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Relationship Between Project Manager's Gender, Years of Experience, and Age and Project Success

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This is to certify that the doctoral study by

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Walden University
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Abstract

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by

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MS, University of NSW, 2015

BS, Oakland University, 2005

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

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Abstract

Information technology (IT) leaders lose billions of dollars and experience implementation delays because of failed projects. IT leaders must assign the right IT project manager to prevent project failure. Grounded in the critical success factor theory, the purpose of this quantitative correlational study was to examine the relationship between project managers' gender (PMG), project managers' years of experience (PMY), project managers' age (PMA), and project success (PS) in the IT industry. Data were collected from 105 project managers in the U.S. IT sector using an online survey distribution platform. The results of the multiple regression analysis were not statistically significant. A key recommendation for IT leaders is to assign a project manager based on competency and leadership skills regardless of PMG, PMY, and PMA. The implications for positive social change include the potential for IT leaders to complete community critical IT projects by selecting the right project manager regardless of PMG, PMY, and PMA.

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Dedication

I would like to recognize my family, especially my father, who inspired me to pursue a doctoral degree. I want to dedicate this study to my parents, family, and children. I hope my children learn from my efforts that I have completed this journey by relying on Allah. Always remember the sky is the limit.

I would also like to dedicate this study to my chair Dr. Mohamad S. Hammoud, who has helped, guided, and encouraged me throughout this journey. Dr. Hammoud has been wonderful and a great teacher and mentor. You will always be remembered for everything. I would also like to dedicate my study to Dr. Theresa Neal, who has been very nice, helpful, patient, and has helped me progress through this challenging journey. I would also like to thank Dr. Gwen Dooley for her efforts in providing supportive feedback.

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In the name of Allah. The most beneficent, the most merciful. Prayers and peace be upon the prophets, including Abraham, Moses, Jesus, and Prophet Muhammad, his family, and companions. All appreciation, gratefulness, and thankfulness are to Allah, Lord of the worlds, the most beneficent, the most merciful, the possessor of the day of recompense. I worship you and seek your help and guidance. Direct us to the straight path. The way of those on whom you have bestowed your grace, not the way of those who have earned Your anger, nor of those who have lost their way and went astray. In the name of Allah. The one and only. Allah, the sustainer of mankind, not born nor begotten, and there is none comparable to him.

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Section 1: Foundation of the Study

There is a serious consideration in many organizations to better understand how to increase the rate of project success (PS). Information technology (IT) organizations experience a rate of over 40% of project failure, and approximately 66% of IT project managers face challenges managing the budget and scope (Project Management Institute [PMI], 2016). A primary reason why IT projects fail because project managers assigned to a project were incompetent (Hughes et al., 2016). The objective of this study was to access some characteristics of project managers such as project manager's gender (PMG), years of experience (PMY), and age (PMA) and to determine if they predict PS.

Background of the Problem

The globalization and increasing demand for project managers in the IT industry require organizations to hire competent project managers with the right fit (Ramazani & Jergeas, 2015). Increased research on project management success rates that continue to fall has shown confusion among many individuals and project management communities in the IT sector. Success on projects remains elusive and not well defined (Joslin & Muller, 2016). However, studies have shown that many projects fail due to many factors such as project managers not being able to meet project objectives, cost, time, quality, and performance (Sunindijo, 2015). Increased failure rates on IT projects indicate that organizations struggle to understand what type of project manager they need to assign since project managers play a critical role in PS (Wu et al., 2019). Assigning a competent project manager to a project is challenging and requires considerable effort (Flöthmann et al., 2018).

Problem Statement

The increase in IT project failure is becoming a major concern to many organizations (Alami, 2016). IT project failure is between 50% and 70%, and 45% of IT projects run over budget and 7% over time (Pimchangthong & Boonjing, 2017). The general business problem is that some business leaders in the IT sector fail to assign the right project manager to the right project to foster PS. The specific business problem is that some business leaders in the IT sector do not understand the relationship between PMG, PMY, PMA, and PS.

Purpose Statement

The purpose of this quantitative correlational study was to examine the relationship between PMG, PMY, PMA, and PS in the IT industry. The predictor variables were project PMG, PMY, and PMA. The criterion variable was PS. The target population consisted of project managers located in the United States from the IT industry. More efficient IT projects may increase the ability to provide quality, safe, and cost-effective benefits to organizations. Selecting a suitable project manager may enable organizations to deliver communication, technology, and data infrastructure for the community during a sudden urge or need. The implications for positive social change include the potential to successfully complete community critical IT projects through the selection of the right project manager, as predicted by PMG, PMY, and PMA.

Nature of the Study

The three research methods are quantitative, qualitative, and mixed methods (Edmonds & Kennedy, 2016). In this study, I examined the relationship between PMG,

PMY, PMA, and PS in the IT sector using a quantitative approach. One of the advantages of using quantitative methods in this study was to test the hypothesis. Quantitative researchers focus on examining how outcomes influence the variables using surveys, questionnaires, and other experiments (Aspers & Corte, 2019). Quantitative research is appropriate when the purpose is to determine a relationship between independent and dependent variables (Mertler & Reinhart, 2016). In contrast, qualitative researchers focus on interviewing others to identify behaviors and attitudes and investigate participants' experiences and perceptions related to an issue (Silverman, 2015). Because I wanted to determine the relationship between independent and dependent variables, a qualitative method was not appropriate. Further, researchers who want to gain the benefits of both research methodologies combine the quantitative and qualitative methods with a mixed method approach (Brannen, 2017). However, the mixed method approach was not appropriate for this study because this study did not include any qualitative elements.

Correlational design is appropriate when the purpose is to seek and identify if a relationship between variables exists (Miller, 2005), which fits the purpose of this study. Quasi-experimental design involves selecting groups, upon which a variable is tested, without any random pre-selection processes (Alavinia & Farhady, 2012). Researchers in experimental design isolate and manipulate the independent variable to observe its effect on the dependent variable and establish a cause and effect scenario (Kirk, 2013). Experimental or quasi-experimental designs are appropriate when the purpose is to determine a cause-effect (Bryman, 2015). Because this study did not include

experimental or cause-effect determination, neither experimental nor quasi-experimental designs were appropriate.

Research Question and Hypotheses

What is the relationship, if any, between PMG, PMY, PMA, and PS in the IT industry?

H_0: There is no relationship between PMG, PMY, PMA, and PS in the IT industry.

H_1: There is a relationship between PMG, PMY, PMA, and PS in the IT industry.

Theoretical Framework

The theoretical foundation of this study was the critical success factors (CSFs) theory. Slevin and Pinto (1986) introduced the CSFs theory to determine predictive factors for successful project implementation. According to Baccarini (1999), success criteria should be project-specific and is a core concept of project management. The importance of determining factors to understand PS was carried out by the PMI and tracks back to 1986, and the causes of success and failure on projects have been the theme in many types of research (Shenhar et al., 2002).

Scholars have introduced a planning tool to ensure successful competitive performance for organizations by using the CSFs theory (Baporikar, 2013). Business leaders and project managers use the key concept of CSFs theory to define key success factors that are inputs to project management practice, leading directly or indirectly to PS (Alias et al., 2014). Leaders in organizations used the CSFs concept to define project achievements and benefits, which are necessary to consider PS (Muller & Jugdev, 2012).

In the current study, CSFs are related to the study's independent variables PMG, PMY, and PMA. The CSFs theory was relevant because, as a researcher, I examined possible PS factors such as PMG, PMY, and PMA that may predict PS.

Operational Definitions

Critical success factor (CSF): A CSF is a management term for an element that is necessary for an organization to meet project objectives and benefits. CSFs are also known as key success factors or key result areas used by stakeholders to evaluate if the project was successful (Teller et al., 2016).

Project management: Project management is the application of knowledge, skills, tools, and techniques to meet project requirements (PMI, 2017).

Project sponsors: Project sponsors provide resources and support for the project, program, or portfolio and have overall accountability for the project. The project sponsor provides support to the project manager and holds overall responsibility for the project's success (Winch & Leiringer, 2016).

Project success: Project success refers to successful project execution that indicates the project has achieved the full benefits and quality requirements, on time, within budget, meets design requirements, and was approved and accepted by stakeholders (Chou & Yang, 2012).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are conditions that could be true even though the direct evidence was either absent and taken for granted and considered true but are not verified (Noble &

Smith, 2015). I made a few assumptions in this study. One assumption was that all participants would answer the survey questions truthfully. The second assumption was that I would receive a significant number of participants from SurveyMonkey Audience in the United States to answer the survey, which showed to be the case. The third assumption was that the panel of project managers in the IT sector on SurveyMonkey Audience would be a good representative of the project managers in the IT sector in the United States.

Limitations

Limitations are in every study and are usually out of a researcher's control (Connelly, 2013). The first limitation was that the online survey targeted a population of project managers with access to a computer because the survey was completed online. The second limitation was that the project manager needed to spend the time required to complete the survey and reveal information that would enhance the research data quality. Another limitation I faced was that when respondents provided answers and submitted their responses, they could not go back and make corrections because they were anonymous, which possibly resulted in some obscure data and inconsistency.

Delimitations

Delimitations are characteristics that limit the scope of the research (Locke et al., 2014). I used SurveyMonkey audience to enable adequate delimitation of the target participants for this study. A boundary set for this research was the geographical region of the United States. Additional boundaries included using SurveyMonkey to limit the survey respondents to project managers with experience in the IT industry and not project

managers working in other industries or disciplines. A disqualification occurred when a project manager rejected the informed consent form. I did receive over 10 disqualifications, which showed that some project managers rejected the informed consent form, meaning they did not meet the criteria or did not want to participate.

Significance of the Study

IT project failures have been a major issue for many organizations. Project management has evolved, and there is an increased need to understand the factors contributing to PS in many organizations (Clarke, 1999). Major social development projects are established for the public by public and private sectors, such as IT systems for residential housing, hospitals, schools, educational institutions, and other utilities (Delmon, 2017). PS in the IT sector is important to organizations because they can reduce time, increase quality and profit, and avoid failures, which can be devastating for organizations, project teams, and communities (Atkinson, 1999). The results of this study were intended to help leaders in organizations to succeed in delivering projects by assigning the right project manager based on PMG, PMY, and PMA. Because the results did not show the presence of a relationship, organizations cannot rely on these variables as predictors to PS. However, the results may encourage leaders to focus on other characteristics when selecting a project manager.

Implications for Social Change

During the proposal stage of my research, the implications for social change included the potential to promote better IT services to the community by improving PS rates on projects. Understanding the relationship between PMG, PMY, PMA, and PS in

the IT industry can enable organizations to select the right project manager to successfully complete community critical IT projects. The implications for social change include the potential to maintain or increase employment for project managers in the IT industry. Another implication is to promote better IT services to the community by improving PS rates on projects.

Despite the findings, understanding that there is no relationship between PMG, PMY, PMA, and PS in the IT industry may enable project sponsors to select the right project manager to complete community critical IT projects by focusing on other project manager's characteristics that predict PS. Other implications include spreading a sense of equality among project management job seekers as the selection process will not include project manager's characteristics that do not predict PS; hence, the rejected project managers will understand that they were not rejected because of their PMG, PMY, and PMA values as these variables do not contribute to PS. Employing the right project manager reduces the risks of failure of projects that can benefit local communities because project managers are the key to the success or failure of projects.

A Review of the Professional and Academic Literature

A literature review is a thorough background of researchers' thoughts, correlations, and contradictions (Dumay et al., 2016). In the literature review, I included a background of the study about earlier researchers' thoughts, correlations, contradictions, and existing gaps. The aim of this review was to exemplify views among different scholars on the relationship between PMG, PMY, PMA, and PS. Many scholars sought to develop an understanding of the relationship between these variables. I conducted an

evaluation of the relationships between the variables to understand if a relationship existed between PMG, PMY, PMA, and PS to help leaders in organizations hire the right project manager to increase the rate of PS.

