No	20	19	0	0	0	39
	Total	20	20	0	0	0	40
Transportation & Storage	Yes	3	3	0	0	0	6
	No	20	12	1	1	0	34
	Total	23	15	1	1	0	40
Travel, Tourism, & Recreation	Yes	0	1	0	0	0	1
	No	20	19	0	0	0	39
	Total	20	20	0	0	0	40
Total	Yes	13	12	0	0	0	25
	No	170	163	1	1	0	335
	Total	183	175	1	1	0	360

Table W-3. Personal Viewpoint of Soft/Non-Tech Skills by Industry for Promotion

Soft/Non-Technical (Interpersonal/People Management) Skills - Use for Internal Promotion							
Industry		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Total
Engineering	Yes	2	2	0	0	0	4
	No	18	17	0	0	0	35
	Total	20	19	0	0	0	39
Financial Services	Yes	5	1	0	0	0	6
	No	15	18	0	0	0	33
	Total	20	19	0	0	0	39
Food, Beverage, and Tobacco	Yes	0	0	0	0	0	0
	No	20	19	0	0	0	39
	Total	20	19	0	0	0	39
Health Services	Yes	0	2	0	0	0	2
	No	20	17	0	0	0	37
	Total	20	19	0	0	0	39
Manufacturing	Yes	1	1	0	0	0	2
	No	19	18	0	0	0	37
	Total	20	19	0	0	0	39
Media	Yes	2	0	0	0	0	2
	No	18	19	0	0	0	37
	Total	20	19	0	0	0	39
Oil & Gas	Yes	0	0	0	0	0	0
	No	20	19	0	0	0	39
	Total	20	19	0	0	0	39
Public Utilities	Yes	1	3	0	0	0	4
	No	19	16	0	0	0	35
	Total	20	19	0	0	0	39
Transportation & Storage	Yes	3	3	0	0	0	6
	No	17	16	0	0	0	33
	Total	20	19	0	0	0	39
Travel, Tourism, & Recreation	Yes	0	1	0	0	0	1
	No	20	18	0	0	0	38
	Total	20	19	0	0	39	39
Total	Yes	14	13	0	0	0	27
	No	186	177	0	0	0	363
	Total	200	190	0	0	0	390

Table W4. PV-OU of Soft/Non-Tech Skills for Position Description

Soft/Non-Technical (Interpersonal/People Management) Skills - Identified in Position Description						
ORGANIZATIONAL USE						
		Always	Frequently	Seldom	Never	Total
PERSONAL VIEWPOINT	Strongly Agree	12	9	1	1	23
	Agree	0	12	3	0	15
	No Opinion	0	1	0	0	1
	Disagree	0	1	0	0	1
	Strongly Disagree	0	0	0	0	0
	Total	12	23	4	1	40

Table W5. Chi-Square Test of Soft/Non-Tech Skills Identified in PD

Soft/Non-Technical Skills - PV to OU - Position Description			
Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.34215501	9	0.081956212
Likelihood Ratio	20.09250326	9	0.017350036
Linear-by-Linear Association	4.083769634	1	0.043296963
N of Valid Cases	40		

a. 13 cells (81.3%) have expected count less than 5. The minimum expected count is .03.

Table W6. PV-OU of Soft/Non-Tech Skills for Hiring

Soft/Non-Technical (Interpersonal/People Management) Skills - Used for Hiring						
ORGANIZATIONAL USE						
		Always	Frequently	Seldom	Never	Total
PERSONAL VIEWPOINT	Strongly Agree	9	6	4	1	20
	Agree	1	13	6	0	20
	No Opinion	0	0	0	0	0
	Disagree	0	0	0	0	0
	Strongly Disagree	0	0	0	0	0
	Total	10	19	10	1	40

Table W7. Chi-Square Test of Soft/Non-Tech Skills Used for Hiring

Soft/Non-Technical Skills - PV to OU - Hiring			
Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.37894737	3	0.015604958
Likelihood Ratio	11.79099735	3	0.008134509
Linear-by-Linear Association	2.610878661	1	0.106132942
N of Valid Cases	40		
a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is .50.			

