

**THE RELATIONSHIP BETWEEN PROJECT MANAGERS' COMPETENCE,
PROFESSIONAL EXPERIENCE, AND EDUCATION ON CAREER SUCCESS: A
CORRELATION STUDY**

by

Rebecca A. Coleman

WERNER D. GOTTWALD, PhD, Faculty Mentor and Chair

JENNIFER SCOTT, PhD, Committee Member

RICHARD LIVINGOOD, PhD, Committee Member

Barbara Butts Williams, PhD, Dean, School of Business and Technology

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

Capella University

October 2014

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Abstract

Incompetent project managers can be costly to organizations because of wasted effort and time. A study on large scale projects revealed 17% of information technology (IT) projects failed and threatened the existence of organizations. One reason for failed projects is the lack of formal project management and education programs offered by organizations. Prior research has concentrated on project success impacted by the project managers' gender, attributes of a project manager, and developing project competence. Other research has concentrated on the knowledge and skills requirements required in project management, project knowledge management, the project life cycle, and project critical success factors. This quantitative study investigated the relationship between project manager career success and project managers' competence, professional experience, and education. To operationalize the variables and career success, the researcher used Pinto and Slevin's Project Implementation Profile (PIP) instrument. Regression analysis was used to examine the variables and career success. Results indicated that project manager's competence and professional experience greatly impact career success. Results did not prove a significant relationship between career success and education.

Dedication

To my husband, Romero, thank you for the support and patience while I travelled this journey. Thank you for sharing in the excitement as I completed each milestone.

To my children Corey and Rihanna, thank you for understanding and re-directing your questions to dad when mommy was busy doing her homework.

Acknowledgments

Thank you to everyone who helped support me as I completed my Ph.D. Thank you Dr. Don Gottwald for all of your unwavering support, guidance, and time. You offered the right advice at the right moment to help me reach my goals. I would like to recognize my committee members Dr. Richard Livingood and Dr. Jennifer Scott. I am very appreciative of your guidance, feedback, and time. Thank you Dr. Jeffrey Pinto for allowing me to use the Project Implementation Profile instrument for my research.

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CHAPTER 1. INTRODUCTION

Incompetent project managers can be costly to organizations because of wasted effort and time (Bloch, Blumberg, & Laartz, 2012; Johnson & Hencke, 2008). A study on large scale projects revealed 17% of technology (IT) projects failed and threatened the existence of organizations (Bloch et al., 2012). During an investigation into the United Kingdom (UK) government waste, \$4 billion in unnecessary costs were identified as a result of unsuccessful projects (Johnson & Hencke, 2008). One reason for failed projects is the lack of formal project management and education programs offered by organizations. For example, the 2012 CHAOS results indicated 33% of organizations require project managers to be Project Management Institute (PMI) certified (Standish Group, 2013).

The purpose of this study was to determine to what extent competence, professional experience, and education impact the career of a project manager. Prior research has concentrated on project success impacted by the project managers' gender (Martin, 2000), attributes of a project manager (Pettersen, 1991), and developing project competence (Soderlund, 2005). Other research has concentrated on the knowledge and skills requirements required in project management (Ingason & Jonasson, 2009), project knowledge management (Gasik, 2011; Sauer & Reich, 2009; Desouza & Evaristo, 2004), the project life cycle and project critical success factors (Geoghegan & Dulewicz, 2008).

Prior research does not fully explain if there is a correlation between competence, professional experience, and education impacting the career success of project managers (Grimland, Vigoda-Gadot, & Baruch, 2012). There is a gap in literature that explains the

correlation of project manager competence, professional experience, and education impacting the success of project managers (Alfi, 2002). This study will play a part in scholarly literature, has project management relevance, and will add to the body of knowledge.

The purpose of this non-experimental, correlational research was to examine how project manager competence, professional experience, and education influence the career success of project managers. The broad research question guiding this study was: What, if any, project manager competence, professional experience, and education impact the career success of a project manager.

Background of the Study

Project management has been referred to as the “accidental profession” (Curling, 2002; Heerkens, 2001). Carbone and Gholston (2004) suggested many project managers are promoted to their roles based upon their technical abilities. Not all project managers have the proper skills to be successful in their role. These employees lack critical people skills. Leadership skills are imperative for project success (Stevenson & Starkweather, 2010). Although there have been prior studies on project management competence, experience, and education, the studies do not link how these variables impact the career success of project managers. This study will play a part in scholarly literature, has project management relevance, and will add to the body of knowledge.

Statement of the Problem

The 2012 CHAOS results indicated 39% of all projects are deemed successful, meaning delivered on time, within budget, and meeting the end users’ expectations

(Standish Group, 2013). The success rate of IT projects was 37%. MacInnis (2003) argued poor project management competence caused 60% of project failures.

The problem was to identify the variables contributing to the career success of project managers. Previous studies do not fully explain the relationship between career success and variables such as project manager competence, professional experience, and education. This study will play a part in scholarly literature, has project management relevance, and will add to the body of knowledge.

Purpose of the Study

The purpose of this non-experimental, correlational research study was to investigate to what extent does project manager competence, professional experience, and education impact a project manager's career success. Goleman (1997) ascertained personality characteristics and personal competence were predictors in managerial advancement. In a study of project manager competences, Rees, Turner, and Tampoe (1996) identified four traits that impact the effectiveness of project managers: above average intelligence, strong problem solving skills, energy, excellent communication skills. Rees et al., (1996) were unable to confirm if the four traits directly impacted the success of a project.

Employees are expected to model a combination of interpersonal and technical project management competences, cognitive aptitude, and leadership (Brown & Bowen, 2009). Happ and Muller-Wenzke (2005) argued project managers feel comfortable with project management tools and templates because of real project work experience. Junior project managers exchange experiences with senior project managers to expand

knowledge. El-Sabaa (2001) found project managers are more successful when project managers use their knowledge and creativity.

The purpose of the study was to contribute to the body of project management knowledge by determining if there is a correlation between competences, professional experience, and education impacting the career success of project managers.

Rationale

This study intended to determine the relationship between competence, professional experience, and education with career success. This study expands the existing project manager career success literature by incorporating an analysis on competence, experience, and education.

Prior research has concentrated on project success impacted by the project managers' gender (Martin, 2000), attributes of a project manager (Pettersen, 1991), and developing project competence (Soderlund, 2005). Other research has concentrated on the knowledge and skills requirements required in project management (Ingason & Jonasson, 2009), project knowledge management (Gasik, 2011; Sauer & Reich, 2009; Desouza & Evaristo, 2004), the project life cycle and project critical success factors (Geoghegan & Dulewicz, 2008). This research intended to fill the existing literature gap of the relationship between competence, experience, and education and their impact on career success.

Research Questions

To what extent does project managers' competence, professional experience, and education impact a project manager's career success?

Sub-question 1: To what extent does competence contribute to a project manager's career success?

Sub-question 2: To what extent does a project manager's professional experience contribute to career success?

Sub-question 3: To what extent does a project manager's education contribute to career success?

Hypotheses

Hypothesis H1₀: There is no statistically significant relationship between competence of project managers and career success.

Hypothesis H1_A: There is a statistically significant relationship between competence of project managers and career success.

Hypothesis H2₀: There is no statistically significant relationship between professional experience of project managers and career success.

Hypothesis H2_A: There is a statistically significant relationship between professional experience of project managers and career success.

Hypothesis H3₀: There is no statistically significant relationship between the education of project managers and career success.

Hypothesis H3_A: There is a statistically significant relationship between the education of project managers and career success.

Significance of the Study

Understanding how project managers' competence, professional experience, and education impact their careers will most likely provide information to organizations.

This information will be used for making management decisions, identify areas of training and development, and matching project managers with best suited projects. From a practical perspective, the research could aid in the development of career plans. The professional experience of other project managers may serve as personal development recommendations. Finally, increasing knowledge may contribute to the awareness of project management and its perceived value in organizations (Besner & Hobbs, 2006).

Definition of Terms

Attribute. An attribute is a characteristic quality (Gehring, 2007).

Career. A career is a sequence of job or occupational positions held by an individual (Joseph, Fong Boh, Ang, & Slaughter, 2012). It spans from his or her first position to his or her most recently held position.

Career path. The career path chosen by an individual implicates objective career success (Joseph et al., 2012). It can be a model depicting career sequences of a select group of individuals.

Career success. “Career success is defined as the positive psychological or work-related outcomes or achievements one has accumulated as a result of one’s work experiences” (Judge, Cable, Boudreau, & Bretz, 1995, p. 3). Career success is both perceived and actual achievements through work experiences. An important consideration of career success is the ability to successfully implement projects.

Characteristic. A characteristic is a distinctive feature or quality (Gehring, 2007, p. 46).

Competence. “Competence is generally accepted as a term that encompasses knowledge, skills, attitudes, and behaviors causally related to superior job performance” (Gehring, 2007, p. 46). It is a person-related concept referring to behavior and performance (Woodruffe, 1991). It can be broken down into three areas- behavioral, technical, and contextual competences as the International Project Management Association intends through the Eye of Competence model (International Project Management Association, 2006). Kollmann, Hasel, and Breugst (2009) argued competence can be specific for some job roles such as IT. Competence is broken down into components of abilities, attitudes, behavior, knowledge, personality, and skills (Cartwright & Yinger, 2007).

Competent. Competent is used to describe someone who is properly skilled or capable (Gerhing, 2007).

Education. Education is defined as formal education obtained through an accredited college or university.

Knowledge. Knowledge is defined as what a person knows.

Professional experience. Professional experience is defined as exposure to special tasks above and beyond job duties, on the job training, or acquired knowledge or skill while performing job related duties. Professional experience is defined as events or activities that occurred while performing on the job tasks or during career progress which improves occupational competence (Bennet, 2011).

Project. A project is a “temporary endeavor undertaken to create a unique product, service, or result” (Project Management Institute, 2013, p. 2).

Project implementation profile (PIP). This survey instrument is used to assess the success of a project. It can also be used as a tool to assess the current state of a project (Pinto & Slevin, 1986).

Project Management. Project management is knowledge, skills, tools, and techniques applied to meet project requirements (Project Management Institute, 2013). Project management is broken down into five process groups: (a) initiating, (b) planning, (c) executing, (d) monitoring and controlling, and (e) closing (Project Management Institute, 2013).

Project Manager. The person who is accountable for realizing project objectives is a project manager (Project Management Institute, 2013).

Project manager competence. This competence is a combination of knowledge, skills, attitudes, and behaviors related to job performance (Gehring, 2007). According to Olney (1999), project manager competence is “the ability to effectively apply skills and behaviors to improve project performance” (p. 21).