Literature Research Process

The purpose of this quantitative correlational study was to examine the relationship between PMG, PMY, PMA, and PS in the IT industry. The study was carried out for leaders in organizations to understand if PS is predicted by PMG, PMY, PMA in IT projects. The research was based on the analysis of the relationship between the variables to assist project sponsors in selecting a suitable project manager. The research question and hypotheses were:

What is the relationship, if any, between PMG, PMY, PMA, and PS in the IT industry?

H_0: There is no relationship between PMG, PMY, PMA, and PS in the IT industry.

H_1: There is a relationship between PMG, PMY, PMA, and PS in the IT industry.

The professional and academic literature covered throughout this literature review came from peer-reviewed journals and articles, textbooks, published doctoral dissertations, webpages, online research material related to IT organizations, various university libraries, and databases. Databases included EBSCOhost, ProQuest, ABI/Inform, Business Source Complete, and Google Scholar. The dates of the peer-reviewed sources and other scholarly publications included in this literature review range from 2000 to 2020. The relevance of such sources was critical to developing the ideal

review. In the literature review, I included many related studies that varied in the date of publication. I filtered results by publication dates between 2016 and 2020.

This study is related to project managers and PS. I researched various sources on PMG, PMY, PMA, and PS. I relied mostly on EBSCOhost, ProQuest, ABI/Inform, Business Source Complete, Google Scholar, and searched keywords online. I conducted a thorough search for references from similar topics written by authentic scholars. Two hundred and twenty-eight peer-reviewed references were used in the literature review section. In this study, I used a total of 338 references, of which 90% were peer-reviewed references, and 85% published in 2016-2020.

The next section includes a discussion of supporting and contrasting theories. The literature review includes a discussion of Slevin and Pinto's (1986) theory of CSFs as a theoretical framework for this study. I also include agent success theory (AST) as a management theory to explain relationships between management and PS. The subsequent sections of the literature review are related to the dependent and independent variables PMG, PMY, and PMA, and the project managers' critical success characteristics, including competence, performance, skills, and leadership style. In the last part of the literature review, I include PS, which was the dependent variable. The topics included were to understand trends and theories related to PMG, PMY, PMA, and PS. The last topic I cover in the literature review is the dependent variable PS.

Theoretical Framework

The theoretical basis of this research was Slevin and Pinto's (1986) CSFs theory. Research on this theory began when the authors focused on examining the relationship

between project managers and PS, introducing a process to determine CSFs to predict the chance of success on projects, where experienced managers generated CSFs that they found critical to successful project execution. Because CSFs are the criteria that define success (Zwikael & Smyrk, 2019), they are necessary to enable a positive outcome for organizations to achieve success (Rockart, 1978). CSFs are areas in which an organization needs to perform to achieve success or requirements for project managers to use as critical key indicators to reach PS (Todorović et al., 2015). The environment and business characteristics, such as core business strategy, have also been related to CSFs (Rockart & Bullen, 1981). These factors either present a threat or support the achievement of success. Environmental factors can also hinder company performance, demographics, government policies, and economic conditions (Li et al., 2018).

Many leaders in organizations used CSFs to facilitate useful and timely decision-making (Baporikar, 2013). Project managers use CSFS as a determinant and planning tool for evaluating the direction of the project and predict the chances of attaining success on projects (Baporikar, 2013). Project managers play a significant role in developing the CSFs of a project since these factors also influence the strategies necessary to spearhead the project to success (Zilberstein & Messer, 2010). Newly appointed project managers seek to understand how to achieve PS by investing in CSFs to meet the demands set for them and ensure the attainment of project objectives (Zilberstein & Messer, 2010). Managers work toward achieving success on projects, and by meeting project objectives to lead others toward success (Millhollan & Kaarst-Brown, 2016). Managers contribute toward the success of various endeavors by addressing project uncertainty and

complexity by clarifying the past, present, and future project complexity (Bakhshi et al., 2016).

The urge to determine better project management methods has increased over time and opened the way for scholars to research and improve the quality of project management practices (Meng & Boyd, 2017), which CSFs address. Projects are essential to business growth, and project failure has an impact on competitiveness, quality of services, public health, happiness, and the fortunes of individuals (Hjelmbrekke et al., 2015). The causes of success and failure on projects have been the theme of many types of research (Shenhar et al., 2002). Reasons for project failure include (a) problems with the project manager, (b) issues with processes, and (c) risk and issues on projects (Sweis, 2015). Project failure occurs because of poorly developed leadership in organizations' teams (Zaman et al., 2019). Other reasons for project failure include project managers' lack of understanding of how to deal with complex issues (Rezvani et al., 2016). CSFs such as PMA and PMG could also have a positive or negative impact on PS (Amin & Kamal, 2016). Thus, organizational team leaders play a crucial role in project management by facilitating creativity and promoting innovation outputs (Seeber, 2019).

In addition to organizations, researchers have used CSF theory to examine PS. CSF theory was used by Tran et al. (2020) to review organizational theories and CSFs. The scholars developed the CSFs through the theoretical lenses of five organizational theories being stakeholder theory, resource-based view theory, relational-view theory, innovation diffusion theory, and contingency theory. The findings showed that CSFs were stakeholders' focus, intra-firm management, inter-firm collaboration, new

technology acceptance, and strategic fit as the CSFs by (Tran et al., 2020). Ayat et al. (2020) also used CSF theory to investigate PS in the IT industry. The scholar's methods of frequency and content analysis were used to identify, categorize, and arrange CSF of IT projects based on their importance, interrelation, and cultural regions. In the years 2015 to 2020, the scholars revealed that there was an increase in research related to PS in IT projects. The scholars also revealed 25 CSFs to increase the success rate of IT projects being user participation, stakeholder relationship, project manager emotional intelligence, communication skills, and leadership skills, and top management support in the project emerged as the most important factors for information communication technology projects. Further, Gunduz and Almuajebh (2020) identified 40 CSFs and distributed a survey to understand how CSF can predict PS. The scholars used the research to support, evaluate, and measure the success of projects for better allocation of resources across the construction industry.

Numerous CSF variables can be used by leaders in organizations to determine the rate of PS, but I selected the CSF with the view of PMG, PMY, and PMA being the criterion variable to achieve PS. CSFs theory was the best framework to use in this study to analyze PMG, PMY, PMA because these variables were not known if they impacted PS. Applying the CSFs on PMG, PMY, PMA as variables to achieve PS on IT projects can enable many leaders in organizations to hire the right project manager.

The Agency Success Theory

Although the CSFs theory presents an ideal framework for understanding the project, researchers also developed the AST to exemplify the importance of success in

different contexts (Arthurs & Busenitz, 2003). Project managers use AST to determine the chances of success in a project based on the level of interaction between the project manager and the team involved in implementing a specific project (Mahaney & Lederer, 2011). A high level of communication between the project management team and the personnel involved in implementing various project activities results in a significant increase in the chances that the project would succeed (Mahaney & Lederer, 2011). It is important for management to ensure that project objectives are clear, which improves the overall quality of project outcomes (Oluikpe, 2015).

AST theory is an effective theory to apply in determining PS (Muller et al., 2016). However, many challenges exist in applying AST. For instance, a manager could participate in a project but lack the necessary expertise to identify what to look for in ensuring the achievement of project goals. In relation to the current study, I realized that it was not related to the independent variables PMG, PMY, and PMA. Ultimately, AST was not suitable as a framework, and for this study. CSFs were more effective in analyzing different variables of interest than AST.

I chose CSFs theory as the theoretical framework because I treated the independent variables PMA, PMY, and PMG as CSFs to PS. Research has indicated that these variables play a significant role in PS (Müller & Turner, 2007; Rezvani et al., 2016; Sommerville et al., 2010). According to Sava(2016), a relation may exist between PMG, PMA, and PMY. Hence, applying the CSFs theory as a theoretical framework presented a better opportunity for PS than the AST.

Project Managers' Gender

Gender characteristics and how these characteristics interact in achieving PS and the project outcome results between men and women is an ongoing discussion (Hyde et al., 2019). Research has suggested that males and females think, act, and learn differently and are biologically diverse (Hyde et al., 2019). Studies with varying methodologies have shown that women could achieve the same results as men despite the behavioral and psychological variables (Witteman et al., 2019). But due to selection criteria and processes across many organizations, women are less likely to be hired than men in the workplace (Wang & Calvano, 2015). Male project managers have often appeared to achieve PS, but male dominance has been the case for many years in project management despite the similar performance of both genders (Brescoll, 2016; Pinto et al., 2017; Perryman et al., 2016; Rodríguez et al., 2017; Stamarski & Son Hing, 2015). Other research suggested that females who became pregnant were most likely to take maternity leave and leave the project (Hekman et al., 2017). Most females are not taking roles of project managers, painting the disparities existing within the social structures on female stereotypes across many industries (Klopotan et al., 2016).

Research has also indicated different strengths exist between genders relating to PS. Project managers with specific characteristics are considered effective leaders (Garcés, 2020). For example, Anwar et al. (2017) found that female project managers stood out to be socially sensitive and were good listeners. In contrast, male project managers make strong first impressions and express views with confidence and present how capable they deliver tasks across projects (Amin & Kamal, 2016). Male project

managers are less socially sensitive and focused more on being rational and practical (Chambliss & Schutt, 2018). Male leaders are more intellectually engaging than female leaders that are more socially involved (Sidani & Rowe, 2018).

Regardless of each gender's strength and its ability to ensure success, diversity can increase organizational success and enhance performance (Cook & Glass, 2015). Though scholars have argued that diversity increases conflict, reduces cooperation, and harms performance (Godwyn & Stoddard, 2017), females continue to be a minority in project management with their voices unheard. However, perceptions of injustice have partially mediated the relationship between observed incivility toward women and job satisfaction, turnover intentions, and organizational trust, with men feeling strongly about the uncivil treatment of women at work and the indirect effects on well-being (Miner & Cortina, 2016).

Further, a significant disparity between genders exists in leadership positions (Battaglia et al., 2020). The Bureau of Labor Statistics showed that salaries in the aggregate earned by female professionals are lower than those of their male counterparts, which results in female dissatisfaction on projects due to the wage difference (Schaller, 2016). Thus, there have been fewer projects managed by females, and the demand for equal treatment of females increased (Dreger & Ash, 1990). The labor force on projects has also shown a gap between genders since females were working more as secretaries and administrators, whereas males dominated management roles and projects with increased paid jobs (Squires et al., 2015). The U.S. Department of Education increased the demand for females to obtain higher education to increase female workers (Grundy,

2017), which allowed women to enter the workforce and take project management roles (Nelson, 2015). However, this created numerous problems to evaluate the number of successes both genders have achieved (Nelson, 2015). But females are still less likely than males to be elected to leadership positions (Alan et al., 2020).

Project Managers' Experience

The extent of a project manager's experience is instrumental in influencing PS (Meredith et al., 2017). Project managers' experience influences their skills, performance, ability to achieve results, and overall PS (Paton & Hodgson, 2016). Most experienced project managers in the IT industry are high achievers because project managers with many years of experience are capable of decisively directing and delegating activities to the project team (Kerzner, 2017), and they spend less time focusing on activities (Ramazani & Jergeas, 2015). Project managers with little or no experience gain success over time in management positions by participating jointly in projects, which allows them to share negative and positive outcomes of the project (Ramazani & Jergeas, 2015). Thus, project managers with good experience need to assist younger managers in improving their quality of performance to excel within the organization (Santos, 2016).