Table W8. PV-OU of Soft/Non-Tech Skills for Promotion

Soft/Non-Technical (Interpersonal/People Management) Skills - Used for Internal Promotion						
ORGANIZATIONAL USE						
		Always	Frequently	Seldom	Never	Total
PERSONAL VIEWPOINT	Strongly Agree	8	6	5	1	20
	Agree	1	12	6	0	19
	No Opinion	0	0	0	0	0
	Disagree	0	0	0	0	0
	Strongly Disagree	0	0	0	0	0
	Total	9	18	11	1	39

Table W9. Chi-Square Test of Soft/Non-Tech Skills Used for Internal Promotion

Soft/Non-Technical Skills - PV to OU - Promotion			
Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.515311005	3	0.036479949
Likelihood Ratio	9.688145217	3	0.021411793
Linear-by-Linear Association	1.53923913	1	0.214731095
N of Valid Cases	39		
a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .49.			

APPENDIX X. ACCEPTANCE OF HARD VS. SOFT SKILLS

In reviewing the data it becomes obvious there were only a few survey respondents who held positions with a title of ‘Executives Responsible for Project Management’ or ‘Project Management Champion or Sponsor’ with just a few more able to claim ‘Project Manager’ status. Survey respondents had 13 common project management related titles to select from with an option to write-in any position title of their own choosing. The following responses were written in:

1. Owner of Project Business Management Consulting Business
2. CEO of Project Management Services Company
3. Senior Project Controls Engineer
4. Project Management Consultant

Table X1. Crosstabulation Acceptance of Hard/Technical Skills

Acceptance of Hard/Technical (Engineering/Scientific) Skills						
Identify in Position Description						
	PERSONAL VIEWPOINT	ORGANIZATIONAL USE				Total
		Always	Frequently	Seldom	Never	
Executive	Strongly Agree	0	0	0	0	0
	Agree	0	1	0	0	1
	No Opinion	0	0	0	0	0
	Disagree	1	1	1	1	4
	Strongly Disagree	0	0	0	0	0
Sponsor	Strongly Agree	0	1	0	0	1
	Agree	2	2	0	0	4
	No Opinion	0	0	0	0	0
	Disagree	0	1	0	0	1
	Strongly Disagree	1	0	0	0	1
Project Manager	Strongly Agree	0	0	0	0	0
	Agree	1	0	0	0	1
	No Opinion	0	1	0	0	1
	Disagree	0	0	0	0	0
	Strongly Disagree	0	0	0	0	0

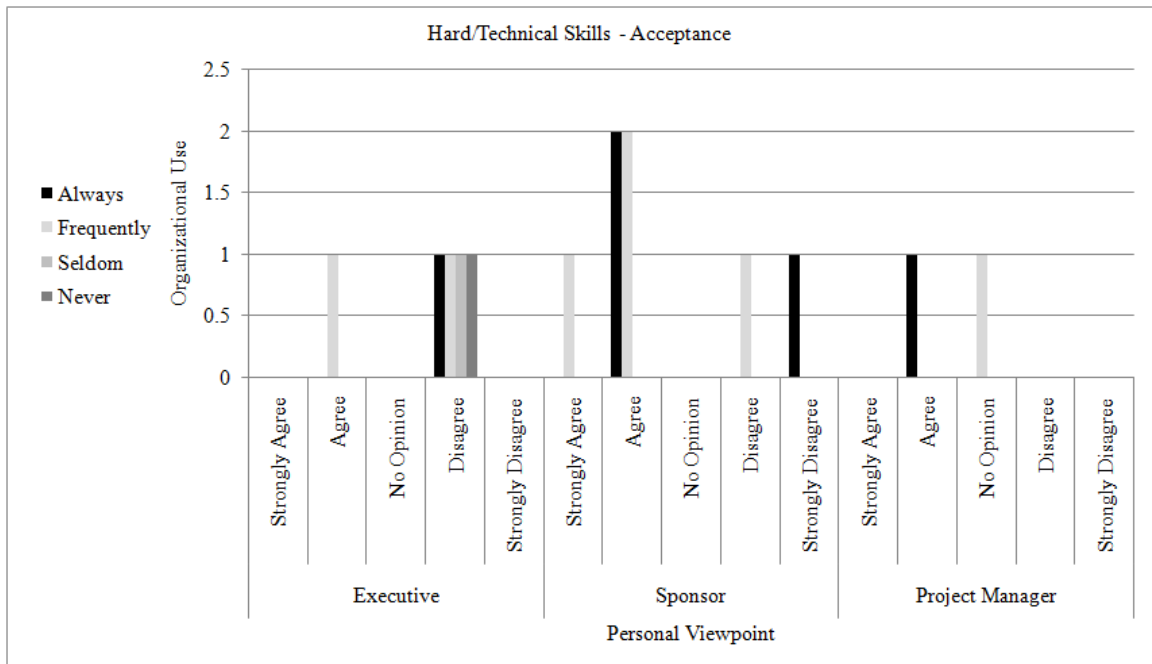


Figure X1. Crosstabulation Acceptance of Hard/Technical Skills.