Project Manager Competency Development (PMCD) Framework. Framework developed by PMI which describes the competencies of project managers. It is organized into six units of competence: (a) achievement and action, (b) helping and human service, (c) impact and influence, (d) managerial, (e) cognitive, and (f) personal effectiveness (Gehring, 2007).

Project Success. A project is successful if it finishes on or near the project budget, on schedule, and produces an acceptable level of performance (Finch, 2003).

Successful project implementation. Successful project implementation is a project delivered on schedule, on budget, achieves the goals of the project, and is accepted by the customer or end users (Pinto & Slevin, 1986).

Trait. A trait is a distinguishing characteristic or feature (Gehring, 2007).

Assumptions and Limitations

Assumptions

A project manager's competence, experience, and education can influence career success. Successful project managers meet the Project Implementation Profile (PIP) as described by Pinto and Slevin (1987). There is no research available pertaining to the competence, professional experience, and education influencing career success based on literature reviews conducted by the researcher.

Limitations

One limitation of the study was the type and amount of information that can be secured in an online survey. The study did not allow the researcher to ask probing or clarification questions to the research participants. The limitation was not improved as the survey used a Likert-type scale. A second limitation of the study was participants had the option to end the survey prior to completion. This limitation was improved by making the survey invitation enticing and ensuring the participants maintain anonymity while answering the survey questions.

Nature of the Study

The research study was based on the PIP model by Slevin and Pinto (1988), the PMCD Framework (Project Management Institute, 2007), and the heuristic model used in

the Joseph et al. (2012) study on career paths and career success. Figure 1 illustrates the conceptual framework guiding this study.

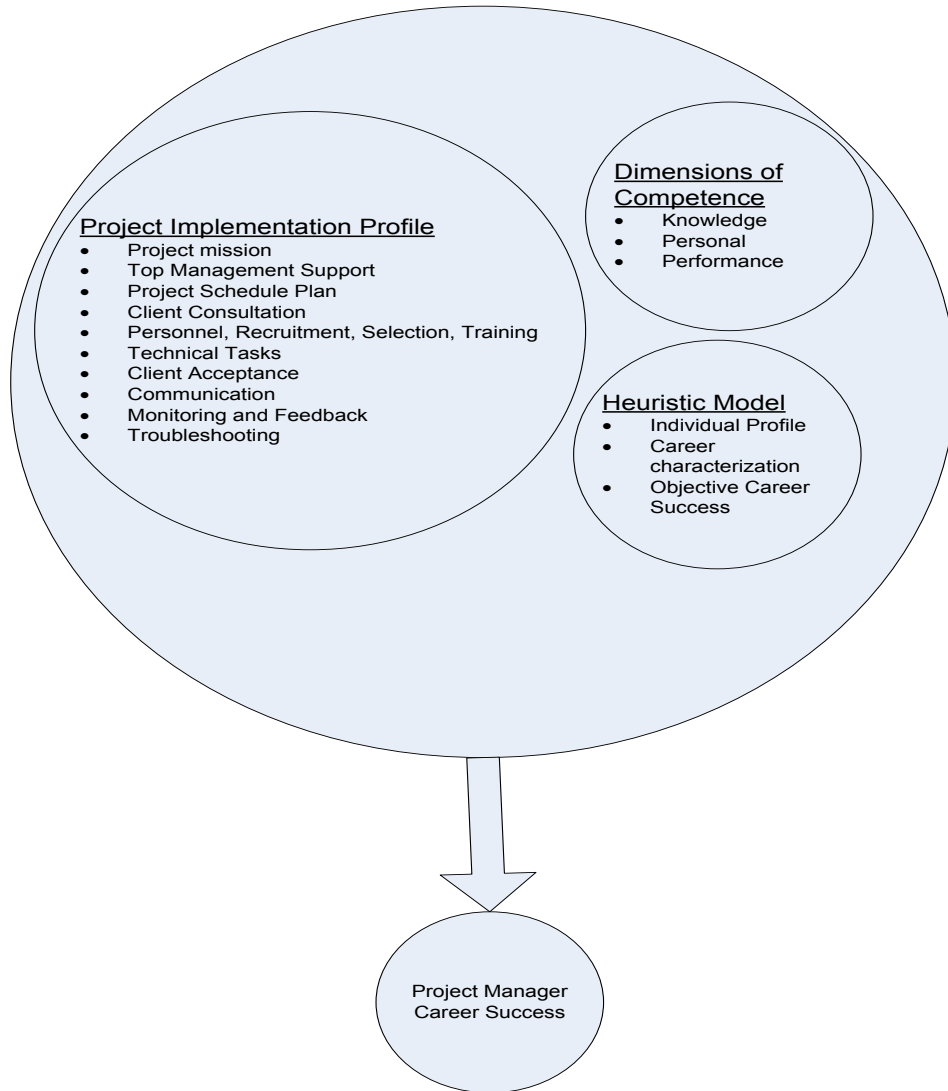


Figure 1. Conceptual framework for the research study.

Organization for the Remainder of the Study

The research study is divided into five sections including the introduction, literature review, methodology, results, and conclusion.

Chapter 2 contains a literature review on project manager competencies, experiences, education, and the career success of project managers. The review entailed studies on project managers and career success as well as theory evolution.

Chapter 3 contains the methodology for this study. Research design, population, sample, setting, instrument and measurements, data collection, data analysis, validity and reliability, and ethical considerations are covered.

Chapter 4 contains study results. The description of the population and sample, summary of results, details of the analysis and results are covered.

Chapter 5 contains the discussion of the study results. A summary, results discussion, implications, and limitations of the study are covered. The researcher provided recommendations for further research. The chapter ends with conclusions.

CHAPTER 2. LITERATURE REVIEW

The literature review for this study is built upon the constructs of competence, professional experience, and education impacting a project manager's career success. This chapter discusses literature on four topics pertaining to: (a) project management competence, (b) project management experience, (c) education, and (d) career success. The sections are written with a historical approach including the work of seminal writers. The first section examines project manager competence by reviewing the historical literature. The next section examines literature on project manager experience. The third section on project management education is synthesized. Finally, a review of project manager career success is discussed.

Project Management

Project management emerged from the Engineering industry in the 20th century. As projects became larger and more complex, a standardized methodology developed. Although not referred to as project management, in the early 1900s project management was practiced in some industries such as engineering, architecture, and construction (Smith, 1980). Litterer (1973) termed project management as planning, organizing, directing, and controlling of organizational resources for an effort lasting for a short time period with goals and objectives. Wideman (1985) defined project management as “the art of directing and coordinating human and material resources throughout the life of a project using model management techniques to achieve predetermined objectives of scope, cost, time, quality, and participant satisfaction” (p.36).

The seminal works identified leadership techniques in project management. For example Hodgetts (1968) and Thamhain and Gemmill (1974) researched which

leadership techniques influenced project management. Sotirio and Wittmer (2001) built upon Hodgetts' (1968) and Thamhain and Gemmill's (1974) research by gathering perceptions of project managers and project teams. Sotirio and Wittmer found project managers have different techniques to overcome the gap in authority.

Prior research on project management targeted project management tools and techniques, the competencies of project managers, and project teams (Pinto, Thoms, Trailer, Palmer, & Govekar, 1998; Henri & Sousa-Poza, 2005). The research has evolved to measuring project management maturity (Blomquist & Muller, 2006), the value of project management office (Kerzner, 2009), program and portfolio management (Rad & Levin, 2003) and focused studies on the knowledge areas of project management (Schwalbe, 2010).

Rosenau (1992) introduced the Triple Constraints concept: specification, schedule, and budget. The Project Management Institute elaborated on the Triple Constraints concept by integrating with the organization's definition of project management. The Project Management Institute (2013) describes project management as knowledge, skills, tools, and techniques applied to meet project requirements. Project management is broken down into five process groups: (a) initiating, (b) planning, (c) executing, (d) monitoring and controlling, and (e) closing (Project Management Institute, 2013). At one point in time, project management was optional in organizations. It has since evolved to a requirement in organizations (Kerzner, 2009).

The impact of gender in project management has been researched for almost 20 years. Gale and Cartwright (1995) argued the underrepresentation of women in project-

based industries like construction and engineering as women have been in management. At the time of the study, the gender breakdown was 93.5% male and 6.5% female in construction, 71% male and 29% female in consulting, 52.1% male and 47.9% female in financial services, 68.7% male and 31.3% female in IT, and 73.4% male and 26.6% female in telecommunications (Gale & Cartwright, 1995). Martin (2008) established the predictable problems women face are: heightened visibility, skewed performance feedback, lower pay than male counterparts, and slow promotions. Henderson and Stackman (2010) researched project context and relationships with gender. The findings indicate gender is important in terms of its interrelationships with location, role, technology, and cost (Henderson & Stackman, 2010).

Project Manager

The person responsible for achieving project objectives is a project manager (Project Management Institute, 2013). Project managers play both manager and principle content expert roles (Einseidel, 1987). Ultimately, the project manager establishes direction of the project (Veal, 2004).

Kliem and Ludin (1998) argued the project manager has six main functions: (a) be a motivator, (b) lead the project through the lifecycle, (c) define goal and objectives, (d) create project plan, (e) project control, and (f) project closure. According to Levin and Skulmoski (2000), the project manager is a guide, integrator, social architect, and project team protector. As a key operational leader, the project manager has an impact on organizational success (Kerzner, 2009; Muller & Turner, 2010). Duarte, Lewis, Hoffman, and Crossman (1995) concluded that project managers:

- Have technical backgrounds,
- Participate in controlling, managing costs, and schedules, and
- Are not involved in day-to-day activities of an organization.

Robbins (2000) argued the project manager role is four-dimensional: liaison, trouble-shooter, conflict manager, and coach. As a liaison, the project manager represents the team and works with constituencies such as customers, suppliers, other teams, or executive management. By playing the role of the trouble-shooter, the project manager assists the project team in finding solutions to problems. As a conflict manager, the project manager mediates any disagreements within the project team. Kerzner (2009) posited the common types of conflict are: priorities, technical opinions, procedures, personality clashes, and the responsibilities of team members. When coaching, project managers work with the team members to improve performance.

Looking across different industries, the project manager function is similar (Winch & Kelsey, 2005). For example, in the construction industry, the key functions of the project manager are: (a) requirements, (b) project planning, (c) and project control. The key functions in the education industry are the same as the functions described in the Project Management Body of Knowledge (Project Management Institute, 2013; Winch & Kelsey, 2005).

Research has been conducted on the project team environment and the relationship orientation of project managers. Thamain (2004) and Turner and Muller (2005) concluded it is important to allow an environment that enables the project team to impact the success of the project. Project managers influence a positive and motivated

work environment (Schmid & Adams, 2008). Makilouko (2004) suggested project managers are people oriented. Lee-Kelley, Long, and Loon (2003) determined project managers are relationship oriented. It was concluded that nurturing others, cultural values, and job satisfaction are important for the delivery of a successful project.