Project managers use different subsets of their skills to influence outcomes in projects (Gomes et al., 2012). For example, time management comes from experience, and when project managers have a high level of expertise in time management, they can plan, schedule, and resolve issues that arise on projects (Brière et al., 2015; Maslach & Leiter, 2016; Svejvig & Andersen, 2015). A project manager with good time management can also effectively communicate with team members (Maslach & Leiter,

2016). PMY also leads to PS because the more experience PMs have, the better they are capable of meeting deadlines because they are better at forecasting, estimating the deliverables, and meeting project budgets (De Carvalho et al., 2015).

The primary focus for leaders in organizations should be focusing on the project manager's experience during the hiring process and before onboarding (Ahmed & Anantatmula, 2017). Many project sponsors in organizations claim that project managers are leaders with potential, but the hiring process across companies preselect project managers based on how well they answer questions and communicate (Sankaran et al., 2019). Although project sponsors in organizations may declare the need to hire suitable project managers, they often experience challenges determining the necessary level of suitability (Dwivedi et al., 2015). To address the experience and skills shortage, some project managers join the profession after obtaining diverse levels of experience on different management levels (Furnell et al., 2017). There is an increased need to understand how PMY, talent, and skills impact PS.

According to Saengchai et al. (2020), project managers with certain characteristics play a significant role in achieving PS. The scholars mentioned that competency and characteristics are related. A successful project that depends upon both the project manager and the project team members ensures the growth, development, and prosperity of organizations. Characteristics include technical knowledge and skills, communication skills, problem-solving abilities, teamwork skills, and commitment regarding their job (Saengchai et al., 2020). The scholars also suggested that PS depends

on the competency of the project manager, so it is crucial to select a project manager with the right qualities, abilities, skills, and knowledge.

According to Luţaş et al. (2020), project managers are key players for PS. PMY is a factor that influences the competencies of a manager. The scholars also suggested that experienced project managers use technical aspects of project management, including critical path analysis, work breakdown structures, resource allocation, and risk management in the IT industry. The scholars identified the profile of an ideal project manager by presenting an overview of studies regarding a good project manager's profile. Each project required specific skills, competencies, and certain PMY, and a successful project manager is a motivator, a coordinator, and a leader that must be able to guide a diverse team toward integrated results (Luţaş et al., 2020). The scholars also concluded that PMY and specialized knowledge might not always be enough for PS.

Project Managers' Age

In this section, the analysis of pertinent literature associated with project managers' age part of the literature review since the primary focus was on selecting the most relevant literature to support this study. PMA is an independent variable in this research. PMA does affect PS (Rezvani et al., 2016). In this study, I assessed whether project managers' age predicts PS in organizations.

In many countries, the population is aging, which means project managers are aging across the IT industry (Keehan et al., 2017). Aged project managers have increased representation in the entire community of project managers, and this trend of increase will continue to grow (Irmen, 2017). This trend exists in both undeveloped countries and

developing ones (Hoxha & McMahan, 2019). According to Hoxha and McMahan (2019), the United Nations (UN) has listed population aging as one of the leading demographic trends of the 21st century and added that an unprecedented 900 million citizens are aged over 60, which constitute 13% of the global population. In the absence of any official information on PMA, the statistic figure available on the PMI webpage indicates a total of 5.5 million active project managers working in IT in the United States (PMI, 2018).

The population aged over 60 is the fastest-growing segment, and by 2050, around 25% of the world population will be over 60 years old (Choi et al., 2017). Kulik et al. (2014) mentioned the need to redefine how we refer to age as an interchangeable attribute because we have an older and more diverse workforce. Many recruiters in organizations fail to express or take note of the project managers' age during the recruitment process (Seboni & Tutesigensi, 2015). Many recruitment organizations fail to take note of PMA and omit to mention age in their policies because of a potential breach of employment statutes and the risk of legal challenges (Seboni & Tutesigensi, 2015). Based on a PMA, the level of organizing, planning, controlling, implementing, and executing projects could vary (Bezak & Nahod, 2011).

Amin and Kamal (2016) researched leadership qualities on project team performance. Amin and Kamal distributed a total of 450 questionnaires, and 379 project managers were selected. The findings showed that PMA positively influences the quality performance as age increases. These findings also showed that the industry has a significant generational gap. The researchers showed that younger project managers were

more likely to have an influential background theory and lacked the expertise compared to the old generation of project managers.

Hoxha and McMahan (2019) evaluated the effect of the PMA on PS. The study showed that older project managers, compared to younger ones, focus on project control. The researchers concluded that PMA does not have a critical negative impact on PS. The study also showed that project managers aged over 50 years are likely to have taken project management positions after switching from a different career. Some of the research findings showed that young project managers are more likely to choose the project management field as their primary career. Older aged project managers are presumed wiser and high-risk takers compared to the younger generation and tolerated mistakes from younger project managers (Srinivasan, 2012). Younger project managers tend to be more innovative and rely on tools, software, and shortcuts to complete the job (Hoxha & McMahan, 2019). The absence of support for the younger managers that start their career as a project manager is a significant issue in contemporary society (Paton & Hodgson, 2016). According to Cattell et al. (2016), there is a 30% chance for younger project managers to change careers in the first 10 years. The increased number of active project managers at older ages represents a new challenge for managing a workforce that is more diverse in terms of age (Lain & Loretto, 2016). Due to the lack of benefits, recruitment organizations offer younger project managers an opportunity to change or transfer within departments causing a big gap of specific project experience (Hoxha & McMahan, 2019).

Many organizations have a high turnover of project managers, and a solution to this is to support the young generation and encourage them to be proactive and focus on education, training, and mentorship (Ekrot et al., 2016). Project managers from older generations were usually kept on specific projects until the project was complete, which means not much time was invested in mentoring the younger generation of project managers (Paton & Hodgson, 2016). Organizations should encourage project managers that are mature in age and experience to commit to a knowledge transfer because many senior project managers end up retiring without sharing their industry-wide expertise and fail to mentor others (Haughton et al., 2015). Organizations should develop formal mentorship structures for project managers to interlink the past and future generations to have better control of the generational transition. According to Chipulu et al. (2015), project managers aged above 50 years have been working longer than before due to improved health systems.

Retirement is also being affected in many countries, and in the United States, the retirement age has increased, which influences project managers working in the IT industry (Lain & Loretto, 2016). The trend shows that older working project managers are staying longer before they retire, creating a new challenge in workforce diversity (Rappaport & Richter, 2013). Discrimination is known to be affecting many organizations, and discrimination of age is the most common form of judgment across many sectors (Zaniboni, 2015). Age may influence the project managers' performance since the focus on younger project managers' technical aptitude and ability may have a significant impact on supporting older project managers (Dulaimi & Langford, 1999).

According to Meredith et al. (2017), project managers that are old prove to have a tough time in changing a decision or strategy on projects, which could serve as a strength or a limitation to the project team.

According to Hoxha and McMahan (2019), younger managers, compared to the older project managers, pay more attention to project control and extra-organizational objectives. Hoxha and McMahan showed that the PMA is of great importance and factor of consideration, especially during the project lifecycle. The study findings revealed that project managers need to be involved in the whole project lifecycle to carry on the objectives from the project initiation stage to the implementation phase and finally to witness project delivery and monitoring of operations. One author was against the idea of linking PMA to PS and argued that age does not hurt projects (Aga et al., 2016).

Project Managers' Critical Success Characteristics

Some characteristics of project managers can have a positive effect on PS. Being ultimately responsible for project results, the project manager may affect project performance through their characteristics (De Moura et al., 2017). According to Creasy and Anantatmula (2013), a relationship exists between project performance and project managers' characteristics. Project managers are professionals directly responsible for producing results and achieving PS (PMI, 2012). Characteristics of project managers include the project manager's competencies, the project manager's performance, the project manager's skills, and the project manager's leadership style.

Project Managers' Competencies

Project manager's competencies are related to PMY, and the more experienced a project manager is, the more likely PS would occur (Ahmed & Anantatmula, 2017). According to Chen (2016), a competent PM has a clear set of expectations. The author revealed that competency is the specification of knowledge, skill, expertise, and the application of that knowledge is the standard of performance expected (Storey et al., 2016). Competency is motive, trait, self-concept, social roles, and wisdom (Chen, 2016). According to Ahmed and Anantatmula (2017), project managers competent in a specific field improve project performance and achieve PS in their relevant field. Competent project managers strive to deliver projects within the stakeholder's deadline and budget (Radujković & Sjekavica, 2017).

Ahmed and Anantatmula (2017) conducted research developing and testing models relating to leadership and competence. The authors investigated the influence of a project manager's leadership competency on project performance; the survey attracted 289 project managers. Findings from this study demonstrated that a project manager's competencies are related to project performance and PS. The study also showed that competencies, skills, and years of experience are linked. The researchers found that competent project managers are individuals who perform and deliver positive outcomes. Effective leadership is dependent on how leader competencies are affected by the leader's attributes, experiences, and environment (Storey et al., 2016). Project managers with little experience tend to struggle in delivering projects, while others with immense experience tend to complete projects with ease and obtain desirable outcomes (Blixt & Kirytopoulos,

2017). In the study, competent project managers were described as top performers and can work in diverse situations and make things happen.

Bredillet et al. (2015) explored how and what makes a project manager competent. The authors found that project managers with competency could provide direction to the team and Excel in performing on projects. According to their findings, project managers that proved to be competent offered a vigorous framework for career growth, established professional opportunities, and achieved PS within organizations. Rodríguez et al. (2017) investigated whether gender influences the perception of project managers' personality characteristics. The findings showed females have a different perspective on the attributes required for competency than males. Project managers' competencies depend on the level of skills, communication, decision-making skills, and technical skills (Rodríguez et al., 2017). Rodriguez also explained that females have better interpersonal communication than males, and females are more competent than males in dealing with teams. Females have a higher competency level in managerial skills than males, which leads to PS (Rodríguez et al., 2017).

Project Managers' Performance

Matthias et al. (2017) researched specific patterns for selecting PS criteria across various fields of applications. The authors attempted to evaluate time, cost, and performance and explored how performance influences PS. The Barnes triangle was the commonly used criteria for identifying success rate on projects, and these findings showed that Barnes' ideas are an essential part of satisfaction on projects (Williams, 2016). Williams (2016) identified key factors influencing PS and claimed that a

relationship exists between PMA, PMY, and PS, and project performance increases with years of experience.

Sunindijo (2015) researched project managers' performance and responsibilities. The study included a survey of 107 project managers using a questionnaire survey method. The study showed that project managers have multifaceted responsibilities that significantly affect PS. The author identified that project managers have 16 skill components, and the four core skills were conceptual, human, political, and technical skills. The research reveals how performance and project management skills can influence time, cost, and quality performance in projects. Aside from proper documentation and excellent contract administration skills, project managers' quality performance is dependent on their vision, emotional intelligence, interpersonal skills, transformational leadership, interpersonal influence, apparent sincerity, and quality management (Mencl et al., 2016). The research showed that project sponsors should appoint project managers with the right skill profile and understand that project managers' performance and skills play a significant role in PS.