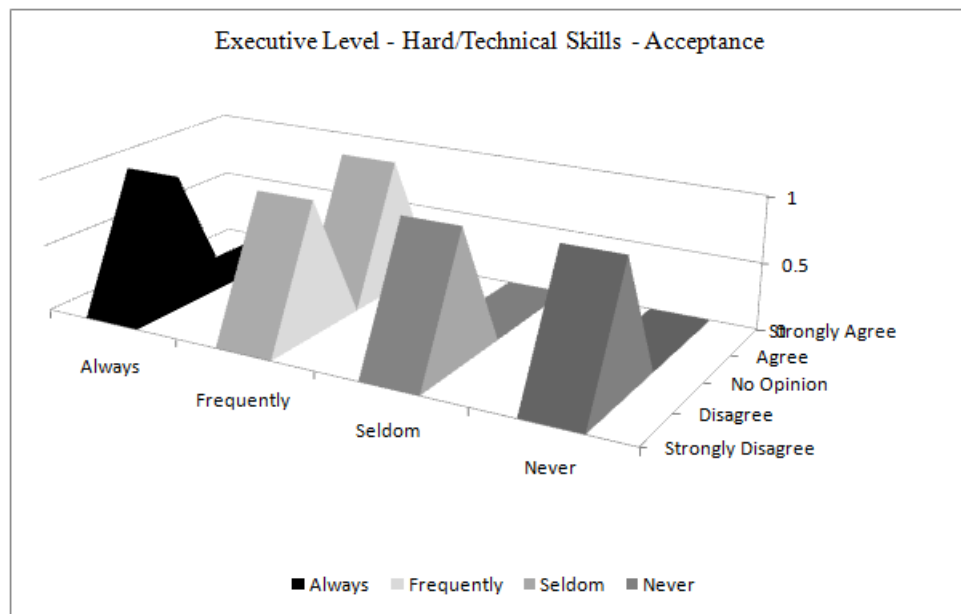


Figure X2. Executive Level Acceptance of Hard/Technical Skills.

Table X2. Chi-Square Tests for Acceptance of Hard/Technical Skills at Exec Lvl

Chi-Square Tests		Value	df	Asymp. Sig. (2-sided)
Acceptance of Soft/Non-Technical Skills Executive Level Responsible for Project Management				
Yes	Pearson Chi-Square	5.000 ^a	3	0.172
	Likelihood Ratio	6.73	3	0.081
	Linear-by-Linear Association	0.026	1	0.873
	N of Valid Cases	5		
No	Pearson Chi-Square	11.429 ^b	6	0.076
	Likelihood Ratio	15.279	6	0.018
	Linear-by-Linear Association	5.78	1	0.016
	N of Valid Cases	35		

a. 8 cells (100.0%) have expected count less than 5. The minimum expected count is .40.

b. 9 cells (75%) have expected count less than 5. The minimum expected count is .09.