Results-orientation is a critical skill for successful project managers (Gillard & Price, 2005). Gillard and Price identified additional behaviors of successful project managers:

- Awareness of environmental influence;
- Leveraging strategic influence and power to accomplish long-term goals;
- Gathering information, catalyst for change, issue prevention, monitoring performance, timelines, and budget;
- Being a creative team leader;
- Reward team members;
- Assertiveness, responsiveness, and versatility characteristics;
- Conscientious, detail-oriented, and logical;
- Dependable and productive;
- Self-confidence. (Gillard & Price, 2005, p 51-52)

According to Gilley, Egglund, and Gilley (2002), project managers should know how to evaluate others, programs, and instructors in addition to project planning and design. This familiarity is learned through training, certifications, professional experience, career development activities.

Project Manager Competence

“Competent project managers consistently apply their project management knowledge and personal behaviors to increase the likelihood of delivering projects that meet stakeholders’ requirements” (Project Management Institute, 2007, p. 2). A project manager’s knowledge, skills, personal attitudes and characteristics are pulled together to complete a project. Several studies have identified which competencies are relevant to project managers (Geoghegan & Duleswicz, 2008). Researchers agree project manager competence does not just happen as it develops through experience and on the job training. This competence can be groomed with real world experience and feedback (Olney, 1999).

Project Manager Competence Development (PMCD) Framework

The Project Management Institute published two significant standards: A Guide to the Project Management Body of Knowledge (PMBOK) (Project Management Institute, 2013) and the Project Manager Competency Development Framework (Project Management Institute, 2007). The PMCD Framework was the first standard to address project personnel performance improvement (Mendez, 2007). It is intended to support the professional development of project managers and aspiring project managers by serving as a guide to practitioners, employers, and advisors when developing a competency framework in the work environment (Mendez, 2007; Project Management Institute, 2007). Carbone and Gholston (2004) recommend PMI’s competency model Project Manager Competency Development (PMCD) Framework.

Project manager competence is comprised of three dimensions which are knowledge competence, performance competence, and personal competence (Project Management Institute, 2007). Knowledge competency is what the project manager knows and applies to project. Performance competence is the outcome of knowledge and skill application. Lastly, personal competence is how the project manager behaves with core personality traits and attitude in a project setting.

Chronological View of Project Manager Competence

White (1959) introduced the concept of competence by referring to a human trait as competence. The term continued to evolve during the American industrial-organizational psychology in the late 1960s through early 1970s. McClelland (1973) researched competency versus intelligence and was recognized as the catalyst for the competency movement (Barrett & Depinet, 1991). Excluding race, sex, and socioeconomic status, early competency studies focused on predicting job performance. McClelland (1984) developed a competency variable methodology by studying people who were successful in their job versus people who were not successful.

Studies on project manager competence date back to over 25 years. Andersen, Grude, Haug, and Turner (1987) conducted research on the project manager's personal characteristics and project success. Posner (1987) researched and discussed the relationship between personal characteristics of successful project managers and problems facing project managers. Posner identified top skills, traits, and characteristics of project managers: (a) interpersonal, (b) management, (c) team-building, (d) leadership,

(e) coping skills, (f) flexibility, (g) creativity, and (h) technological skills were important. The research concluded it was challenging for project managers to develop soft skills.

Nelson (1991) agreed with Posner regarding the importance of technical skills and recognized five additional dimensions which were: (a) organizational overview, (b) organizational skills, (c) target organization unit, (d) general IT knowledge, and (e) IT products.

Pettersen (1991) researched the characteristics that predict effective project managers. The list included:

- Problem solving- including problem analysis, judgment and practical sense, decisiveness, and planning and organization;
- Administration- control, strategy, and specialized knowledge;
- Supervision and team management- delegation, team structure, consideration to others, developing team members, teamwork, flexibility, cooperation, conflict resolution;
- Interpersonal relations- oral communication, interpersonal influence, negotiation, persuasion, and ascendancy;
- Other personal qualities- working proactively, self-confidence, maturity, emotional stability, loyalty, honesty, integrity, open to change, works through ambiguity, and job interest.

Competency-based training for IT project managers emerged in the early 1990s (Spencer & Spencer, 1993). By using competency-based training, Spencer and Spencer

argued IT project managers' productivity would increase by 32% yielding \$500,000 annually.

Rees et al. (1996) identified six traits of effective project managers: (a) intelligence, (b) problem solving, (c) behavioral or motivations (such as energy), and (d) skill based (for example, communication). Like Rees et al. (1996), Pinto and Trailer (1998) believed problem solving and effective communication were top competencies for project managers. In addition to problem solving and communication, Pinto and Trailer identified important project manager characteristics: (a) credibility, (b) tolerance for ambiguity, (c) flexible manager style, (d) technical, (e) administrative, and (f) leadership.

Jiang, Klein, and Carr (1998) researched behavioral skills and identified 18 common skills among IT project managers. The behavioral skills were:

- Diplomacy-being tactful when working with others,
- Interviewing- Being able to draw out needed information by asking the right questions,
- Directing- Providing instruction and communication,
- Patience- the ability to tolerate changes to user requirements,
- Assertiveness- Believing in an unpopular course of action,
- Leadership- Provide direction and get work done through others,
- Speaking- Sharing ideas with others in a manner understood by others,
- Writing- Sharing ideas with others in a written format understood by others,

- Listening- Actively listening to others and asking probing questions as needed,
- Empathy- Understand how others feel,
- Sales- Persuading others or promoting the system,
- Politics- Understanding what motivates others, know what is influential in the organization,
- Managing- Projects are completed within schedule and budget by planning, organizing, and control,
- Training- Share knowledge of computers with others unfamiliar with technology,
- Cooperation- Working productively with others and resolving conflict effectively,
- Organization communications- Understanding the organization's goals and operations,
- Nonverbal communications- Communicating without words, and
- Sensitivity- Understanding the implications of change for the end users.

Jiang et al. (1998) uncovered the top three behavioral skills of IT managers: interviewing, directing, and managing. Woldring (1996) agreed that interviewing is key. Woldring argued the most common issue for failed projects is the project manager's inability to clarify the end users' requirements and expectations. Lyytinen (1988) argued another reason for failure is incomplete requirements given to system analysts and programmers.

Lechler (1998) argued project managers' soft competencies played a more important role on project success than technical activities. Research on competency expanded to project team members' competence (Skulmoski, Hartman, & DeMaere, 2000). The study sought to identify outstanding competencies of project team members and project managers. Competence research expanded even further when Crawford (2006) linked competence organizational performance to project performance. El-Sabaa (2001) investigated project manager competencies where findings indicated the greatest influence on project management practice is human skills.

Soderlund (2004) researched developing project competence. The main idea of project competence was the organization's ability to select and execute projects in a skillful manner. Mei-I, Dainty, and Moore (2005) noted superior managers had a high level of the following qualities: (a) achievement orientation, (b) initiative, (c) information seeking, (d) customer service focused, (e) impact and influence, (f) directiveness, (g) teamwork and cooperation, (h) team leadership, (i) analytical thinking, (j) conceptual thinking, (k) self-control, and (l) flexibility.

The competencies of construction managers have been researched (Dainty, Cheng, & Moore, 2005). Results indicated there were 12 competencies that distinguish a superior performer from an average performer: (a) achievement orientation, (b) initiative, (c) information seeking, (d) focus on client's needs, (e) impact and influence, (f) directiveness/assertiveness, (g) teamwork and co-operation, (h) team leadership, (i) analytical thinking, (j) conceptual thinking, (k) composure, and (l) flexibility.

Research turned to project management performance measures. Menches and Hanna (2006) identified a process to transform a project manager's qualitative performance into a quantitative measure. This index can be used to track project performance trends.

Brill, Bishop, and Walker (2006) researched competencies required for effective project managers. The study analyzed 147 participants with more than 20 years of project management experience. From the data, 117 success factors were identified and categorized into 9 themes. The top emerging skills were: (a) training skills, (b) strong communication skills, and (c) project planning. Other critical factors included (a) problem solving, (b) leadership, (c) analytical skills, (d) context knowledge, (e) people expertise, (f) communication skills, (g) knowledge of tools, and (h) project management expertise. The study failed to uncover how project success is impacted by project management leadership.

Research incorporated Meyers-Briggs personality indicators with effective project manager competencies. Gehring (2007) researched which of the Meyers-Briggs leadership styles had the most desired traits of project managers. The Meyers-Briggs indicator combinations best matching desired project manager competencies and traits are introversion, intuition, thinking, and judging (INTJ), extraversion, intuition, thinking, and judging (ENTJ), or extraversion, sensing, thinking, and judging (ESTJ) indicators.

Crawford (2007) argued project manager competence is an amalgamation of knowledge, skills, and personality characteristics creating results. Through this study,

Crawford concluded project management competence and project success were interrelated.

Managerial, leadership behaviors and gender have been studied. Neuhauser (2007) identified important managerial and leadership behaviors of female project managers: (a) individualized consideration, (b) attributed charisma, (c) delegation, and (d) contingent reward. Neuhauser argued the least important behaviors are: (a) influence, (b) inspirational motivation, and (c) individualized consideration.

Kollman, Hasel, and Breugst (2009) identified competence required to addresses members within e-business teams: (a) technology knowledge, (b) conceptual knowledge, (c) realization competence, (d) business management knowledge, (e) entrepreneurial competence, (f) interpersonal competence, (g) e-business competence, (h) IT vision, and (i) perception of utility are all competencies required in e-business teams. Kerzner (2009) argued that the behavioral skills of a project manager are as important as technical skills. Alam et al. (2010) concluded contextual, technical, and behavioral competencies were required to manage projects successfully.

This study was focused on project management competence and its impact on the career success of project managers. The next section will cover the topic of project manager experience.

Project Manager Experience

“One solution to the problem of mastery is experience and education” (Frame, 1994, p. 27). Gattiker and Larwood (1990), Cox and Harquail (1991), and Judge et al. (1995) concluded the number of years in a job positions can negatively impact a career

and ascendancy. Job changes help develop experience which increases career success in a person is gaining relevant experience (Cox & Harquail, 1991).

Project management knowledge is learned from formal education and experience (Turner & Huemann, 2001; Happ & Muller-Wenzke, 2005). A benefit of this experience is the ability for project managers to learn how to sift through complex projects and focus on what is truly needed (Frame, 1994). According to Einsiedel (1987), project managers with effective leadership skills most likely groomed these competencies through experience. Pinto and Trailer (1998) and Kerzner (2009) agreed with Einsiedel's thoughts: mentoring, experience, and training are proven methods to develop skills. Experiential learning is one of the most effective ways to learn professional skills (Hicks, 1996).