Project managers in different industries perform and work towards clear goals, and their performance is a core factor that significantly contributes to PS (Santos-Vijande et al., 2016). According to Menges et al. (2017), when project managers have a high level of motivation, they tend to motivate the team to deliver positive outcomes on projects since performance and motivation are linked. High performance requires a project manager to have a high degree of concentration, and this trait often comes from having achieved enough experience (Frieder et al., 2018). Project managers with more

experience perform well and can assist organizations in meeting project expectations compared to project managers with fewer years of experience involved in similar projects in the past (Santos-Vijande et al., 2016). PMY is related to project performance, which eventually positively impacts PS (Bond, 2015). PMG and PMA have emerged as variables that influence the measures of performance (Bausch et al., 2014). According to Garcés (2020), project managers with the ability to manage uncertainty factors improve project performance and control cost variations, time variations, and quality. Many organizations place significant weight on leaders' performance to further develop their skills in dealing with an uncertain situation.

Project Managers' Skills

Project managers need to have specific skills to be successful because every project manager is responsible for delivering outcomes (Ramazani & Jergeas, 2015). Englund and Bucero (2019) conducted a study on the skills of project managers. The authors provided insights, experiences, and examples to motivate action towards embracing an integrated approach to projects. The study showed that in every project, project managers use their skills and knowledge to deliver successful project outcomes, making the set of skills a critical possession in any project. The fundamental project management skills include project planning, scheduling tasks, implementing the project program, mapping out a timeline, executing the project plan, managing budget, communicating, engaging stakeholders, negotiating, and managing risks (Akanni et al., 2015).

Project managers have multifaceted responsibilities that significantly affect PS, and one of the essential skills of project managers is the ability to communicate with the team (Sunindijo, 2015). According to Sunindijo (2015), communication is the crux of any relationship. Effective communication is crucial to organizations and brings the team together by increasing team dynamics (Liao, 2017). Lack of communication between the main project participants causes projects to fail (Sunindijo, 2015). Project managers need to communicate any issues related to program schedule, workforce, risk management, and cost (Kerzner, 2017). Effective communication accommodates stakeholders' expectations, which is mandatory and highly recommended to avoid any hurdles down the track (Kerzner, 2017). Project managers with interpersonal skills are excellent communicators who can effectively facilitate and coordinate work among the team, increasing the rate of success on projects (Binder, 2016).

Communication is a skill embedded in leaders during the early stages of development (Liao, 2017). An excellent communicator usually has characteristics relating to confidence, logical thinking, and charisma (Thoroughgood & Sawyer, 2018). project managers' responsibilities and skills can increase with training, experience, or a combination of both (Sunindijo, 2015). Project managers that understand the relationship between roles, responsibilities, and benefits to stakeholders deliver successful outcomes by integrating the core elements of the project system (Todorović et al., 2015). Mencl et al. (2016) described project managers with technical skills as proficiently equipped with the knowledge necessary in responding to technical related aspects of a project. Project managers with social skills are good at working with others since they can develop a

sense of trust in their relationship (Jiang et al., 2016). Project managers' effectiveness depends on conceptual, human, negotiating skills, and to a lesser extent, technical skills (Millhollan & Kaarst-Brown, 2016). A crucial skill that indicated the effectiveness of project managers included the ability to communicate both verbally and in writing; a valuable PM needs to be adequate if not exceptionally fit in verbal and written communication (Ziek & Anderson, 2015).

According to Akanni et al. (2015), project planning and scheduling is a core project management skill that many project managers sometimes avoid implementing. AlNasseri and Aulin (2015) conducted a study on the development of planning and scheduling theories. The authors showed that project planning and scheduling is the art of planning activities in a sequence to understand how to execute the project. Project managers developing and working towards a realistic schedule can efficiently use their time and maximize effectiveness and reduce stress levels (AlNasseri & Aulin, 2015). Project managers have traditionally measured PS by time, cost, and quality, and the approach to assessing PS has evolved over the past three decades (Davis, 2014). Scheduling is a time predictive capability, and project managers use schedules to insight into what is realistically possible to achieve over a specific period (Yassine et al., 2017).

Carvalho and Rabechini Junior (2015) carried out a study on relationships between risk management skills and PS. The authors outlined project complexity and approaches that project managers implement to contain risks. The study involved 263 projects distributed among eight industries. The authors discovered that risk management skill is quite a significant trait, and project managers are usually the target to blame when

projects do not meet the plan. Risk management is one way of identifying complex issues and seeking ways of mitigating adverse effects (Sadgrove, 2016). Sadgrove (2016) noted that project managers should have risk management skills to foresee and prevent risks before becoming an issue.

According to Carvalho and Rabechini Junior (2015), risks can have severe consequences for organizations, and project managers should consider remediations to address the risks. Project managers should control risks and actively seek to mitigate them. A project manager with extensive experience is more capable of managing risk than a project manager with a few years of experience (Banihashemi et al., 2017). Risk identification and risk planning involve assigning a probability, a cost, an owner, and mitigating strategies suitable for the risk (Davis, 2017). Project management should incorporate action plans into the risk register to track and monitor the potential hazard. Risk management skills come from identifying risks well before they manifest (Jin et al., 2017). Project managers adopting effective mitigation plans help in nullifying the risks (Qazi et al., 2018).

According to Bakhshi et al. (2016), negotiating skills are another skill that project managers should possess. Negotiation involves finding an acceptable solution to a shared problem (Bakhshi et al., 2016). When issues occur within the team, project managers known to be successful negotiators can control the process and satisfy conditions to establish a desirable outcome (Monghasemi et al., 2017). Negotiation skills are about winning or creating positive results, and project managers require to have the capacity to

work through complex scenarios and dealing with conflicting situations (De Rezende & Blackwell, 2019).

Project management skills differed between males and females, and PMG was a significant factor (Kidwell et al., 2013). Young project managers had lower skills than older project managers. According to Ojiako et al. (2014), PS is related to project management skills and not significantly related to PMG. Project management skills and PMY were subsequently comparable, and the more experience a project manager acquired, the more skills they possessed (Ojiako et al., 2014).

Project Managers' Leadership Style

Leadership in project management is providing direction, implementing plans, and motivating the project team (Gatzert & Kosub, 2016). Stamevski and Stamevska (2017) conducted a study on leadership and found that leadership is more about attending to others' needs in the organization. The research showed that project managers with effective leadership styles could adapt to complex situations and the team's requirements in the project. Shaw (2016) suggested project managers have different challenges in reaching project management success versus PS. Researchers described the best leadership styles are the ones that can facilitate and understand the behaviors of the project delivery team and increase the ability to predict their actions towards the project's success (Maqbool et al., 2017).

According to Campuzano (2019), PMY influences leadership skills, and project managers with a high level of experience have good leadership skills. According to Buengeler et al. (2016), PMA influences leadership effectiveness. Younger aged project

managers are less likely to get hired for jobs when competing with project managers that are older (Oshagbemi, 2008). Leadership skills are different for PMG. Males dominate leadership roles despite the increase in female leaders (Campuzano, 2019).

Project managers develop the vision and then continuously communicate that vision to the project delivery team while working with them to achieve the project's goals and objectives (Syahputra, 2014). According to Ahmed and Anantatmula (2017), a competent project manager should have the skills to lead a team and implement tactics that increase the rate of success on projects, programs, or portfolios. Choosing a skilled project manager is one of the critical factors for PS (Sadeghi et al., 2014). The urge for determining better ways of leadership approach and management motivation has increased over time and opened the way for scholars to research and improve the quality of project management (Meng & Boyd, 2017). Many authors specialized in scientific management principles (Taneja et al., 2011).

According to Sadeghi et al. (2014), organizations should hire competent leaders by using a competency model for selecting project managers. Successful project managers need to formulate and implement appropriate project management methodologies, leverage advancement in technologies, and use team collaboration tools and techniques (González et al., 2016). According to Thaler and Levin-Keitel (2016), project management leadership is essential in uplifting and motivating the capabilities of the project team, which also leads to successfully managing risks, issues, opportunities, and stakeholder engagement. Tabassi et al. (2016) carried out a study that included a sample population of 70 project managers to examine leadership. The results showed that

the transformational leadership qualities of project managers are reflective of the necessary constructs that directly affect the success criteria of a project's team. Intellectually competent project managers play the most significant role in bringing success to a project and devise proper principles of implementation and techniques that are effective in driving PS (Nicholas & Steyn, 2017).

Pretorius et al. (2018) researched the different types of project management leadership styles and noted that each leadership approach poses different strengths, weaknesses, and criticisms. The authors showed that project managers' leadership style varies across industries; each style has different intended outcomes. According to Muller and Turner (2017), effective leadership style and the project manager's competencies are considered prime success factors in the execution of projects. An effective project leader offers strategic plans and handles challenges and risks by implementing a meticulous approach that works best in solving the problem (Syahputra, 2014). Competent project managers can identify personalities and adopt a stable relationship that causes a person to respond effectively to project challenges and situations (Tlili et al., 2016). As project managers, effective leaders induce success, self-confidence, honesty, integrity, and tolerance to the project team (Zulch, 2016).

Project management is a leadership role that requires individuals who have an inherent and relatively stable personality (Back et al., 2016). Ruben and Gigliotti (2016) researched factors of effective project management and found that leadership skills are fundamental requirements for a project manager to be constructive and productive in a project team. According to Wu and Shen (2016), leadership skills are attainable through

apprenticeship, education, and training. A project manager with practical leadership skills will have excellent team management skills, human and conceptual skills, and communication skills (De Araújo & Pedron, 2015).

Communication is an essential leadership skill that is shaped by knowledge and motivation (Leonardi, 2017). Leadership and communication are complementary, and the need for effective communication increases when projects are more prominent and complex (Verghese, 2017). Project managers with conceptual skills ensure the teams work together towards achieving a common goal by underlying commitment and motivation (Liang et al., 2014). According to Ruben and Gigliotti (2016), five main components of effective leadership in IT project management exist. These five components include competencies, individual attributes, leadership outcomes, career experiences, and environmental influences.

Muller and Turner (2017) conducted a study on behavioral, charisma, and emotional leadership traits in project management and competency profiles of project managers. The authors compared the democratic and autocratic styles of leadership. The study showed that leaders induce an emotional reaction from their team to commit to the successful delivery of the project. The researchers also outlined factors that make autocratic leadership stand out compared to other leadership styles. Autocratic leaders make decisions without taking advice and consulting the teams, which is appropriate when decisions are required immediately (Peker et al., 2018).

Iqbal et al. (2015) investigated the effect of leadership styles practiced in an organization and their impact on employee performance. The purpose of the study was to

understand the impact of different leadership styles such as autocratic, democratic, and participative styles on employee performance. The researchers found that autocratic project managers were not always successful because of their irrational decisions based on their ideas and judgments. The authors also found that autocratic leaders are sometimes good at instructing staff members what to do. Autocratic leaders tend to create a negative image of leadership to most people because they tend to take control of decisions and have little input from group members (Harms et al., 2018).

According to Muller and Jugdev (2012), project managers act as both managers and leaders. Muller and Turner (2017) explored the competence model of leadership and reviewed what has been written previously about the traits and behaviors of effective leaders. The authors suggested different leadership styles are appropriate in other circumstances. The authors found that successful project management depends on the project manager's leadership competency, which leads to PS. Leadership and management are terms often used interchangeably. The scholars suggested a significant difference exists between managing and leading. Project managers that are good leaders influence the organization by providing guidance and direction (Aga et al., 2016).

According to Aga et al. (2016), project leaders generally use a transactional leadership style on simple projects. Complex projects are best managed by project managers that adopt a transformational leadership style (Kissi et al., 2013). Transformational leadership is necessary for complex projects because project managers need to create an idea and vision for change (Masa'deh et al., 2016). According to Kearney (2008), transformational leadership is influenced by PMA since older leaders

tend to be less transformational. Factors between PMA and leadership could diminish the negative role of age for transformational leadership (Kearney, 2008).