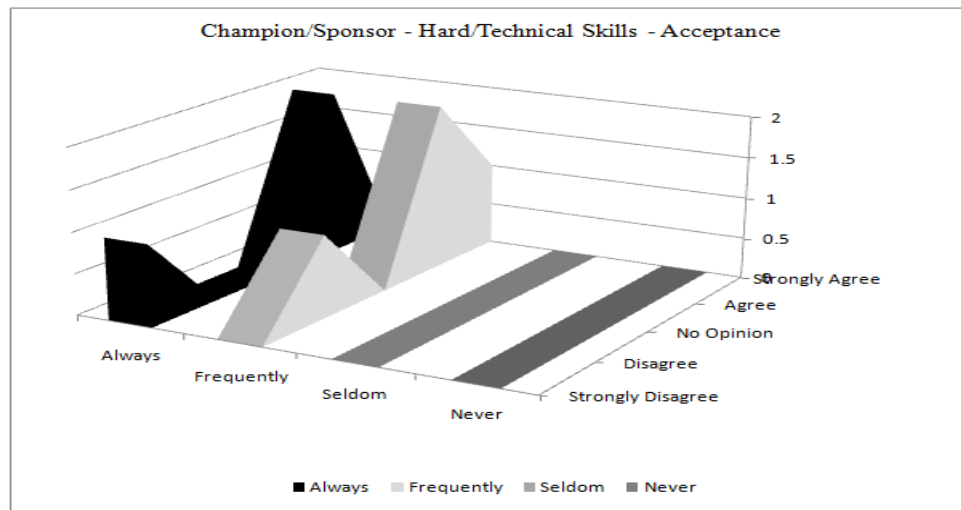


Figure X3. Champion/Sponsor Acceptance of Hard/Technical Skills.

Table X3. Chi-Square Tests for Acceptance of Hard/Technical Skills at Sponsor Lvl

Chi-Square Tests		Value	df	Asymp. Sig. (2-sided)
Acceptance of Soft/Non-Technical Skills Project Management Champion or Sponsor				
Yes	Pearson Chi-Square	8.400 ^a	4	0.078
	Likelihood Ratio	7.239	4	0.119
	Linear-by-Linear Association	1.625	1	0.202
	N of Valid Cases	7		
No	Pearson Chi-Square	12.200 ^b	6	0.058
	Likelihood Ratio	16.055	6	0.013
	Linear-by-Linear Association	2.388	1	0.122
	N of Valid Cases	33		

a. 9 cells (100.0%) have expected count less than 5. The minimum expected count is .14.

b. 10 cells (83.3%) have expected count less than 5. The minimum expected count is .03.

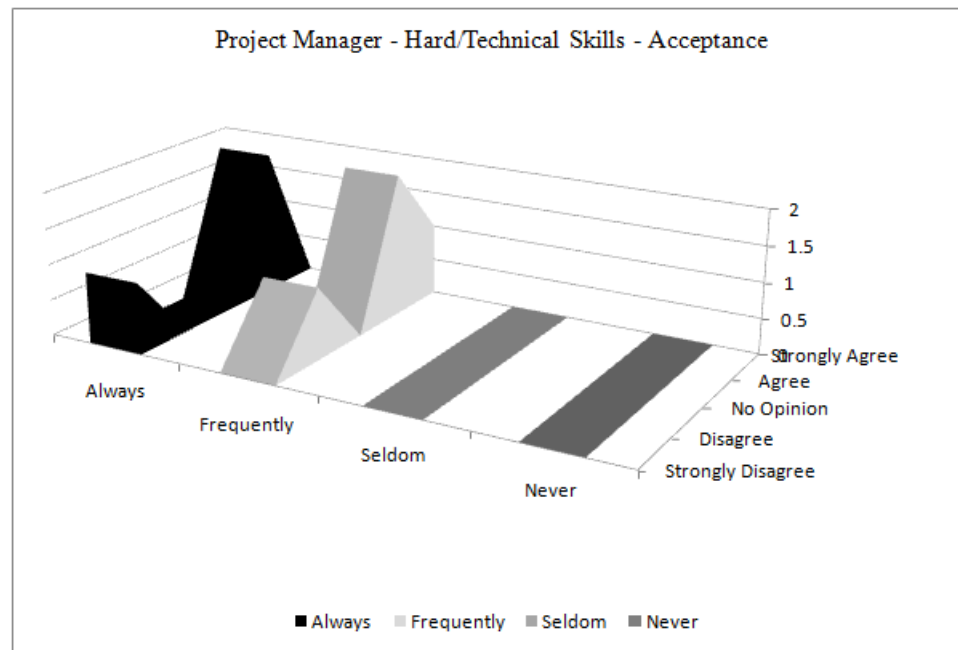


Figure X4. Project Manager Acceptance of Hard/Technical Skills.