Pinto and Trailer (1998) stressed the importance of experience to be a successful project manager. Diversified field experience is desired. This enables project managers to visualize the project as a whole while considering technical, social, and political complexities.

The Standish Group (2001) found 97% of successful projects were led by an experienced project manager. Project managers are expected to learn hands on while leading a project. According to Happ and Muller-Wenzke (2005), exchanging experience and knowledge transfer are critical components in project management training. Through experience, project managers become better as each project is successfully completed (Murch, 2001). Toljaga-Nikolić, Obradović, and Mihić (2011), researched project organizations and skilled project managers. Like Happ and Muller-Wenzke, Toljaga-

Nikolić et al. recommend that project managers attend meetings to share experiences and knowledge.

Project managers with failed or challenged projects may be the best candidate for the next project as failure is the best teacher (The Standish Group, 2013). This study will focus on project management education, competence, and experience and the impact on the career success of project managers. The next section will cover the topic of project management education.

Project Management Education

Employers are seeking associates with interpersonal, technical project management competencies, cognitive aptitude, and leadership which are all skills part of project management education (Alam et al., 2010). Formal education and practice are required for developing skills in a profession (Turner & Hueman, 2000).

Project managers have very little formal training on project management when entering the job role as project managers are usually trained on the job (Carbone & Gholston, 2004). Project managers are generally promoted into the position based on excellent job performance in a technical role. Nellore and Balachandra (2001) discovered most project managers are promoted into position based on their technical skills and often times lack team management skills.

In response to the growing need of competent project managers, the Association of Project Managers (APM), Project Management Institute (PMI), and International Project Management Association (IPMA) created project management bodies of knowledge the engineering, building, and IT environments to help understand project management (Walesh, 2000; Louw, & Rwelamila, 2012).

Effective and successful project managers have the knowledge and skill set specific to their organization (Heerkens, 2001). Carbone and Gholston (2004) concluded most organizations do not have comprehensive training for project managers. On the other hand, 41% of project managers agreed their organizations prepared them for their role. Interestingly enough, about 33% of organizations require their project managers to be PMI certified (Standish Group, 2013). Starkweather and Stevenson (2011) agreed project certification is necessary yet not sufficient for successful project managers.

According to Happ and Muller-Wenzke (2005), the Project Management Institute (PMI) learning workshops and E-learning are educational offerings to develop and enhance project management competencies. In addition to these offerings, other training methods for project managers are junior project manager teams, project manager meetings, and coaching. Junior project manager's teams serve as a basic qualification for all new project managers as PM basics, methods and tools, as well as team work are emphasized (Happ & Muller-Wenzke, 2005). Project leader meetings are set for alternating months where knowledge transfer, experience sharing, and informational topics are discussed. Finally, junior project managers are coached by senior project managers when questions arise on projects and tasks. Coaching continues through dialogues exchanging various experiences.

Project managers should have a university degree in engineering, another related technical discipline, or management (Pinto & Trailer, 1998; Dulaimi, 2005). Academic education and formal training influence the behavior of project managers. Universities are offering project management courses due to the demand of the workplace (Alam et

al., 2010). Most universities focus on time, cost, and quality in project management education as the technical skills are easier taught than soft skills. Berggren and Soderlund (2008) argued most literature on project management education has been subpar as the literature describes effectiveness without recommendations for improvement.

This study was focused on project management education and its impact on the career success of project managers. The next section will cover the topic of career success.

Project Implementation Profile

Pinto and Slevin (1987) developed the Project Implementation Profile from an amalgamation of project implementation critical success factors found in research. The research of Sayles and Chandler (1971), Cleland and King (1983), Baker, Jensen, and Murphy (1998), and Lock (1984) influenced the foundation of the PIP instrument.

Pinto and Slevin (1986) studied 50 project managers. Participants were asked about a successful project they led within the past two years. The data was sorted into ten categories. After combining the results, ten factors surfaced. The factors served as the foundation of the Project Implementation Profile. The categories of the Project Implementation Profile are: (a) project mission, (b) project schedule, (c) top management support, (d) client consultation, (e) client acceptance, (f) communication, (g) monitoring and feedback, (h) personnel, (i) technical tasks, and (j) troubleshooting.

Critical success factors

Project mission refers to the goals of the project. The goals are agreed upon with collaboration with the project stakeholders and should be written in a clear and easily understood format.

Top management support is a critical aspect impacting the success or failure of the project (Pinto & Slevin, 1987). “The degree of management support for a project will lead to significant variations in the clients’ degree for ultimate acceptance or resistance to the project or product” (Pinto & Slevin, 87, p. 172). The Project Management Institute (2008) argued the support of top management should be documented in the project charter.

Developing a detailed plan of the implementation process is key. The process planning can be separated into four stages: (a) formulation, (b) conceptualization, (c) detailing, and (d) evaluation (Nutt, 1983). The project schedule is comprised of time schedules, milestones, resources, equipment requirements (Pinto & Slevin, 1987) and work breakdown structures (Project Management Institute, 2013).

The more clients are involved with the project, the more clients will support the project efforts (Manley, 1975). The consultation is the start to implementing change (Kolb & Frohman, 1970). The activities are communication, consultation, and active listening involving all impacted stakeholders (Pinto & Slevin, 1986). This factor includes recruiting, selection, and training proficient project members (Pinto & Slevin, 1987). It is the development of the team. Project team development is the “process of improving the

competencies, team interaction, and overall team environment to enhance project performance” (Project Management Institute, 2008, p. 58).

People who understand the project should manage the implementation. Project team members should possess the technical skills necessary for the project as well as access to technology to complete tasks. This allows project support by team members who are acquainted with configuring technology to achieve project objectives (Pinto & Slevin, 1987).

As the final stage in the implementation process, the efficacy of the project is determined by the end user or client (Pinto & Slevin, 1987). It is the unveiling of the final product.

Monitoring and feedback is the process control during the project implementation. Project team members and stakeholders are provided status updates on how the project is rolling compared to the project objectives (Pinto & Slevin, 1987). Monitoring and feedback is a technique for project managers to proactively address issues or problems. Countermeasures should be taken within reasonable time.

Communication is crucial for a successful project implementation. It helps create an environment promoting project success (Pinto & Slevin, 1987). Communication should occur between project team members, project manager, and stakeholders.

After project implementations, problems can surface. Troubleshooting is handling the unexpected and deviations from the project plan (Pinto & Slevin, 1987).

Project Manager Career Success

In today's business environment, successful project management is the use of tools, processes, and people skills (Thamhaim, 2004). Prior research has been conducted on individual attributes impacting career decisions and opportunities, such as gender (Cocchiara, Kwesiga, Bell, & Baruch, 2010), human capital investments; competencies of knowledge, skills, and experience (Becker, 1975).

To begin, the definition of career success varies. Around the nineteenth century, career success was survival, security, and character development (Dries, 2011). The definition evolved to a succession of related jobs in alignment in a prestigious hierarchy (Wilensky, 1961). In contemporary literature, career success is defined as "the experience of achieving goals that are personally meaningful to the individual rather than those set by parents, peers, an organization, or society" (Mirvis & Hall, 1994, p. 366). A career has also been described as a sequence of experience and activities through a person's lifetime (El-Sabaa, 2001; Hall, 1971).

Careers are perceived differently among people. It can be real or perceived. People seek careers for various reasons such as personal self-worth, economic needs, or to acquire a social status (Adamson, Doherty, & Viney, 1998). These three reasons impact how a person behaves, performs, and satisfaction of a job.

Career success is both objective and subjective (Judge et al., 1995; Hall & Chandler, 2005; Heslin, 2005; Abele & Spurk, 2009). From an objective perspective, career success is defined by salary, occupational status, and job ascendancy (Veiga, 1983; Landau & Arthur, 1992; Schneer & Reitman, 1993, Thorenou, Latimer & Conroy, 1994;

Judge et al., 1995; Melamed, 1995; Dries, Pepermans, & Carlier, 2008). Society's evaluation of objective career success is the achievement of salaries and managerial levels (Nabi, 2001). In contrast, a subjective perspective is how a person feels about his or her accomplishments, job satisfaction, and career satisfaction (Gattiker & Larwood, 1998; Van Eck Pelachette, 1993; Judge et al., 1995). It is measured by an individual's feeling of success such as career accomplishments and future opportunities (Nabi, 2001). Judge et al. (1995), continued to discuss career success as a positive work-related or psychological result or achievement due to one's work experience. Subjective career success is comparable to intrinsic career success as it relates to self-evaluation of his or her career (Van Eck Pelachette, 1993; Kuilpers, Schvns, & Scheerens, 2006). It is the perception of the individual on success surrounding achievement, future perspectives, recognition, and life satisfaction (Nabi, 1999 as cited in Kuilpers, Schvns, & Scheerens, 2006). "Individuals with high subjective career success feel happier and more successful about their careers relative to their own internal standards" (Nabi, 2001, p. 1).

Gattiker and Larwood (1990) uncovered that demographics play an important role in explaining differences in management level. Research has been done on how mental ability (O'Reilly & Chatman, 1994; Dreher & Bretz, 1991; Hunter 1986), personality traits (Melamed & Bozionels, 1992), education (Stroh, Brett, & Reilly, 1992; Howard, 1986; Melamed, 1995; Stewart & Gundykunst, 1982), training and development (Ragins & Sandstrom, 1989; Tharenou et al., 1994), job experience (Gattiker & Larwood, 1990; Cox & Harquail, 1991; Judge et al., 1995; Hurley, Fagenson-Eland, & Sonnefeld, 1997; Melamed, 1996), marital status (Pfeffer & Ross, 1982; Melamed, 1995; Landau &

Arthur, 1992), and family status (Landau & Arthur, 1992; Schneer & Reitman, 1993; Tarenou, Latimer, & Conroy, 1994) impact career success.

Job satisfaction is how a person feels about his or her job (Smith, Kendall, & Hulin, 1969). It is a perception of the individual. Job satisfaction has also been described as an enjoyable emotional state due to job achievement (Locke, 1969). Lawler (1973) expanded the definition of job satisfaction to the difference between what a person thinks they should receive and what the person actually receives. Schultz (1982) continued to describe job satisfaction as psychological dispositions of people on their work – attitudes or feelings.

Career success and gender has been a topic of research. Melamed (1995) identified successful career paths are different between men and women. Women's achievements aligned with merit and opportunities within the occupation and organization. On the other hand, men's career success was related to personality characteristics. Simpson and Altman (2000) argued women managers have a *time bounded* glass ceiling. The evidence of the research indicates there is a strong correlation of age and seniority in women managers.

Not all scholars agree on the definition of project success. Consecutive project success drives project manager career success (Geoghegan & Dulewicz, 2008). Each project has different success measures, causing the lack of consensus. Turner and Muller (2005) defined project manager career success as repeated successful completion of projects. Ionata (2007) argued project management career success has identical objective and subjective factors previously stated.