In this study, I employed data collection techniques using a web-based questionnaire. I used the web-based questionnaire to assess whether a correlation exists between the variables. Moradi et al. (2020) conducted a study on project managers' competencies to achieve PS. The findings showed that self-evaluation of behavioral events is the most effective way of identifying project managers' competencies, and competency is a concept based on behavior. A project manager is the best evaluator of behavior related. The scholars also mentioned that group capabilities competency is significant, followed by trustworthiness and leveraging diversity, pointing to the project managers' ability to create additional job opportunities. Other high competencies included leadership, motivating others, and responsible for their performance. These factors and project managers' performance are essential in developing PS (Moradi et al., 2020).

Project Success

Chipulu et al. (2015) researched PS and outlined factors to reduce negative impacts on projects. Many projects fail because of many reasons. PS was the dependent variable in my research. Project managers fail to achieve PS because of poor management, incompetency, unclear scope or requirements, and lack of understanding among the team (Dwivedi et al., 2015). Ahmed and bin Mohamad (2016) claimed that few project managers were reporting PS without being transparent whether they delivered the project based on the planned objectives, cost, time, scope, and benefits. The rate of PS to project failure has become a significant concern to many organizations (Alami, 2016).

For example, IT project failure in India is between 50% and 70%, and 45% of IT projects run over budget and 7% over time (Pimchangthong & Boonjing, 2017). One of the main reasons why projects fail is hiring project managers who were neither competent nor suitable (Pimchangthong & Boonjing, 2017). Understanding the relationship between PS and project managers is a significant step in avoiding failure on projects (Singh & Jankovitz, 2018). Project managers may deem themselves successful, yet other leaders that worked on the same project may have a different view and consider the project was a failure (Lauren, 2018).

PS can vary based on the type of project, and this concept can be vague to many project managers and the team, which are usually involved to ensure objectives and project goals are met (Nauman & Piracha, 2016). Consequently, one of the necessary measures for PS is to identify and leverage attention towards factors that contribute to the development of information systems (Kerzner, 2017). Success variables that influence PS and the quality of projects include design changes, lack of quality systems, contractor selection, ineffective use of IT, and inter-organizational interactions (Das & Ngacho, 2017). Jahangirian et al. (2017) conducted a study on performance indicators used by project managers to achieve PS. The authors identified key indicators by assessing the impact it has on PS. In the study, the key performance indicators represented the level of PS from various perspectives. The findings highlighted some patterns about the significance of individual CSFs and key performance indicators used to identify problem areas in projects. The success factors presented by the project managers' perception of the project and understanding the variables of CSFs were critical to PS (Al-Zoubi, 2018).

Success variables are relevant to the development of projects across many industries because they can be used by project managers to ensure success (Das & Ngacho, 2017). Communicating PS to stakeholders is challenging and not always endorsed (Anagnostopoulos et al., 2017). One of the primary determinants of the key success factors lies in the potential for competitors to emulate (Fritz et al., 2017).

Alreemy et al. (2016) conducted a study to investigate and identify factors that encourage successful implementation of IT methods. The authors identified and examined PS in IT projects. The literature included project managers that implement IT governance standards and practices on projects. The study showed that the need for project managers to practice an appropriate IT governance was significant and an essential factor to PS. The authors showed how IT is associated with risk and value opportunities and advised that a system is required to minimize the associated risks to increase the success rate on projects. A major problem across many organizations is when a project manager lacks proper knowledge of project management (Ziek & Anderson, 2015). Project managers with poor PS analysis and a lack of previous project experience can be damaging to organizations (Aga et al., 2016).

Todorović et al. (2015) investigated PS analysis as a framework. The researchers linked the contribution of the PS analysis framework to the knowledge management of project managers. The authors gathered data from 103 project managers, and the results confirmed that PS analysis presented that the key performance indicators and the performance-measuring process resulted in a positive influence on projects. Todorović also explained the relationship between PS and the chances that the project achieves the

intended objectives. Project managers that can reduce project risk and understand PS have a higher chance of meeting performance expectations (Williams, 2016). Organizations should not only seek to implement projects based on a framework but also aim to hire a project manager that can encourage benchmarking across critical activities and achieve PS (Kerzner, 2018).

Researchers at the PMI (2016) conducted a study on factors necessary to deliver projects successfully. The study report was compiled by carrying out a survey that probed project management practitioners and leaders who contributed globally to the value of project management. The study attracted feedback from 3,234 professionals globally from diverse industries. The report showed a positive change in the way organizations manage projects and programs. The report also showed that about 60% of projects were more likely to meet objectives and stay within budget. More projects were meeting the cost budget than in previous years, according to the report. The report displayed that organizations lost an average of $97 million for every $1 billion invested because of the project manager's poor performance and incompetence. The report showed that project managers in the modern world were learning from their past and becoming smarter. The results also showed that project failure had declined on an average of 20% compared to the previous 5 years (PMI, 2016).

According to Neumeier et al. (2018), projects related to IT are very complex and complicated. The PMI (2017) showed that the most significant IT organizations experienced a rate of over 40% of project failure, and approximately 66% of IT project managers experience challenges managing the budget and scope. The surveys indicated

that 22.3% of projects were successful due to the project having reliable project management methodologies. The core cause of success occurs when the communication and collaboration of the project manager and the team are consistent (Liphadzi et al., 2015). Lock (2017) investigated the relationship between project managers in organizations and the delivery of high standard services and budget control. Dedicated project managers implement logical planning, which significantly contributes to PS (Mikhieieva & Waidmann, 2017). Successful project managers have excellent personal characteristics, project implementation technique skills, and communication skills (Valkenburg et al., 2016). Many project management methods exist using advanced techniques. The achievement of high-quality delivery relies on vigorous frameworks, proper scheduling of tasks, and project planning supplemented by rational and ethical decisions (Blaskovics, 2016).

Chua and Comendador (2017) conducted a study involving 126 IT project leaders in Massachusetts. The leaders admitted that 55% of projects they worked on did not go right and were considered a failure. The researchers realized that competent project managers addressed project failure by improving various aspects of their trade, such as project management research, embracing innovation, and introducing new technology as solutions. According to Mithas and Rust (2016), project managers are also increasingly investing in the development of management information systems (MIS). The authors pointed out that MIS gears towards reducing the cost of delivering the project by using IT related strategies.

Ebner et al. (2019) conducted a study to introduce new strategic project management models and key factors that lead to PS. The researchers noted that a project manager's commitment, satisfaction, and willingness to act were key factors that led to PS. The study showed that competent project managers were successful because of their positive drive and high levels of motivation. According to Zaman et al. (2019), project failure occurs because of poor leadership. Project leaders play a crucial role in the project by facilitating creativity and promoting innovation outputs (Seeber, 2019). The project manager's lack of understanding of how to implement project processes, task scheduling, and the management of risks can diminish PS (Rezvani et al., 2016). Understanding the project's CSFs and the relationship between the project team players spears the project in the right direction, which leads to PS (Seeber, 2019).

Gunter (2020) researched the relationship between project managers' competencies and PS. The findings showed a significant positive predictive relationship between both variables. Levý (2020) researched project managers' leadership and PS. This study's theoretical framework encompassed several theories to understanding the relationship between leadership, project managers, and PS. The findings of this research showed leadership in project managers had a weak relationship with PS.

Rogo et al. (2020) conducted a quantitative survey on project managers with 3 years of experience. The scholars wanted to understand the relationship between project managers' leadership style and PS. The scholars conducted this research because projects' productivity was very low, and the emergence of various management deviations led many projects to fail. The researchers found that project managers'

transformational leadership can predict PS, and project managers with good skills contribute to achieving the project's vision, mission, and goals. This research was related to the construction industry. PMY in the construction industry does predict PS in the construction industry.

Menberu (2020) researched PS, and the purpose was to determine if project managers' competencies lead to PS. Part of this research was to understand the impacts on PS. The scholar used both primary and secondary data to achieve the intended research objectives. Questionnaires and semi-structured interviews were also used and distributed to 57 participants. The findings showed that project managers' competence predicts PS. Competencies include time management, financial management, cost management, quality management, integration management, scope management, procurement management, risk management, safety management, and environmental management. The scholar findings also showed that the top five CSFs for PS were project cost, project time, technical specifications and functional requirements, clients' satisfaction, and stakeholders' relationship, all related to project managers' competence. According to Tóth (2020), PMY is related to project managers' competencies. The less PMY, the more project managers prioritize technical skills, while those with higher PMY consider human aspects more important. The findings also showed that technical skills continue to be ranked highest by project managers with fewer years of experience.

Transition

Section 1 of this quantitative research included the background of the problem, problem statement, and purpose statement and encompassed the foundation or basis for

the idea that a possible relationship exists between PMG, PMY, PMA, and PS. Section 1 included the literature review, which covered the theoretical framework, CSFs theory, AST, the independent variables PMG, PMY, PMA, and the project manager's critical success characteristics. The project manager's critical success characteristics included the project manager's performance, the project manager's skills, and the project manager's leadership style. The last part of the literature review was about the dependent variable PS.

Section 2 consists of the project and associated elements of this study, which begins with a purpose statement and includes the role of the researcher, participants, quantitative research method and design, populations and sampling, ethical research, Instrumentation, data collection techniques, data analysis, and study validity. Section 3 includes the purpose of the study, followed by a presentation of findings, including applications to professional PM practice, implications for social change, and recommendations for future study. Section 3 will close with a strong concluding statement.

Section 2: The Project

I chose this research for organizational leaders to realize whether a relationship exists between PMG, PMY, PMA, and PS. Section 2 includes a restatement of the purpose of the study, descriptions, and information about the role of the researcher, participants, research method and design, population and sampling, ethical research, instrumentation, data collection technique, and data collection. This section also includes a description of the data collection process, analysis, and study validity.

Purpose Statement

The purpose of this quantitative correlational study was to examine the relationship between PMG, PMY, PMA, and PS in the IT industry. The predictor variables were project PMG, PMY, and PMA. The criterion variable was PS. The target population consisted of project managers located in the United States from the IT industry. More efficient IT projects may increase the ability to provide quality, safe, and cost-effective benefits to organizations. Selecting a suitable project manager may enable organizations to deliver communication, technology, and data infrastructure for the community during a sudden urge or need. The implications for positive social change include the potential to successfully complete community critical IT projects through the selection of the right project manager, as predicted by PMG, PMY, and PMA.

Role of the Researcher

In a quantitative study, the researcher is the primary data collector and employs different data collection techniques and the validation and reliability of the survey (Ranney et al., 2015). As the researcher, my objective was to answer the research

question and determine whether a relationship existed between PMG, PMY, PMA, and PS. I chose the Project Implementation Profile instrument for data collection. Before I began data collection, my role was to understand the type of questions I wanted to pose on SurveyMonkey to the project managers. After data collection, I began identifying and analyzing data patterns.

I chose this research topic because I have worked in the project management industry for over 13 years. I have been working in IT for 5 years. I also worked for major organizations where my responsibilities included reviewing objectives, business cases, planning, scheduling, cost, risk management, business improvements, and resource management. Throughout my career, I observed constant project failures because organizations hired unsuitable leaders to manage projects. Thus, I wanted to find out if a relationship existed between the characteristics of project managers and PS.

I used available online survey software to collect data and analyzed the data by acting as the manager for the design analysis, communications, support, by reviewing ethical procedures used in the research. I used Statistical Package for the Social Sciences (SPSS) to determine statistical calculations and analyzed the data to determine whether a relationship existed between PMG, PMY, PMA, and PS. I also ran various tests to decide whether to accept or reject the null hypothesis.