Table X4. Chi-Square Tests for Acceptance of Hard/Technical Skills at Proj Mgr Lvl

Chi-Square Tests		Value	df	Asymp. Sig. (2-sided)
Acceptance of Soft/Non-Technical Skills Project Manager				
Yes	Pearson Chi-Square	2.000 ^a	1	0.157
	Continuity Correction ^b	0	1	1
	Likelihood Ratio	2.773	1	0.096
	Fisher's Exact Test			
	Linear-by-Linear Association	1	1	0.317
N of Valid Cases		2		
No	Pearson Chi-Square	25.491 ^c	9	0.002
	Likelihood Ratio	23.443	9	0.005
	Linear-by-Linear Association	5.38	1	0.02
	N of Valid Cases		38	

a. 4 cells (100.0%) have expected count less than 5. The minimum expected count is .50.

b. Computed only for a 2x2 table

c. 14 cells (87.5%) have expected count less than 5. The minimum expected count is .05.

Table X5. Acceptance of Soft/Non-Technical Skills

Acceptance of Soft/Non-Technical (Interpersonal/People Management) Skills						
Identify in Position Description						
	PERSONAL VIEWPOINT	ORGANIZATIONAL USE				Total
		Always	Frequently	Seldom	Never	
Executive	Strongly Agree	1	0	0	1	2
	Agree	0	2	1	0	3
	No Opinion	0	0	0	0	0
	Disagree	0	0	0	0	0
	Strongly Disagree	0	0	0	0	0
Sponsor	Strongly Agree	3	2	0	0	5
	Agree	0	0	1	0	1
	No Opinion	0	1	0	0	1
	Disagree	0	0	0	0	0
	Strongly Disagree	0	0	0	0	0
Project Manager	Strongly Agree	1	1	0	0	2
	Agree	0	0	0	0	0
	No Opinion	0	0	0	0	0
	Disagree	0	0	0	0	0
	Strongly Disagree	0	0	0	0	0

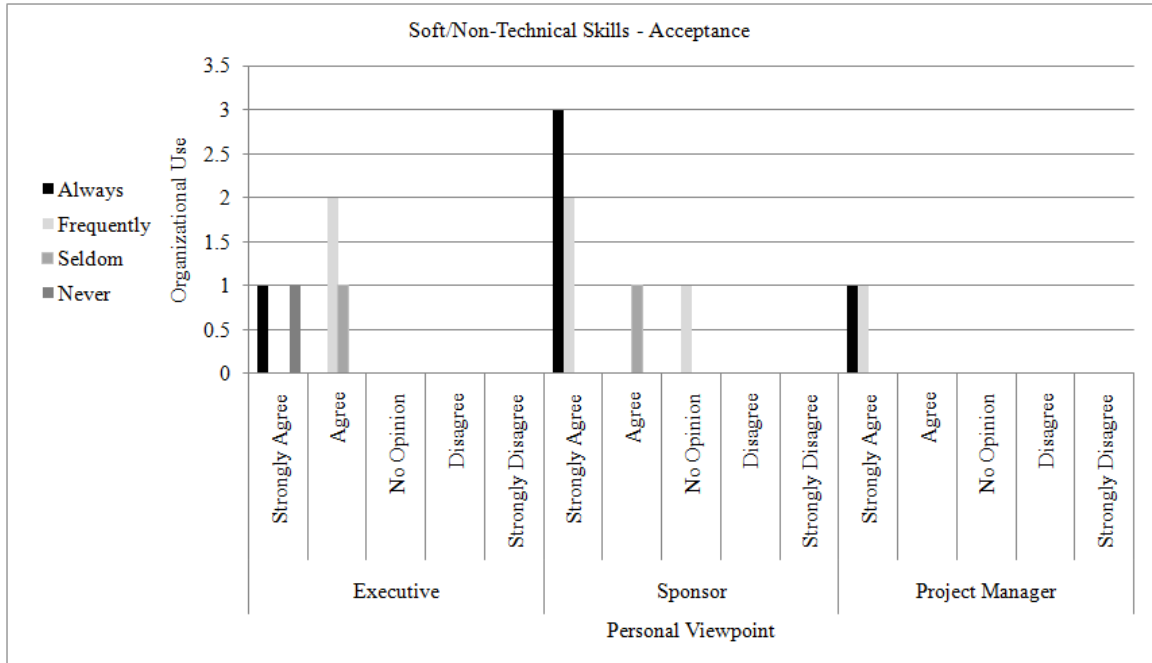


Figure X5. Acceptance of Soft/Non-Technical Skills.