Gehring (2007) argued most scholarly literature on project management success concentrates on competencies and not traits. The focus on competencies is logical because the functions of project managers are action-oriented and observable.

Summary

Based on the literature, project manager competence, experience, and education have been researched; however there is a gap in the literature pertaining to the correlation on project managers' career success. This study sought to better understand the extent of the correlation.

CHAPTER 3. METHODOLOGY

This chapter discusses the research design, population, sample, data collection procedures, and data analysis for this study. Information about the PIP survey instrument will be provided in addition to the validity and reliability of the instrument. At the end of the chapter, the researcher's ethical considerations will also be reviewed.

Research Design

The research was a non-experimental descriptive and exploratory design using correlation analysis. A correlation methodology was used to analyze which constructs were significantly and positively correlated to project managers' career success. Because of the hypothesis-testing nature of this study, the approach was well-suited. It was appropriate for this study as the study was designed to find a relationship among the variables.

The data collection method was an online internet survey questionnaire. The study targeted project managers of the SurveyMonkey Audience project management community. To collect data, the researcher used the SurveyMonkey online tool to administer the survey with an existing instrument.

Quantitative analysis was performed with Minitab 16. Two statistical models were used: analysis of variance and Pearson's correlation coefficient. First, an analysis of variance (ANOVA) was used to analyze the difference between competence, professional experience, and education with the success of project managers. Second, the Pearson's correlation coefficient was used to measure the association between two variables. This statistical model was used for determining association of competence and project

managers' career success, professional experience and project managers' career success, and education and project managers' career success.

The research approach was an ideal approach for this study as it permitted hypothesis testing to explain relationships between interdependent and dependent variables. The Pearson's correlation coefficient is used "to describe how two distribution scores are related to each other" (Vogt, 2007, p. 37). Covariance analysis was used to assess the variances between the variables and the relationship. The appropriateness of the method stems from the requirement to collect objective, numeric data for testing relationships between variables, using statistical methods (Creswell, 2009). The method was particularly useful for answering research questions related to measurement of variables, testing of theories, and prediction of outcomes (Leedy & Ormrod, 2005; Neuman, 2003).

Similarly, the appropriateness of the correlational design for the current study derived from the current study's requirement to test the relationship between multiple independent variables and a dependent variable (career success). The literature (e.g., Creswell, 2009; Sproull, 2002; Tabachnick & Fidell, 2001) has shown that correlational design is the most appropriate research approach for examining relationships between variables, without inferring causality. Additionally, the sample frame from which the study's sample is drawn, project managers working in public sector companies with more than 500 employees, was appropriate for generating the data to answer the research question.

Sample

The population was SurveyMonkey Audience project managers working in the construction, IT, or business setting. The researcher was interested in a population of project managers based in the United States working for public sector companies with more than 500 employees. Results were generalized based on this population group. The sample frame was project managers working in public sector companies with more than 500 employees. Permission to contact this group was granted by SurveyMonkey Audience. The SurveyMonkey Audience service was used for random sampling and data collection. The study included demographic questions: age, gender, education level, industry, years of project management experience, and management level.

The expected minimum sample size for this study was 138 project managers from American based public organizations with 500 or more employees. A statistical power analysis was used to calculate the sample size. Considering the level of power (.8), two predictors, effect size ($r = .3$), and probability level for statistical acceptance (.05) the sample size is 138. According to Field (2009), statistical significance is the probability level of .95. The sample size of 138 was appropriate for this study as it met an acceptable level for a quantitative study. The number of responses to the survey was 148, whereas 140 participants consented to participate.

The levels of measurement of career success were intervals. A Likert-type scale was used to operationalize the measurement just as how Slevin and Pinto (1986) operationalized measurement within the PIP survey instrument.

Setting

SurveyMonkey Audience was used to contact the sample frame. The setting was the United States and included project managers in the construction, IT, and business settings. The use of SurveyMonkey Audience was very beneficial as the researcher was able to reach randomly selected project managers from the Audience database in a short time frame.

Instrumentation/Measures

Slevin and Pinto (1986) developed the PIP methodology as a means to determine which facets of projects impact success or failure (Finch, 2003). The model consists of 10 critical success factors (CSFs) such as project schedule/plans, client consultation, and personnel which are administered as a self-assessment. Permission to use the PIP was granted by Dr. Slevin. The model is a series of 100 questions using a 10-point Likert-type scale. The CSFs of the model are: (a) project mission, (b) top management support, (c) project schedule/plan, (d) client consultation, (e) personnel, (f) technical tasks, (g) client acceptance, (h) monitoring and feedback, (i) communication, and (j) troubleshooting. Figure 2 illustrates the framework of the Project Implementation Profile.

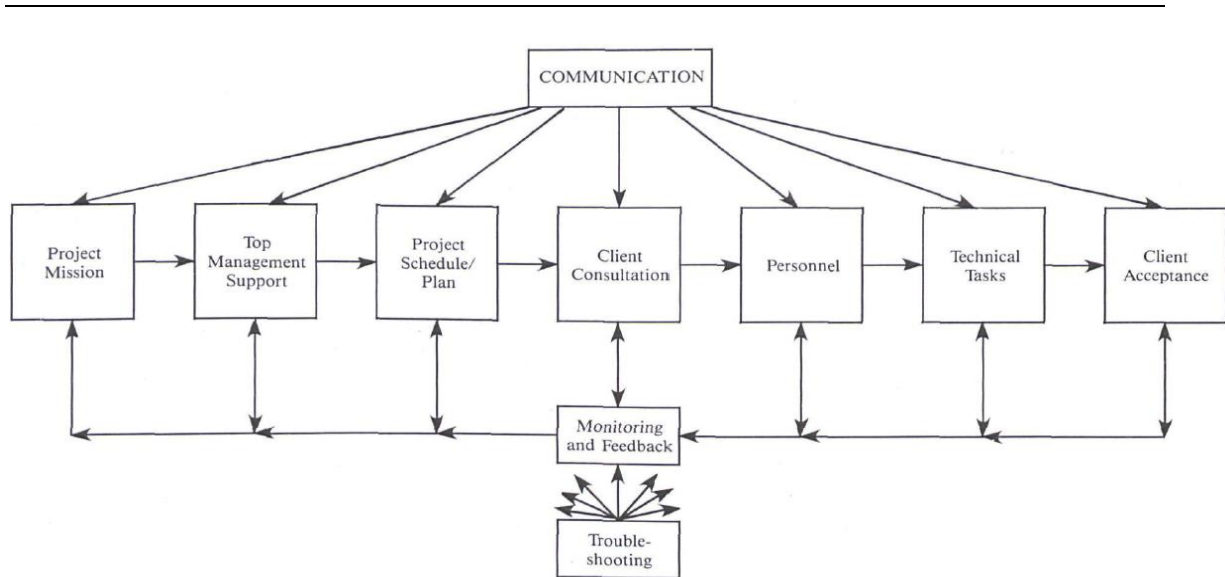


Figure 2. Ten Key Factors of the Project Implementation Profile (Schultz, Slevin, & Pinto, 1987). From Copyright 1987 by Interfaces by Institute of Management Sciences; Operations Research Society of America. Reprinted with permission.

The survey instrument consisted of seven demographic questions and 100 questions from the Project Implementation Profile. Table 1 depicts which survey question matched to each independent or dependent variable.

Table 1

The Relationship of Survey Questions to Variables

Survey Questions	Independent Variable	Dependent Variable
1 – 7	N/A, Demographic Questionnaire	N/A, Demographic Questionnaire
28-67, 78-97	Competence	
5, 8-27, 68-77	Professional experience	
98-107		
3	Education	
8 – 107		Career Success

Data Collection

The researcher used SurveyMonkey Audience services to collect data through a single survey. A secure account with SurveyMonkey was created to design the online survey. An invitation to participate in the study was composed by the researcher and distributed by a SurveyMonkey Audience representative who included: the intent of the study, time commitment to complete the study, contact information of the researcher, all IRB requirements, and the link to complete the online survey. The email was sent to all members of the SurveyMonkey Audience project manager community by a SurveyMonkey representative.

Participation was voluntary where participants could end the survey at any time. Survey respondents were identified through a numbering system, which was not traceable to the participants' personal information. Access to the participants' names or contact information was not allowed as the information was confidential and proprietary of SurveyMonkey Audience. Raw data was accessible only to the researcher and was password protected on SurveyMonkey's website.

The data was downloaded into an excel file which was uploaded to Minitab 16 for further analysis. The downloaded data was saved on a USB storage drive and remained locked in the researcher's personal fireproof safe. The data will be retained for seven years and will be destroyed after seven years has expired.

Data Analysis

Minitab 16 was used to analyze the data. The relationship strength between the interdependent and dependent variables was analyzed by using the Pearson's correlation

coefficient. Covariance was used to evaluate the variances between the variables and its relationship. Because the heuristic model of Joseph et al. (2012) has not been validated with PIP and PMCD, a confirmatory factor analysis was performed. This analysis insured the data was matched to the correct constructs.

A very important assumption of the ANOVA method is the groups are normally distributed (Vogt, 2010). The association among two variables is measured by the correlation coefficient (Vogt, 2010). The assumptions of the Pearson's correlation coefficient are: (a) the correlation coefficient r assumes that the IV and DV are normally distributed; (b) measures only linear relationship, (c) IV and DV are independent of each other and, (d) continuous random variables (Lohninger, 1999). If the assumptions of the ANOVA and Pearson's correlation coefficient were not met, then the researcher would have used the Spearman's correlation coefficient (Field, 2009).

There are two special types of relationships among variables (Trochim, 2006). For this study, the researcher was interested in understanding the correlational relationship between the independent and dependent variables. The relationship between critical success factors (IV1) and career success (DV) was correlational as well as the relationships between education (IV2) and project manager competence (IV3) with career success (DV). Figure 7 shows the relationship of the independent variables (IV) and the dependent variables (DV) with a directional arrow.