A researcher should understand the topic and purpose of the research (Berger, 2015), refrain from reporting on arbitrary data, and place significant weight on the need (Creswell & Poth, 2016). I was a suitable researcher to conduct this research because I have extensive work experience and educational background related to IT. My role was

project managing a program of work for the government department of Australia. In addition to my degree in engineering, I completed my master's degree in project management.

The role of the researcher also includes acknowledging and eliminating personal bias in research (Wahyuni, 2012). Bias refers to challenges that weaken statistical validity in research studies, but eliminating bias is almost impossible (Yin et al., 2016). In research, outcomes can become invalid because of a researcher's bias, not representing participant views (Roller, 2015). If a researcher becomes biased, he or she can influence and affect the study results (Holman et al., 2015). I limited bias and took precautions to minimize this issue. I reduced the consequence of bias because I did not want to jeopardize the accuracy of the study by restricting interactions with participants. I minimized my chances of bias by conducting quantitative research using a legitimate and well-respected survey. I also ensured questions were not related to my opinion, emotion, and belief for participants to answer the questions truthfully. I abided and adhered to the quantitative study protocols. I also reported and analyzed the data results from participants accurately, ethically, and without bias.

Finally, The Belmont Report contains three main ethical principles, which include respect for persons, beneficence, and justice (National Commission for the Protection of Human Subjects and Biomedical and Behavioral Research, 1979). The objective of The Belmont Report is to protect human participants in research from maltreatment or abuse by the researcher (Friesen et al., 2017). I adhered to the protocols outlined in The

Belmont Report commenced data collection after Walden University Institutional Review Board (IRB) approved my study (approval no. 08-12-20-0395991).

Participants

Selecting appropriate participants has a strong effect on the research findings (Martínez-Mesa et al., 2016). Participants' eligibility requirements for the research study included (a) project managers that were 18 years or older at the time of the survey, (b) project managers that have completed projects in the IT industry, and (c) project managers from the United States. Researchers use online tools like Survey Monkey to obtain data for the sake of research. Developing trust and establishing a relationship using an online survey can be challenging (McCormick et al., 2017).

In quantitative research, establishing a working relationship with participants is unnecessary, unlike qualitative research (Lancaster, 2017). Therefore, I used SurveyMonkey Audience service to collect data, a paid service through SurveyMonkey that enables researchers to use additional features such as selecting participants based on demographics and selection criteria like age, gender, and location (SurveyMonkey, 2018b). SurveyMonkey is an online survey distribution platform that offers users to purchase survey responses from a target group, with locations divided by census region (SurveyMonkey, 2015). SurveyMonkey possesses a database of over 45 million members, and the SurveyMonkey Audience offers a diverse population to academic researchers (SurveyMonkey, 2018a). The use of SurveyMonkey can result in high-quality data, rapid data collection, and high response rates (Varela et al., 2016).

I had no communication with the respondents, and their details were not accessible or visible to me. The selection and invitation process exclusively from SurveyMonkey randomly select participants who meet the inclusion criteria (SurveyMonkey, 2018b). I input the inclusion criteria in the SurveyMonkey software, and it sent an invitation to randomly selected participants from its database that matched my selection. SurveyMonkey's system includes an algorithm that can assist in the selection of a representative sample (Chen, 2019). Many studies related to project managers have used SurveyMonkey as a service provider (see Schoenherr et al., 2015).

In quantitative research, establishing a solid professional relationship with participants is not essential (Høyland et al., 2015). To establish a working relationship with participants, I included my details and the description of my research in the informed consent form. I also invited participants to contact me for any questions they had relating to the research or project management in general and to set the stage for a qualitative interview. Ensuring the protection of personal information is also a good motivation for building trust and professional relationships (Dikko, 2016). I sent the informed consent form to participants by SurveyMonkey Audience and included details about the actions I took to ensure the protection of data. I also mentioned that I would not ask for any personal information and protect the security of participants by ensuring they remain anonymous.

Research Method and Design

Quantitative research is a scientific approach that involves numeric values to form statistical analysis (McCusker & Gunaydin, 2015). Researchers use qualitative research

methods to employ personal phenomenal experiences and understandings (McCusker & Gunaydin, 2015). In quantitative research methods, researchers use data to test existing theories and specific hypotheses, and in qualitative studies, researchers use the data to generate new hypotheses (Von Bastian et al., 2016).

Research Method

The three research methods are quantitative, qualitative, and mixed methods (Edmonds & Kennedy, 2016). Researchers use the quantitative method to test hypotheses and examine outcomes that influence variables using surveys, questionnaires, and other experiments (Ghauri et al., 2020; Schönbrodt et al., 2017). Researchers use quantitative research to examine relationships, quantify opinions, attitudes, behaviors, and other defined variables to support or refute hypotheses about a specific phenomenon (Apuke, 2017; Chambliss & Schutt, 2018; McCusker & Gunaydin, 2015; McKibben & Silvia, 2016). The purpose of this study was to investigate the relationship between the independent variables, PMG, PMY, and PMA, and the dependent variable, PS. Thus, quantitative research was appropriate because the purpose was to determine a relationship between independent and dependent variables (Mertler & Reinhart, 2016).

Researchers use the qualitative approach when the study consists of complex issues and processes over time (Roy et al., 2015). In qualitative research, researchers employ personal phenomenal experiences and understandings (McCusker & Gunaydin, 2015). Qualitative researchers focus on interviewing others through conversational communication to identify behaviors and investigate participants' experiences and perceptions related to an issue (Silverman, 2015). The qualitative research method is

appropriate when the purpose is to understand the reasons, opinions, and motivations of participants and to gather non-numerical data. This study included investigating the nature of the relationship between the dependent and independent variables rather than understanding the reasons, opinions, and motivations of participants or identify behaviors, attitudes, and interview others by conversational communication; therefore, the qualitative method was not appropriate.

Researchers who choose to use mixed methods combine qualitative and quantitative forms and interpret data objectively and subjectively (Brannen, 2017; Yardley & Bishop, 2015). The mixed approach was also not appropriate for this study because this study did not include any qualitative elements. In this study, I examined the relationship between PMG, PMY, PMA, and PS in the IT sector. I undertook a quantitative method approach, which included working with statistical and numerical values.

Research Design

The quantitative design includes descriptive, quasi-experimental, experimental, and nonexperimental correlational designs (Bryman, 2015). Researchers use the descriptive design to describe a population, situation, or phenomenon accurately and systematically (Aggarwal & Ranganathan, 2019). Descriptive research is an appropriate choice when the research involves characteristics, frequencies, trends, correlations, and categories (Anderson et al., 2017). Researchers who use descriptive research identify behaviors and describe the behavior of participants and cannot make predictions or determine causality (Graham-Rowe et al., 2015). Researchers use descriptive research for

studies that require systematic observation to describe a specific behavior (Gravetter & Forzano, 2018). Because I wanted to determine whether a relationship or association exists between two or more variables and did not need to describe participant behaviors, descriptive research was not appropriate.

The quasi-experimental design involves selecting groups and testing variables without random pre-selection processes (Alavinia & Farhady, 2012). Researchers who undertake experimental or quasi-experimental designs incorporate controls or interventions to establish a cause and effect relationship (Rutberg & Bouikidis, 2018). Researchers use a quasi-experimental design to evaluate the association between an intervention and an outcome using experiments in which the response is not randomly assigned (Schweizer et al., 2016). Researchers prefer to use scientific experiments as the most valid way of testing hypotheses (McCusker & Gunaydin, 2015). Because I did not want to evaluate interventions and demonstrate causality between an intervention and an outcome using experiments, quasi-experimental was not appropriate.

Finally, researchers in experimental design isolate and manipulate the independent variable to observe the effects on the dependent variable and establish a cause and effect scenario along with eliminating unnecessary variables (Kirk, 2013). Researchers choose experimental designs over nonexperimental designs to increase internal validity (Podsakoff & Podsakoff, 2019). Experimental or quasi-experimental models are appropriate when the purpose is to determine a cause-effect (Bryman, 2015). Because my study did not include a manipulation component or a cause-effect determination, neither experimental nor quasi-experimental designs were appropriate.

Researchers use nonexperimental correlational design to examine variables and relationships between variables (Becker et al., 2016). Researchers use correlational design when the purpose is to seek and identify if a relationship between variables exists (Miller, 2005). Because I wanted to determine if an association exists by testing the relationship between independent and dependent variables, the correlational design was appropriate.

Population and Sampling

This section includes details on sample size, eligibility criteria for participants, and the relevance of traits of the selected sample unit. The appropriate population was chosen based on qualifying questions included as part of the survey for participants. Through SurveyMonkey Audience, researchers can add prequalifying questions on SurveyMonkey to qualify and disqualify participants based on eligibility criteria (SurveyMonkey, 2018d). I ensured participants met the eligibility criteria by including prequalifying questions on the SurveyMonkey Audience platform before proceeding with the survey. If participants selected an answer that was not within the eligibility requirement, they were disqualified from taking the survey. Participants' eligibility requirements for the research study included (a) project managers who were 18 years or older at the time of the survey, (b) project managers who have completed projects in the IT industry, and (c) project managers from the United States.

Population

Determination of the population introduces the study subjects and the required number to produce results for the research (Palinkas et al., 2015). The population

consisted of a group that had desirable characteristics suitable for the study, and the community of interest in this research study included (a) project managers who were 18 years or older at the time of the survey, (b) project managers who have completed projects in the IT industry, and (c) project managers from the United States. In this study, I used the SurveyMonkey Audience service to reach out to the selected sample population. The potential subjects for the study were IT project managers who volunteered to respond to the selected survey on SurveyMonkey and accepted the informed consent form before starting the survey. Members of SurveyMonkey include different project managers who are highly involved in filling out surveys from diverse programs in various studies (SurveyMonkey, 2015).

In this study, I had no contact with the respondents since the questionnaire was available online. The study strictly adhered to the set conditions and terms; for instance, the examination only involved communication between SurveyMonkey and its members, and participants were required to accept the informed consent form before starting the survey. The members signed up with SurveyMonkey and received a link to the survey. Participants that accepted the invitation began the process by clicking on the survey link to obtain additional information about the survey. The informed consent form appeared, and participants needed to accept the consent before they started the survey.

Participants were anonymous and only those willing to participate proceeded to the survey by answering the online questionnaire. SurveyMonkey conducts auditing on surveys frequently to ensure that its panel members are representatives of the entire population (Bregman et al., 2015). The process of selecting a sample of a population of

interest to make observations is known as sampling (Martínez-Mesa et al., 2016). A researcher should identify the sampling design in advance before calculating the sample size (Malterud et al., 2016). The survey did not include any respondents' personal information during the survey process for security purposes.

Sampling

The probability sampling method is a method where researchers utilize for random selection of participants, and the random selection method is when researchers set up a process or procedure that assures that respondents have equal probabilities of being chosen (Anderson et al., 2017). Random sampling is a probability sampling design, where a researcher can specify the probability by selecting sampling units from a pool of people (Franco et al., 2017). Researchers select random sampling because targeted individuals in the population have an equal selection chance (Martínez-Mesa et al., 2016). Researchers use random sampling to assign an equal and non-zero probability in the population (Malone et al., 2016). Researchers use the probability sampling method for randomly selecting participants and specifying the sample by probability estimation of the sampling unit of the population (Setia, 2016). Because I could not determine the number of participants by conducting a probability estimation of the sampling unit, probability sampling was not appropriate.

Nonprobability sampling is a sampling technique where calculating the chance of any member selected for a sample is impossible (Frankfort-Nachmias et al., 2014). One advantage of using non-probability sampling compared to probability sampling is less cost and time effective (Bosnjak et al., 2016). Researchers adopt nonprobability sampling

when estimating the population is impossible through probability sampling (Stratton, 2019). The weaknesses of non-probability sampling are that researchers do not provide participants with equal opportunities to participate in the study, and researchers select samples based on subjective judgment (Sharma, 2017).