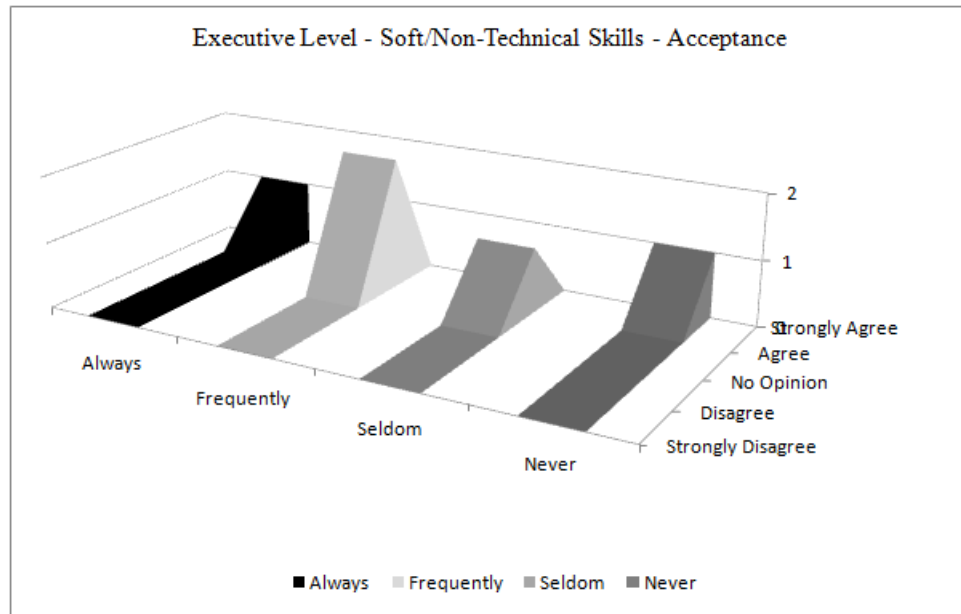


Figure X6. Executive Level Acceptance of Soft/Non-Technical Skills.

Table X6. Chi-Square Tests for Acceptance of Soft/Non-Tech Skills at Exec Lvl

Chi-Square Tests		Value	df	Asymp. Sig. (2-sided)
Acceptance of Soft/Non-Technical Skills Executive Level Responsible for Project Management				
Yes	Pearson Chi-Square	5.000 ^a	3	0.172
	Likelihood Ratio	6.73	3	0.081
	Linear-by-Linear Association	0.026	1	0.873
	N of Valid Cases	5		
No	Pearson Chi-Square	11.429 ^b	6	0.076
	Likelihood Ratio	15.279	6	0.018
	Linear-by-Linear Association	5.78	1	0.016
	N of Valid Cases	35		

a. 8 cells (100.0%) have expected count less than 5. The minimum expected count is .40.

b. 9 cells (75%) have expected count less than 5. The minimum expected count is .09.

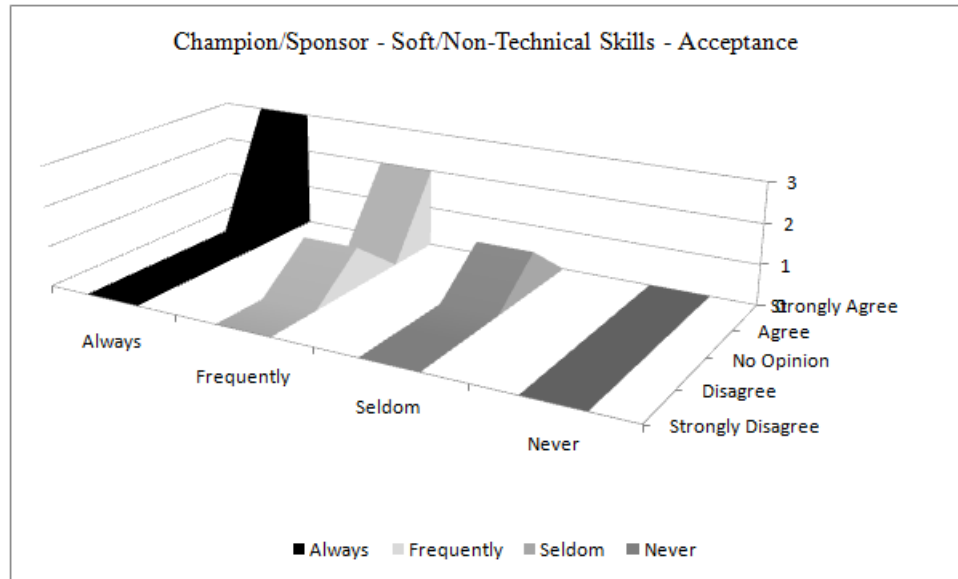


Figure X7. Champion/Sponsor Acceptance of Soft/Non-Technical Skills.