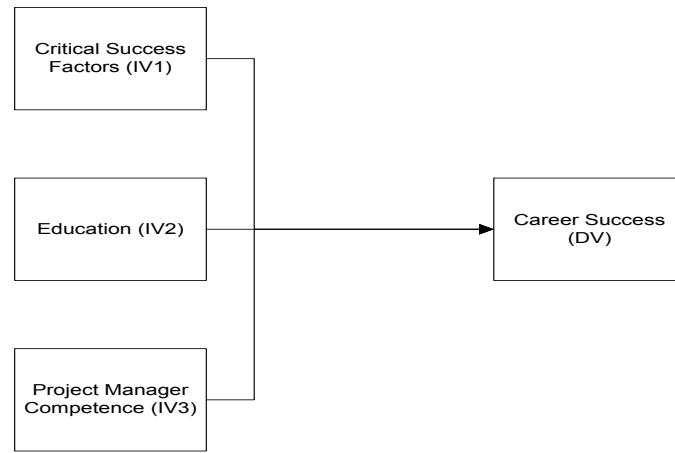


Figure 3. The relationship of the independent variables and dependent variables

Validity and Reliability

Because the researcher used an existing survey instrument, field and pilot testing were not conducted. The PIP instrument has a documented and published validity and reliability score above .7 (Slevin & Pinto, 1986). The researcher used the instrument as is where there were no changes to the instrument. The PIP has a strong reliability score ranging from .70 to .86 among the various CSFs (Lawless, 2012). When averaging the Cronbach's alpha scores across all ten factors, the average score was .78. Pinto and Slevin (1988) argued the CSFs could predict actual success of project implementations. Based on Pinto and Slevin's (1988) findings, there was a significant relationship between all ten CSFs and project success with a probability level of .01.

Ethical Considerations

The respect of persons, beneficence, and justice were upheld during the study. The Belmont Report (1979) maintains these three principles must be abided by while

conducting research with human participants. Study participants completed the online questionnaire after the consent form was completed. The study participants were informed about the voluntary nature of the study. Participants also had the opportunity to end the study as participants deemed necessary. Any identifying data was inaccessible to the researcher due to SurveyMonkey's confidentiality policy.

This study had very minimal risks impacting the participants. If any risk was present, the risk would have been a breach of confidentiality. Divulging all relevant information was expected and communicated to the study participant prior to his or her agreement to participate. The researcher did not release identifying traits or information about the participants in order to satisfy the requirements of anonymity, confidentiality, and privacy. The data will be destroyed after seven years.

CHAPTER 4. RESULTS

The results of the study, data collected, and the data analysis are presented in this chapter. This chapter contains a discussion of the sample, response rate, descriptive statistics, hypotheses testing of the 140 project managers, and data. The data is organized in four sections and is supported by tables and figures. The population and sample descriptions are discussed in section one. Organized around the hypotheses of the study, section two offers a summary of results through the use of statistics. Section three provides details of the analysis and results. The final section is a summary of the analysis.

The purpose of this study was to investigate to what extent competence, professional experience, and education impact a project manager's career success. The findings of this research were intended to contribute to the project management body of knowledge to fill a gap in literature by analyzing the relationship between project manager competence, professional experience, education, and career success. Understanding how project managers' competence, professional experience, and education impact their careers may help organizations understand if competence, professional experience, and education impact project managers' career success. This information will be used for making management decisions, identify areas of training and development, and matching project managers with best suited projects. From a practical perspective, the research may aid in the development of career plans. The professional experience of other project managers may serve as personal development recommendations.

The survey instrument was the PIP (Slevin & Pinto, 1986). Because the PIP was an existing survey instrument, a pilot study was not needed. The instrument was divided into 11 sections. The first section collected demographics through six survey questions. The remaining ten sections each consisted of 10 survey questions. The survey was comprised of an 11-point Likert-type scale ranging from zero (strongly disagree) to ten (strongly agree) consisting of 100 questions. The data was exported from SurveyMonkey into an Excel spreadsheet. The data was coded and uploaded into Minitab 16.

Description of the Population and Sample

The population was project managers in business, IT, and construction settings. A total of 148 surveys were collected, 140 surveys were complete and became the study sample. The sample size of 140 was adequate for the study. Based on the G*Power 3.1.9.2 statistical power analysis program, considering the level of power (.8), two predictors, effect size ($r = .3$), and probability level for statistical acceptance (.05) the sample size is 138. The completed survey results were downloaded into Excel and uploaded into Minitab 16 for further analysis.

The survey participants answered six demographic questions which included (a) gender, (b) age, (c) highest level of education completed, (d) industry type, (e) years of project management experience, and (f) current job level.

Gender

Study participants were asked to classify their gender. Of the 140 completed surveys, 53.6% ($n = 75$) were women and 46.4% ($n = 65$) were men.

Age

Study participants identified their age group from seven age groups. The most frequently occurring age group was 35 to 44 whereas 32.14% ($n = 45$) of the participants fell in this age group. The second most frequently occurring age group was 25 to 34 in which 31.43% ($n = 44$) of the study participants identified with this age group. The remaining participants fell in other ranges where 19.29% ($n = 27$) identified with the 45 to 54 group, 9.29% ($n = 13$) identified with the 55 to 64 group, 4.29% ($n = 6$) participants were in the 18 to 24 group, 2.86% ($n = 4$) fell in the 65 to 74 group, and .71% ($n = 1$) identified with the group of 75 or older. Table 2 shows the gender and age of the participants.

Table 2

Participants- Gender and Age Data

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Female	75	53.57	53.57	53.57
	Male	65	46.43	46.43	100
		140	100.0	100.0	
Age	18 to 24	6	4.29	4.29	4.29
	25 to 34	44	31.43	31.43	35.72
	35 to 44	45	32.14	32.14	67.86
	45 to 54	27	19.29	19.29	87.15
	55 to 64	13	9.29	9.29	96.44
	65 to 74	4	2.86	2.86	99.3
	75 or older	1	.71	.7	100
		140	100.0	100.0	

Highest Level of Education Completed

Study participants identified the highest level of education from seven categories: graduated from high school, one year of college, two years of college, three years of college, graduated from college, some graduate school, and completed graduate school. Most participants graduated from college, 51.43% ($n = 72$) earning a bachelor's degree. Of the participants, 27.14% ($n = 38$) completed graduate school. Of the participants, 6.43% ($n = 9$) completed two years of college, 6.43% ($n = 9$) completed some graduate school, 4.29% ($n = 6$) graduated from high school, 2.14% ($n = 3$) completed one year of college, and 2.14% ($n = 3$) completed three years of college. Table 3 shows the education level of the participants.

Table 3

Participants- Education Level Data

Education Level	Frequency	Percent	Valid Percent	Cumulative Percent
Graduated from high school	6	4.29	4.29	4.29
1 year of college	3	2.14	2.14	6.43
2 years of college	9	6.43	6.43	12.86
3 years of college	3	2.14	2.14	15
Graduated from college	72	51.43	51.43	66.43
Some graduate school	9	6.43	6.43	72.86
Completed graduate school	38	27.14	27.14	100
	140	100.0	100.0	

Industry Type

Study participants were asked to identify their primary industry type among 20 categories. Of all the participants, 13.57% ($n = 19$) identified Government and 13.57% ($n = 19$) identified with Telecommunications, Technology, Internet, and Electronics. Of the remaining participants, 9.29% ($n = 13$) fell in Education, 8.57% ($n = 12$) in Construction, Machinery, and Homes, 8.57% ($n = 12$) fell in Healthcare and Pharmaceuticals, 7.86% ($n = 11$) identified with Manufacturing, 7.86% ($n = 11$) fell in Nonprofit, 5.71% ($n = 8$) identified with Business Support and Logistics, 5% ($n = 7$) in Finance and Financial Services, 3.57% ($n = 5$) in Airlines and Aerospace, 3.57% ($n = 5$) in Entertainment and Leisure, 3.57% ($n = 5$) in Utilities, Energy, and Extraction, 2.86% ($n = 4$) in Insurance, 2.14% ($n = 3$) in Advertising and Marketing, 1.43% ($n = 2$) identified with Real Estate, .71% ($n = 1$) fell in Agriculture, .71% ($n = 1$) in Automotive, .71% ($n = 1$) fell in Food and Beverage, .71% ($n = 1$) in Retail, and 6.4% ($n = 9$) identified with other. Table 4 shows the industry type by participant.

Table 4

Participants- Industry Data

Industry	Frequency	Percent	Valid Percent	Cumulative Percent
Advertising & Marketing	3	2.14	2.14	2.14
Agriculture	1	.71	.71	2.85
Airlines & Aerospace	5	3.57	3.57	6.42
Automotive	1	.71	.71	7.13
Business Support & Logistics	8	5.71	5.71	12.84
Construction	12	8.57	8.57	21.41

	Frequency	Percent	Valid Percent	Cumulative Percent
Education	13	9.29	9.29	30.7
Entertainment & Leisure	5	3.57	3.57	34.27
Financial Services	7	5.0	5.0	39.27
Food & Beverages	1	.71	.71	39.98
Government	19	13.57	13.57	53.55
Healthcare	12	8.57	8.57	62.12
Insurance	4	2.86	2.86	64.98
Manufacturing	11	7.86	7.86	72.84
Nonprofit	11	7.86	7.86	80.7
Real estate	2	1.43	1.43	82.13
Retail	1	.71	.71	82.84
Technology	19	13.57	13.57	96.41
Utilities & Energy	5	3.57	3.57	100.0
	140	100.0	100.0	

Years of Project Management Experience

Survey participants identified how many years of project management experience by selecting one of five categories: no experience, 1 - 3 years, 4 - 6 years, 7 - 9 years, and 10 or more years. Most participants had 1 – 3 years of experience representing 30% ($n = 42$) of the sample. Of the remaining sample, 25% ($n = 35$) had 10 or more years of experience, 22.86% ($n = 32$) had 4 – 6 years of experience, 18.57% ($n = 26$) identified 7 – 9 years of experience, and 3.57% ($n = 5$) had no experience in project management.

Table 5 shows the years of project management experience.

Table 5

Participants- Years of Project Management Experience Data

		Frequency	Percent	Valid Percent	Cumulative Percent
Years of Experience	No experience	5	3.57	3.57	3.57
	1-3 years	42	30.00	30.00	33.57
	4-6 years	32	22.86	22.86	56.43
	7-9 years	26	18.57	18.57	75
	10 or more years	35	25.0	25.0	100.0
		140	100.0	100.0	

Current Job Level

Participants identified his or her current job level by selecting one of five choices: entry level, intermediate, middle management, senior management, or owner, executive, or c-level. Of the responses, 46.43% ($n = 65$) identified with middle management, 33.57% ($n = 47$) were in intermediate job levels, 14.29% ($n = 20$) were senior level managers, 5.71% ($n = 8$) were entry level, and no one identified with owner, executive, or c-level job levels. Table 6 shows the current job level of participants.

Table 6

Participants- Current Job Level Data

		Frequency	Percent	Valid Percent	Cumulative Percent
Current Job Level	Entry Level	8	5.71	5.71	5.71
	Intermediate	47	33.57	33.57	39.28
	Middle Management	65	46.43	46.43	85.71
	Senior Management	20	14.29	14.29	100.0
	Owner/Executive	0	0.0	0.0	100.0
		140	100.0	100.0	

Of the 140 completed surveys, 53.6% ($n = 75$) were women and 46.4% ($n = 65$) were men. Results indicated most of the participants were between the ages of 35 to 44 (32.14%, $n = 45$), graduated from college (51.43%, $n = 72$), were middle managers (43.43%, $n = 65$) and had 1-3 years of project management experience (30%, $n = 42$).