According to Stratton (2019), a disadvantage of non-probability methods is that respondents do not have an equal chance of being selected. I used convenience sampling, which was part of non-probability sampling within the SurveyMonkey Audience, to involve participants responding to the survey. With convenience sampling, researchers ensure that access to data and information needed for their study is available without going through a complicated data collection process, contrary to probability sampling (Etikan et al., 2016). Researchers use the convenience sampling method because of the convenience and ease of reaching out to participants. I conducted participant selection through convenience sampling techniques because the research subject was conveniently accessible through SurveyMonkey Audience. Participants for this study were SurveyMonkey members, and through convenience sampling, researchers have ease recruiting participants. SurveyMonkey processes random selection through a random selection algorithm, selecting participants from a sample pool (SurveyMonkey, 2015).

The study included a convenience sampling method to select from a pool of members who were part of the population of IT project managers in the United States and SurveyMonkey members. The selection of participants through convenience sampling included the selection of IT project managers. The advantage of convenience sampling is that researchers can collect data in less time than other sampling methods (Teddlie & Yu,

2007). An additional advantage of using convenience sampling was the convenience of reaching out to participants and providing them with an equal selection chance of participating in the study. Weaknesses of using convenience sampling include the vulnerability to bias and influences that could arise beyond the researcher's control (Taherdoost, 2016). Cases of respondents' inappropriate filling of the questionnaires can hinder the results during analysis (Olsen et al., 2018). Very few researchers that previously undertook convenience sampling experienced little credibility from others (Prabhu & Ramesh, 2019). The procedure served to curb every possibility of sampling bias in the research and was essential to use the chosen sample size for generalizing the entire population of project managers in the IT industry in the US.

My research included a survey sent to participants through SurveyMonkey Audience. For inferential analysis, this research included selecting participants from a sample pool of IT project managers in the United States. By definition, a sample is the subset of the entire groups of interest selected to represent the whole population (Palinkas et al., 2015). Sample sizes in qualitative and quantitative studies differ in descriptive statistics, employed sampling methods, target groups, and the research questions' design for each group (Rahi, 2017). Determination of the existing relationship between PMG, PMY, PMA, and PS was the key to identifying the study's population of interest in the IT industry in the United States. A sample unit for the study was derived using the appropriate sample size determination and sampling procedures to select a specified number of IT project managers from the SurveyMonkey webpage.

I employed the G*Power 3.1.7 software to derive the sample size for this study. In my research, I requested a total of 100 participants that currently or previously worked in IT as a project manager. Sample size determination involves three factors: a significance level (*a)*, the desired level of power (1 – *þ*), and the expected effect size (Djimeu & Houndolo, 2016). The significance level (*a)* is the probability of making a Type I error, which is the inaccuracy of rejecting the null hypothesis when it holds (Akobeng, 2016). The inclusion criteria included (a) project managers that were 18 years or older at the time of the survey, (b) project managers that have completed projects in the IT industry, and (c) project managers from the United States.

According to Akobeng (2016), statistical power represents the probability of correctly detecting a real effect or relationship and is the complement of *þ*, which is the likelihood of committing a Type II error. Type II error is the fault of accepting the null supposition when it is false, and when statistical power increases, the probability of making a Type II error decreases (Derrick et al., 2016). According to Cohen (1988), a significance level of 0.05 and a power of 0.80 are practical and realistic for a study. Researchers use multiple regression as a statistical method to predict the value or assess a relationship between a dependent variable based on the values of two or more independent variables (Halls & Randall, 2018). Researchers also use multiple regression to analyze a pattern within a phenomenon (Hayes & Montoya, 2017).

My research included three independent variables and one dependent, which made multiple regression appealing. I considered a multiple regression random model because I wanted to understand the effects of the different predictor variables on the

criterion variable and the predictor variables' effects on one another. A multiple regression analysis was employed to investigate relationships between age, gender, and years of experience of project managers working in IT and PS. To determine the sample size, I had to input parameters for the estimated total sample size, the number of predictors, observed R2, and confidence level. Entering those values also prepopulated Tails, H1 p2 and H0 p2.

Researchers use the multiple regression random model to calculate sample sizes of participants based on the number of tails of the test one vs. two, the α error probability, the number of predictors, and the power (Young, 2019). I selected 3 for the number of predictors. The observed R2 was 0.3. R2 is a statistical measure of fit that shows how much of a dependent variable is explained by the independent variables in a regression model (Zhang, 2017). The value of R2 is always between 0 and 1, where the value 1 means a strong relationship exists between the variables (Zhang, 2017). I selected two for tails and not one. Researchers using a one-tailed test examine the possibility of the relationship in one direction and completely disregard the possibility of a relationship in the other direction (Propper et al., 2019). The value of R2 showed a value of 0.035, which indicates a 0% relationship between the dependent and independent variables.

Finally, I selected the sample size of 100 with a Power (1-β err prob) and a confidence level of 0.95, which estimated a sample size of 56. I realized that a higher value sample size confidence interval value indicates a smaller calculated sample size while calculating the sample size. Figure 1 indicated the sample size based on the power of the study and the number of respondents who would answer the survey questions

accurately based on the confidence interval. Figure 2 included the parameter input variables for the multiple linear regression. For a more robust sample size for this study, and to reduce the chances of bias, I included 49 additional responses. I received a total of 105 responses from the SurveyMonkey webpage. I conducted a G*Power post hoc analysis because the sample size I originally proposed was different from what I received on my survey. The results showed 99.96% confidence in a sample of 105 IT project managers.

Figure 1

Random Model Function of Sample Size

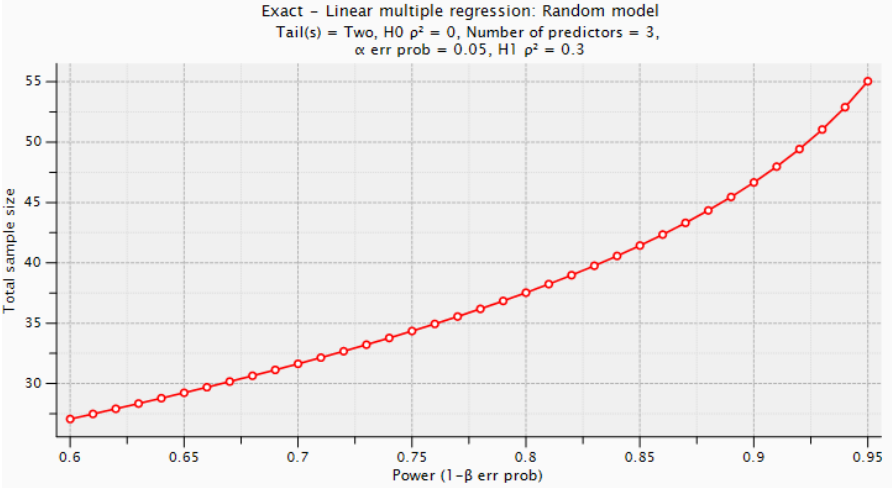
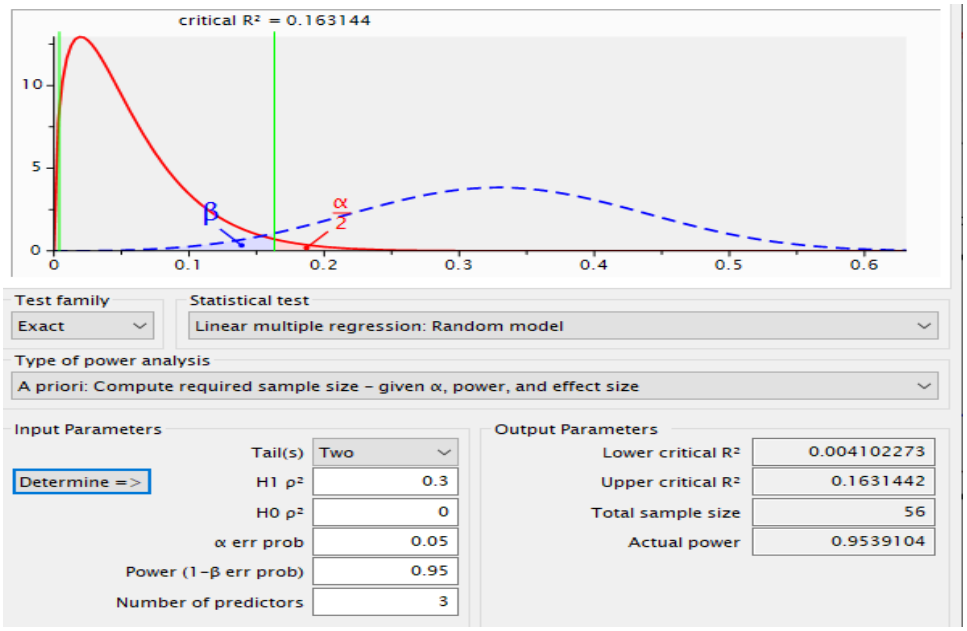


Figure 2

Input Parameters for Linear Multiple Regression



Ethical Research

I requested the survey through SurveyMonkey Audience to enable the system to send potential participants an informed consent form, which respondents had to accept before starting the study. SurveyMonkey sent an e-mail invitation to potential participants. The consent request included SurveyMonkey's terms and conditions, which outlined processes and procedures on personal and private information requesting participants to accept and consent to the terms before proceeding with the survey. Respondents who read the informed consent form understood the survey process because it included adequate information about the study and options to consider, including the option to withdraw. When respondents read the informed consent form, respondents

accepted that they had comprehended the process, agreed to the survey terms, and voluntarily and anonymously proceeded with the survey.

Participants had enough time to withdraw and change their mind before accepting and agreeing to the consent form. Requested participants had the right to accept or reject the request from SurveyMonkey. Participants had the right to withdraw from the survey time before or during the survey by disagreeing with the consent form, closing the survey, or clicking cancel. Participants that wished to withdraw clicked NO to the informed consent form, and participants that clicked YES proceeded to the survey. Participants were able to withdraw from the survey at any time without penalty.

I adhered to a high level of ethical standards, which formed the basis of the research process. My primary responsibility was to protect any personal information I had access to related to respondents. *The Belmont Report* includes basic ethical principles for conducting research, such as guidelines to respect others, ethics, and justice (National Commission for the Protection of Human Subjects and Biomedical and Behavioral Research, 1979). Researchers who adhere to the Belmont report ensure data protection and treat respondents with respect, justice, and beneficence (Brakewood & Poldrack, 2013). My research was within the ethical guidelines of the Belmont protocols without violating any of the policies. By adhering to the law of beneficence, I committed not to expose participants to any form of risk or danger because I collected data remotely and not in person. Participants were chosen randomly through SurveyMonkey sampling; everyone in the target population had an equal chance of being selected. SurveyMonkey randomly selects participants through sampling, which reduces bias, and the sample

represents the target population (Nelson et al., 2019). After participants completed the survey, I only had access to the survey answers of participants. Participants were completely anonymous, and I did not have access to any personal information.

Participants had the opportunity of being selected to participate in the survey. Participants were project managers in the IT industry. I did not offer any incentives to respondents to undue potential influence on the study outcome. All respondents experienced an equal level of respect and courtesy without discrimination of any kind. I disclosed the benefits, facts, and risks of the research to participants before they started the survey by providing them with the informed consent form. Participants needed to agree before proceeding to the survey. According to Reinharz (2017), participants exercised their freedom rights by choosing whether to participate in a survey after reading about the study's benefits, facts, and risks. Respondents' personal information was recorded on the SurveyMonkey database, which I had no access to. I could not view or access any personal information because of the security and privacy of the SurveyMonkey service.