Table X7. Chi-Square Tests for Acceptance of Soft/Non-Tech Skills at Sponsor Lvl

Chi-Square Tests		Value	df	Asymp. Sig. (2-sided)
Yes	Acceptance of Soft/Non-Technical Skills			
	Project Management Champion or Sponsor			
	Pearson Chi-Square	8.400 ^a	4	0.078
	Likelihood Ratio	7.239	4	0.119
No	Linear-by-Linear Association	1.625	1	0.202
	N of Valid Cases	7		
	Pearson Chi-Square	12.200 ^b	6	0.058
	Likelihood Ratio	16.055	6	0.013
No	Linear-by-Linear Association	2.388	1	0.122
	N of Valid Cases	33		

a. 9 cells (100.0%) have expected count less than 5. The minimum expected count is .14.

b. 10 cells (83.3%) have expected count less than 5. The minimum expected count is .03.

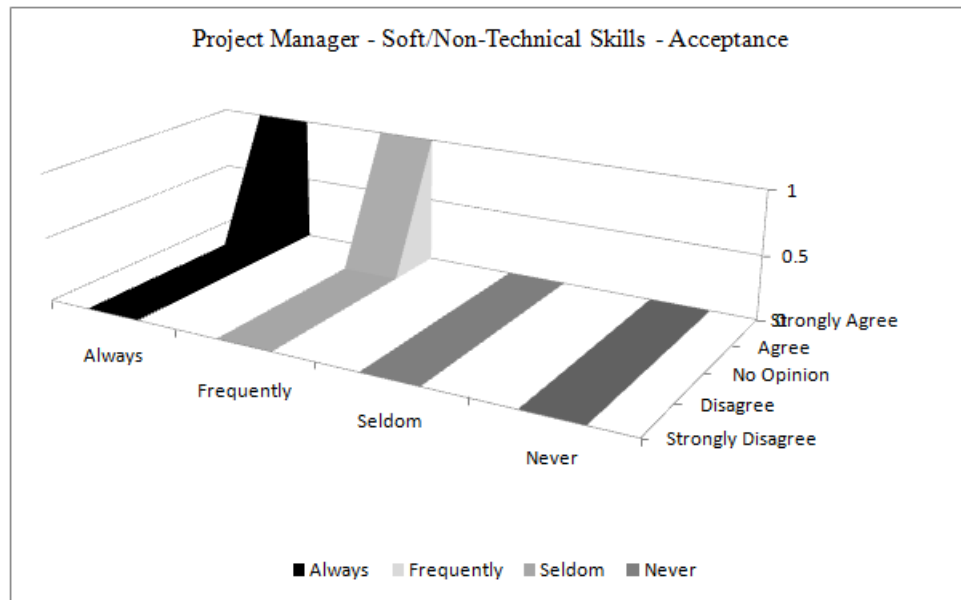


Figure X8. Project Manager Acceptance of Soft/Non-Technical Skills.

Table X8. Chi-Square Tests for Acceptance of Soft/Non-Tech Skills at Proj Mgr Lvl

Chi-Square Tests		Value	df	Asymp. Sig. (2-sided)
Acceptance of Soft/Non-Technical Skills Project Manager				
Yes	Pearson Chi-Square	2.000 ^a	1	0.157
	Continuity Correction ^b	0	1	1
	Likelihood Ratio	2.773	1	0.096
	Fisher's Exact Test			
	Linear-by-Linear Association	1	1	0.317
N of Valid Cases		2		
No	Pearson Chi-Square	25.491 ^c	9	0.002
	Likelihood Ratio	23.443	9	0.005
	Linear-by-Linear Association	5.38	1	0.02
	N of Valid Cases		38	

a. 4 cells (100.0%) have expected count less than 5. The minimum expected count is .50.

b. Computed only for a 2x2 table

c. 14 cells (87.5%) have expected count less than 5. The minimum expected count is .05.