Summary of Results

This section provides a summary of the survey results and findings of the data analysis and is organized by hypotheses. The main research question was: To what extent does competence, professional experience, and education impact the career success of a project manager. Three hypotheses were generated. The center of the data analysis was to test for a correlation between the independent variables and the dependent variable.

Hypothesis H1: There is a statistically significant relationship between competence of project managers and career success. Results indicated there is a correlation between competence and the career success of project managers.

Hypothesis H2: There is a statistically significant relationship between professional experience of project managers and career success. Results indicated a very high correlation between professional experience and career success.

Hypothesis H3: There is a statistically significant relationship between the education of project managers and career success. Results indicated there is no correlation between education and career success.

Details of Analysis and Results

This section offers the analysis details and results which are organized by hypotheses of the study.

The data analysis used parametric testing methodology. The researcher verified the assumptions of parametric tests, which included normality and homogeneity of variance. Incomplete survey responses were removed from the data. The significance level of <0.010 in the Kolmogorov-Smirnov tests indicated normally distributed data; therefore the assumptions of parametric data were met.

Analyzing the Relationship between Project Manager Competence and Career Success (Hypothesis 1)

The Pearson r was used to analyze the relationship between competence and career success. The Pearson correlation of competence and career success was 0.991 with a p -value of 0.000. Competence was operationalized with the average of 56 survey items, a portion of the PIP instrument, listed in Section 2 of the survey. Career success was analyzed by using all 100 questions of the PIP survey instrument listed in Section 2 of the survey.

Table 7 shows the model summary of competence and career success.

Table 7

Model Summary of Competence Attributes on Career Success

Model	R	R Square	Adjusted R Squared	Std. Error of the Estimate
1	0.991	.98%	0.0%	2.05

The results of the regression analysis of competence on career success indicated that competence can account for 98% ($R^2 = .98$) of the variation in project success.

Table 8 shows the analysis of variance of competence on career success.

Table 8

ANOVA of Competence Attributes on Career Success

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	267.55	1	267.55	7571.79	0.000
	Residual	4.88	138	.04		
	Total	272.42	139			

The *F*-ratio was 7571.79, which was significant at $p < .001$. This result indicates there is less than 0.1% chance that an *F*-ratio of this size would happen if the null hypothesis were true. The regression model overall predicts project manager career success.

Figure 4 shows the individual contribution of competence on career success. The regression equation is $\text{career success} = 0.4673 + 0.9486 \text{ competence}$. Because the line is a slope, the data suggests competence does impact career success.

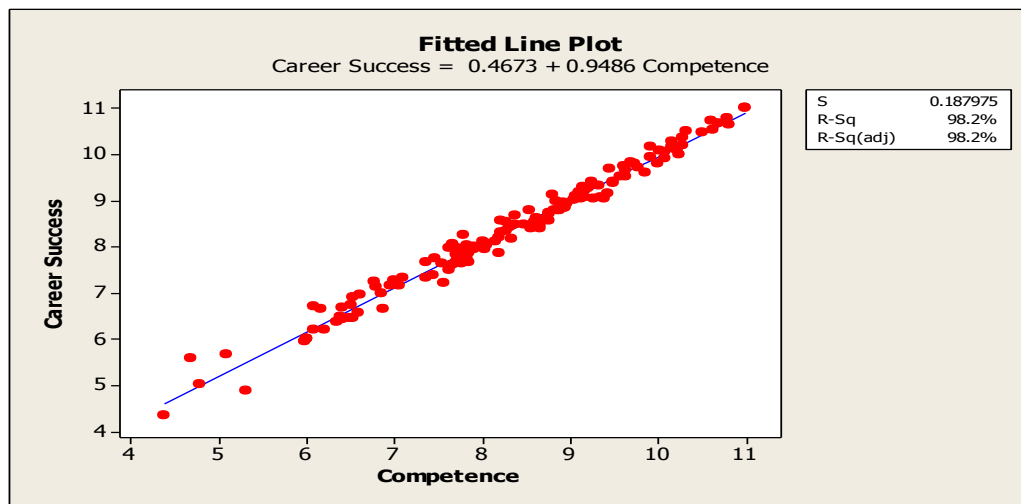


Figure 4. The individual contribution of competence on career success

Analyzing the Relationship between Professional Experience and Career Success

(Hypothesis 2)

The Pearson r was used to analyze the relationship between professional experience and career success. The Pearson correlation of experience and career success was 0.977 with a *p-value* of 0.000. Professional experience was operationalized with the average of 41 survey items from Section 2 and one demographic question from Section 1 of the survey. Career success was analyzed using all 100 questions of the PIP survey instrument listed in Section 2 of the survey.

Table 9 shows the model summary of the regression analysis of professional experience on career success.

Table 9

Model Summary of Professional Experience Attributes on Career Success

Model	R	R Square	Adjusted R Squared	Std. Error of the Estimate
1	0.977	95.4%	95.4%	0.300033

The results of the regression analysis of professional experience on career success indicated that professional experience can account for 95.4% ($R^2 = .954$) of the variation in career success.

Table 10 shows the analysis of variance of professional experience on career success.

Table 10

ANOVA of Professional Experience Attributes on Career Success

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	260.00	1	260.00	2888.24	0.000
	Residual	12.42	138	.09		
Total		272.42	139			

The *F*-ratio was 2888.24, which was significant at $p < .001$. This result indicates there is less than 0.1% chance that an *F*-ratio of this size would happen if the null hypothesis were true. The regression model overall predicts project manager career success.

Figure 5 shows the individual contribution of professional experience on career success. The regression equation is $\text{career success} = -0.155 + 1.03 \text{ experience}$. Because the line is a slope, the data suggests professional experience does impact career success.

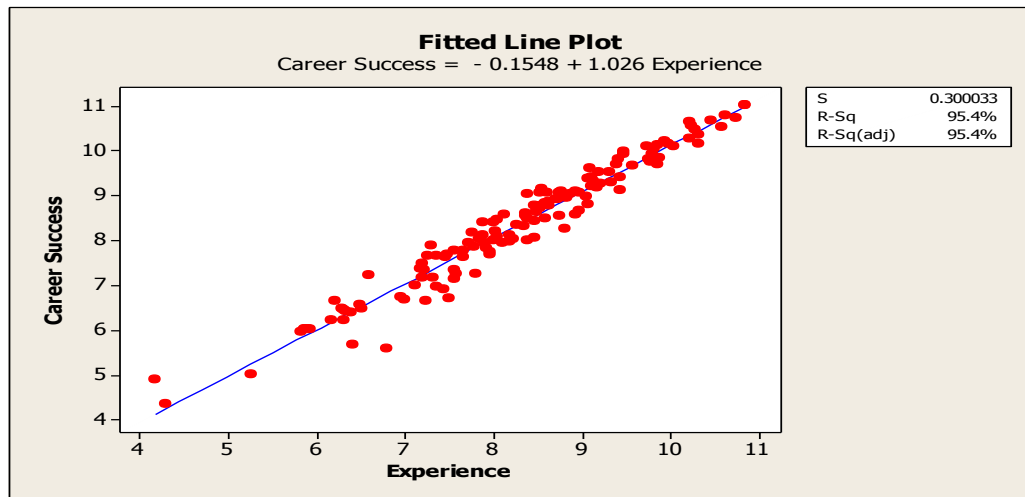


Figure 5. Individual contribution of professional experience on career success

Analyzing the Relationship between Education and Career Success (Hypothesis 3)

The Pearson r was used to analyze the relationship between education and career success. The Pearson correlation of education and career success was -0.043 where the *p-value* was 0.612. Education was operationalized with the average of 1 survey item (question 3), one demographic question from Section 1 of the survey. Career success was analyzed using all 100 questions of the PIP survey instrument listed in Section 2 of the survey.

Table 11 shows the model summary of the regression analysis of education on career success.

Table 11

Model Summary of Education on Career Success

Model	R	R Square	Adjusted R Squared	Std. Error of the Estimate
1	0.447	0.2%	0.0%	1.40370

The results of the regression analysis of education on career success indicated that competence can account for 0.2% ($R^2 = .447$) of the variation in career success.

Table 12 shows the analysis of variance of education on career success.

Table 12

ANOVA of Education Attribute on Career Success

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.510	1	.510	1.26	0.612
	Residual	271.913	138	1.970		
Total		272.423	139			

The F -ratio was 1.26, which was not significant at $p < .001$. This result indicates there is a high chance that an F -ratio of this size would happen if the null hypothesis were true. The regression model overall does not predict project manager career success.

Figure 6 shows the individual contribution of education on career success. The regression equation is $\text{career success} = 8.56 - 0.0402 \text{ education}$. Because the line is flat, the data suggests education does not impact career success.

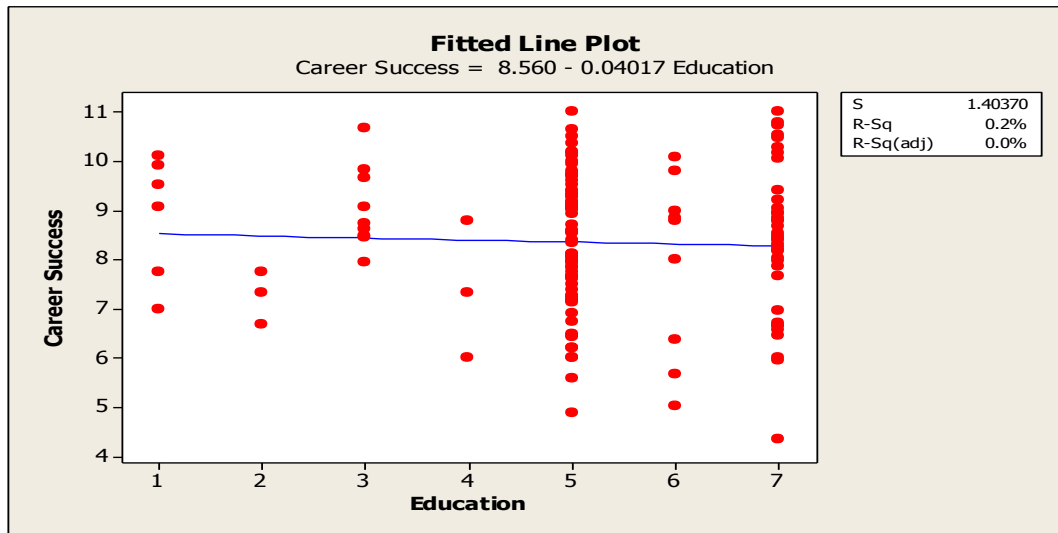


Figure 6. The individual contribution of education on career success

Summary

The first hypothesis evaluated the relationship between project manager competence and career success. The null hypothesis stated there was no statistical significance between the two factors whereas the alternate hypothesis stated there was a significant statistical relationship between the two variables. The null hypothesis was rejected as the data did reveal a significant correlation among competence and career success existed ($r = 0.991, p < 0.01$) based on multiple regression analysis and Pearson's correlation coefficient. The alternative hypothesis of a statistically significant relationship was accepted.

The second hypothesis evaluated the relationship between professional experience of project managers and career success. The null hypothesis stated there was no statistical significance between the two factors. It was rejected because there was a significant correlation ($r = 0.977, p < 0.01$) based on the multiple regression analysis and Pearson's correlation coefficient. The alternative hypothesis of a statistically significant relationship was supported.

The third hypothesis evaluated the relationship between education of project managers and career success. The null hypothesis stated there was no statistical significance between the two factors whereas the alternate hypothesis indicated there was a statistical significance. The null hypothesis was accepted because the data did not reveal a significant correlation between education and career success ($r = -0.043, p > 0.01$) based on the analysis. The regression model does not predict career success very well.

The data analysis in this chapter showed the results of the three hypotheses generates for this study. The results for hypothesis 1 indicated that competence is significantly related to career success. The results for hypothesis 2 indicated professional experience is also significantly related to career success. The results for hypothesis 3 indicated education is not significantly related to career success.

The final chapter will discuss and interpret the collected results. Conclusions, topical recommendations, and recommendations for further research will be discussed.

CHAPTER 5. DISCUSSION, IMPLICATIONS, RECOMMENDATIONS

This chapter restates the purpose of the research study including a discussion of the results, the significance of the study, methodology, and summarizes the findings of the study. It considers the implications of the research and concludes with recommendations for future research and conclusions of this study.

The purpose of this research study was to investigate to what extent competence, professional experience, and education impact the career of a project manager. This study intended to expand the project management literature and examine the gap between competence, professional experience, and education on the careers of project managers. The analytical technique used in the research study was regression model testing.

Summary and Discussion of the Results

The proposed research question for this study was: To what extent does project managers' competence, professional experience, and education impact a project manager's career success? To fully answer the question, three hypotheses related to competence, professional experience, and education on career success were generated and can be found in Chapter 1. The results of the analysis of each hypothesis were discussed in Chapter 4.

The survey population included project managers (a) who worked in public organizations within the United States; and (b) who worked in business, IT, or construction settings. Because the survey invitations were distributed by a third party without the involvement of the researcher, the population of the SurveyMonkey project manager community may have been as large as 40,000 project managers.

The study used 140 completed survey responses from U.S. project managers working in public institutions in business, IT, or construction settings. To investigate the career success of project managers, three constructs were analyzed using the Project Implementation Profile (Pinto & Slevin, 1986) survey instrument in its entirety.

The descriptive data from this study was tabulated where the researcher concluded that most study participants were female (53.6%), graduated from college with a bachelor's degree (51.43%), and most respondents (30%) had 1-3 years of project management experience. The largest response rate was from those who were between the ages of 35 to 44 (32.14%). Finally, the majority of respondents identified with the government sector.

Regression testing relating to the variables was conducted on the career success of project managers. The results of the regression testing were better than anticipated as the r-square adjusted values ranges from 44% up to 98% of the variability. Of the three constructs, data analyses revealed only two of the constructs were significantly related to the career success of project managers: competency and experience. The study found the following answers to the research questions:

- 1) There is a significant positive relationship between competency and its impact on the career success of project managers. The research results reveal career success was significantly related to competency (Hypothesis 1). Of the three variables, project manager competency alone accounted for 98% variation on career success;

- 2) There is a significant positive relationship between professional experience and its impact on career success of project managers. The results of the analysis indicated professional experience (Hypothesis 2) also significantly correlate to career success, accounting for 95.4% variation on career success.
- 3) There is no relationship between education and its impact on project managers' career success. Education did not have a significant contribution to career success (Hypothesis 3).

The literature review showed that previous research did not fully explain if there was a correlation between competence, professional experience, and education impacting the career success of project managers (Grimland et al., 2012). A gap in literature was identified in terms of an explanation if competence, professional experience, and education impacted project manager career success (Alfi, 2002). Project manager competence and professional experience significantly correlated to the career success of project managers in this study.

Studies on project manager competence date back to over 25 years. In previous research, studies indicated competence impacts job performance. The largest amount of research on competent project managers focused on which competencies are relevant to the project manager role (Geoghegan & Duleswicz, 2008). McClelland (1984) developed a competency variable methodology by studying people who were successful in their job versus people who were not successful. Posner (1987) researched and discussed the relationship between personal characteristics of successful project managers and problems facing project managers.

Researchers have agreed competence does not just happen because it is developed through experience and training (Olney, 1999). An important standard in the body of knowledge is the Project Management Institute's PMCD Framework. It was the first standard to address project personnel performance improvement (Mendez, 2007). The standard is intended to provide framework for both project managers and aspiring project managers by serving as a guide (Mendez, 2007; Project Management Institute, 2007).

In previous research, professional experience was found to be important to the successful project manager. Project management knowledge is learned from formal education and experience (Turner & Huemann, 2001; Happ & Muller-Wenzke, 2005). Pinto and Trailer (1998) stressed the importance of experience to be a successful project manager. This enables project managers to visualize the project as a whole while considering technical, social, and political complexities. This study supports the research findings of Pinto and Trailer, Turner and Huemann, and Muller-Wenzke.

The researcher was surprised about the results indicating education did not significantly impact the career success of project managers. Pinto and Trailer (1998) and Dulaimi (2005) argued project managers should have a university degree in engineering, another related technical discipline, or management. The workplace is demanding project management courses and universities are responding by offering courses (Alam et al., 2010).

Implications of the Study Results

The interpretations that can be made from this study contribute to the body of knowledge by analyzing the factors attributed to project management career success in

business, IT, and construction settings. The results of this study showed a significant correlation between competency and professional experience and career success. The primary concentration of this study was to advance knowledge in understanding the factors within the perspective of career success of project managers.

The findings from this research study can be used to assist practitioners in project management by created an awareness of the factors associated with project management career success. Researchers can build upon this study to gauge and compare these findings with further research with a different demographic group of respondents. Organizations can use this study's findings to incorporate with project management training programs as part of the career development of project managers. The findings are also relevant to hiring practices of project managers; organizations may incorporate sections of the PIP instrument to determine whether candidates possess behaviors during the hiring process. Finally, organization may also consider identifying project managers with competency and experience within the organization for consideration in career promotions and succession planning.

Limitations

One limitation of the study was the type and amount of information that can be secured in an online survey. The study did not allow the researcher to ask probing or clarification questions to the research participants. This limitation was not improved as the survey used the Likert-type scale. A second limitation of the study was the option for participants to end the survey prior to completion. This limitation was improved by making the survey invitation enticing and ensuring the participants maintained anonymity

while answering the survey questions. A third limitation of the study was the self-assessment nature of the PIP survey tool. The results measured the self-perception of project management skills on the individual. Finally, Finch (2003) argued about the PIP limitations. For example, the PIP is missing political activity within the organization, external organizational and environmental factors, and the perceived need to implement the project quickly.

Recommendations for Future Research

Future research could analyze how demographics impact the survey results. For example, analyzing age or gender may enrich the analysis on project manager career success. Another topic for further research could be how industry impacts the career success of project managers. For example, evaluate the survey results strictly with participants from construction industry. Research can be enriched by determining if there is a difference between the project management approaches among the construction industry and a general business setting such as finance or logistics. While researching the construction industry, there is an opportunity to determine which project management methodology is a best practice, for example PRINCE2 or PMBOK. Another area for further research could be if the project manager's leadership style impacts the career success of the project managers.

Understanding how project success rate and career success correlate would be an interesting topic as well. For example, the CHAOS study indicated project success rates are still below 40% (Standish Group, International, 2010). Of the successful projects, it would be good to know if the leading project manager has a successful career.

This study did not find correlation between education and project manager career success. Analysis would be enriched if there was an understanding why education does not impact career success. The impact of the Project Management Professional (PMP) certification on career success would be a topic to explore.

Finally, developing an instrument to measure project manager career success would be ideal. In this study, the survey instrument used a self assessment approach. The instrument would be useful to managers and organizations to assess project managers.

Conclusions

The study found significance in the relationship of competency and professional experience of the project manager and career success, regardless of the industry. No significant relationship was found between education and project manager career success. Organizations should not undervalue the importance of project management training for their project managers, and should consider incorporating gaining experience with focus on competency development.

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APPENDIX A. STATEMENT OF ORIGINAL WORK

Academic Honesty Policy

Capella University's Academic Honesty Policy ([3.01.01](#)) holds learners accountable for the integrity of work they submit, which includes but is not limited to discussion postings, assignments, comprehensive exams, and the dissertation or capstone project.

Established in the Policy are the expectations for original work, rationale for the policy, definition of terms that pertain to academic honesty and original work, and disciplinary consequences of academic dishonesty. Also stated in the Policy is the expectation that learners will follow APA rules for citing another person's ideas or works.

The following standards for original work and definition of *plagiarism* are discussed in the Policy:

Learners are expected to be the sole authors of their work and to acknowledge the authorship of others' work through proper citation and reference. Use of another person's ideas, including another learner's, without proper reference or citation constitutes plagiarism and academic dishonesty and is prohibited conduct. (p. 1)

Plagiarism is one example of academic dishonesty. Plagiarism is presenting someone else's ideas or work as your own. Plagiarism also includes copying verbatim or rephrasing ideas without properly acknowledging the source by author, date, and publication medium. (p. 2)

Capella University's Research Misconduct Policy ([3.03.06](#)) holds learners accountable for research integrity. What constitutes research misconduct is discussed in the Policy:

Research misconduct includes but is not limited to falsification, fabrication, plagiarism, misappropriation, or other practices that seriously deviate from those that are commonly accepted within the academic community for proposing, conducting, or reviewing research, or in reporting research results. (p. 1)

Learners failing to abide by these policies are subject to consequences, including but not limited to dismissal or revocation of the degree.

Statement of Original Work and Signature

I have read, understood, and abided by Capella University's Academic Honesty Policy ([3.01.01](#)) and Research Misconduct Policy ([3.03.06](#)), including the Policy Statements, Rationale, and Definitions.

I attest that this dissertation or capstone project is my own work. Where I have used the ideas or words of others, I have paraphrased, summarized, or used direct quotes following the guidelines set forth in the *APA Publication Manual*.

Mentor name Werner D. Gottwald, Ph.D./Capella University School of Business
and school and Technology

Learner signature
and date Rebecca A. Coleman/ 9-30-14