Participants had 10 minutes to read and accept the consent form. The consent form covered the purpose of the research, background, university, procedure, timing, and intent of this survey. In the consent form, I also mentioned information regarding participation, privacy, anonymity, and the right to accept or reject to participate in the study. Participants voluntarily chose to accept or reject participation in the survey. Companies that offer data collection as a service for researchers have a duty of care to ensure the safety and security of all data collected from individuals used for studies

(Ardolino et al., 2018). Protecting the rights and identities of the answers of project managers who participated in the study was done using a password, and the data information was stored on a Universal Serial Bus (USB) flash drive. I also saved and stored the information on my personal computer, protected with a security password. The data will be kept on the computer and USB flash drive for 5 years after completing this study, and then the data will be deleted from the computer and deleted from the USB by formatting the device.

Before I conducted the actual data collection activity, I followed Walden's process and protocols and sent the IRB application forms to Walden's Review Board for approval. An approval from the board ensured that the study adhered to the university's ethical standards and the high academic research regulations. The data collection process started after obtaining the required approvals. The IRB approval number for this study was 08-12-20-0395991. I undertook data collection for research purposes and not for financial gains. Data collection for academic and research purposes adds stock of knowledge in the literature (Adams et al., 2017).

I used the SurveyMonkey Audience service to reach out to participants. SurveyMonkey randomly selected participants that met the inclusion criteria and sent them an invitation to fill out the survey after they consented to participate. The study involved using a third-party service, which was from SurveyMonkey Audience, to distribute questionnaires and collect responses. SurveyMonkey sends invitations to respondents and gathers data on behalf of researchers (SurveyMonkey, 2018a). SurveyMonkey stored respondents and my personal information on their servers.

SurveyMonkey (2018a) records respondent IP addresses in backend logs and deletes them after 13 months. I did not have access to the IP addresses and any personal information of participants. SurveyMonkey has standard contractual clauses approved by the European Commission and international group companies to ensure the safe transfer of personal information. SurveyMonkey is certified and compliant with the EU-US Privacy Shield Framework and Swiss-US Privacy Shield Framework, which provides a way to transfer personal information of respondents safely and securely to the US and is certified by the Department of Commerce's Privacy Shield list (SurveyMonkey, 2018a).

According to SurveyMonkey (2018c), IP addresses can be traced to a single device, proxy server, or group of devices on the same network and not traced to a person. When participants proceed with a survey, the IP address is recorded as metadata with SurveyMonkey by default (SurveyMonkey, 2018c). The survey was anonymous, and I did not have access to any IP addresses. The ethical protection of participants is adequate, and participants' privacy and data are kept secure with SurveyMonkey (SurveyMonkey, 2018c).

The survey did not include any offensive or threatening materials, topics, or language that might cause psychological risks. I had no ties or relationships with participants, which helped curb any possible study bias emerging due to such risks. I had no direct communication or contact with any of the participants. Respondents did not disclose any legal information on their economic or professional status; the study participants faced no potential legal, financial, or occupational risks. During the survey, the respondents' comfort was not put in jeopardy. Only adults who have attained the age

of 18 and older were able to participate in the study. Participants who worked either full-time or part-time as project managers in the IT industry were part of the survey. I did not pressure participants to force them to undertake the survey and participate in the research study. Potential respondents who receive notification for the survey make independent decisions to participate voluntarily in the study (Harriss et al., 2017). I will store participant survey responses on a USB flash drive for 5 years after completing the study to ensure and protect the confidentiality of participants. Data will be deleted from the computer and deleted from the USB by formatting the device.

Data Collection Instruments

PIP is the instrument I used for my research to measure PS. Pinto and Slevin (1988) developed the PIP instrument in 1988 to deal with relationships and measure PS. Project managers use different techniques for measuring PS, including PIP, critical path analysis, flow chart diagram, Gantt chart, and program review techniques (Slevin & Pinto, 1986). Slevin and Pinto (1986) developed the PIP to improve PS using 13 specific PS questions.

Slevin and Pinto (1986) researched topics related to PS and CSFs and broadened their research to assess aspects and factors to help project managers determine if their projects were successful. PIP includes many advantages for assessing PS compared to other instruments and overcomes the weaknesses of different tools used in measuring PS by filling the gaps (Hosford, 2017). PIP was used by many project managers to systematically monitor successful factors concerning their specific projects (Slevin & Pinto, 1986). According to Pinto and Slevin (1988), users can use the PIP instrument to

measure PS by determining the survey score. According to Gadison (2016), researchers used the PIP instrument for Likert-type questions on a 7-point ordinal scale to measure success. Previous authors, such as Hosford (2017) and Gadison (2016), used PIP to measure PS by posing a questionnaire to participants. The rating of each question on the PIP is on a Likert ordinal scale from 1 to 7, where the scale one means participants *strongly agree*, and seven being *strongly disagreed* (Mazur et al., 2014).

PIP was the best instrument for this study because I used it to measure PS and assess if a relationship existed between the independent and dependent variables. In the PIP, participants indicated their responses to the instruments based on an ordinal Likert-type 7-point scale, which included strongly disagree, disagree, neither agree nor disagree, agree, strongly agree. Respondents who receive Likert type questions seem to understand and provide useful answers (Croasmun & Ostrom, 2011). PIP included survey questions that are informal, formal, technology, and knowledge assimilation at an interval scale using the seven scales. In measuring PS, I adopted PIP that involved 13 Likert scale questions ranked under the seven-ordinal scale. SurveyMonkey included PIP questions for respondents to answer the survey. The length of the survey was short enough that it took the average user less than 5 minutes to complete the survey. Respondents had at least 15 minutes to answer the entire survey. Participants spend 21 seconds on average to answer one survey question (Lohse et al., 2017).

Researchers can calculate the PIP scoring by summing the rating of all the survey questions (Pinto & Slevin, 1988). There were 13 questions on the survey. Respondents rated each question between 1 and 7. The higher the PIP score, the higher the success rate

or percentile. The highest score on the survey was rated as 91 or 100th percentile if all questions were rated 7. When the total score of the survey was below 45 or 50th percentile, the project was considered a failure. When the survey score was above 73 or 80th percentile, the project was considered a success. When the score was between 45 and 73, the project was neutral. If the score is less than the 50th percentile, PS is critical (Pinto & Slevin, 1988). I used the percentile and score to determine PS.

The PIP is an existing instrument used as a project management evaluation tool proven to be trusted and very reliable (Slevin & Pinto, 1986). Researchers use the PIP instrument because of the satisfactory results they can achieve in their research (Hosford, 2017). According to Sava (2016), the PIP instrument was previously used by scholars, which attracted over 100 project managers working in the IT sector and members of PMI. I used the PIP instrument and measured PS by a seven-point Likert scale ranging from highly disagree to highly agree. The higher scores represented more positive attitudes toward PS. According to Larson-Hall and Plonsky (2015), researchers use descriptive statistics to describe the data set, mean, and data variability. I used a demographic questionnaire (Appendix B) to collect data relating to my dependent variables. I applied statistics to determine the data set, mean, and variability of data to estimate the average trend of the data. I displayed the sample size, average age, gender distribution, years of experience, and standard deviation for the rate of PS.

According to Slevin and Pinto (1986), the PIP instrument is valid and reliable, and many researchers use the instrument to collect data from project managers. Many researchers used the PIP survey instrument to collect data on variables from a sample of

project managers (Finch, 2003). Cronbach alpha demonstrates a measure of the internal consistency of the instrument, and alpha ranges between 1 and 0 (Sharma, 2016).

According to Choshin and Ghaffari (2017), a Cronbach alpha over .70 is acceptable. Sava (2016) asserted that PIP has a published reliability score of over .70. Mazur et al. (2014) conducted a study relating to PS, and the PIP instrument had a reliability of .93. I used the original PIP instrument without making any modifications to the instrument. I requested permission from the developers of the instrument, Dr. Pinto and Dr. Slevin, to use the instrument for my research (Appendix A). If any participant or entity requests to view the raw data, they can request it by contacting me noted on the consent form.

Data Collection Technique

Web-based surveys emerge as a modern data collection method since researchers can obtain data collection faster with ease and convenience compared to other data collection methods (Couper, 2017). I conducted data collection through SurveyMonkey Audience to reach out to participants. SurveyMonkey Audience is a paid service through SurveyMonkey that enables researchers to use additional features such as selecting participants based on demographics and selection criteria (SurveyMonkey, 2018b). The research was quantitative, and I used a reliable and valid instrument for the survey questions. The first step for using SurveyMonkey Audience was to identify the demographic information (Appendix B). The survey results automatically included participants' age, gender, and range bracket, indicating respondents' years of experience. The survey was in English because the targeted location was the United States. During

data collection, participants accepted the SurveyMonkey Audience invitation and read the informed consent form before agreeing to proceed with the survey. In my study, I did not use the free version of SurveyMonkey. I subscribed to a paid service named SurveyMonkey Audience because the process was secure and because of the convenience of finding available participants to meet the selection criteria. SurveyMonkey Audience is a paid service through SurveyMonkey that enables researchers to use additional features such as selecting participants based on demographics and selection criteria (SurveyMonkey, 2018b).

Participants were automatically targeted based on the criteria I inputted into SurveyMonkey Audience, which included (a) project managers that were 18 years or older at the time of the survey, (b) project managers that have completed projects in the IT industry, and (c) project managers from the United States. I used SurveyMonkey to administer the questionnaire and used the paid service named SurveyMonkey Audience to select participants based on the selection criteria. Eligible participants received an invitation online containing the instructions on how to complete the survey. Researchers use SurveyMonkey to gain access to millions of participants (SurveyMonkey, 2018a). SurveyMonkey Audience is a paid service through SurveyMonkey that enables researchers to use additional features such as selecting participants based on demographics and selection criteria (SurveyMonkey, 2018b). I used SurveyMonkey Audience, a paid service through SurveyMonkey, to reach out to eligible participants and economical compared to the other survey services. Researchers can add prequalifying questions on SurveyMonkey to qualify and disqualify participants based on eligibility

criteria (SurveyMonkey, 2018d). I ensured participants met the eligibility criteria by inputting prequalifying questions on SurveyMonkey Audience before they proceeded to the survey. If participants selected an answer that was not within the eligibility requirement, they were automatically disqualified from taking the survey.

Collecting data online through an online service can have advantages and disadvantages (Rice et al., 2017). The advantages of using SurveyMonkey included time efficiency and convenience of collecting data. SurveyMonkey is user-friendly; researchers and respondents can log in to the webpage to complete a data survey at any time (SurveyMonkey, 2018a). According to Rice et al. (2017), some of the advantages of using an online survey are the access to the required populations, larger sample sizes, a more balanced ratio of genders, lower cost, more timely data collection, reliable data, and anonymity of participants.

Online survey through SurveyMonkey also has disadvantages. One disadvantage of web surveys is the low response rate (Petrovčič et al., 2016). I reduced this by using a paid service through SurveyMonkey called SurveyMonkey Audience, which I reached out to members who qualify to be participants based on the researcher's criteria, which included (a) project managers that were 18 years or older at the time of the survey, (b) project managers that have completed projects in the IT industry, and (c) project managers from the United States. Researchers use SurveyMonkey Audience, a paid service through SurveyMonkey, to target specific participants based on specific demographics and eligible criteria (SurveyMonkey, 2018b). Varela et al. (2106) conducted research based on the disadvantages of using SurveyMonkey. The findings

showed that researchers that used SurveyMonkey for data collection lacked the opportunity to meet with respondents (Varela et al., 2016). The findings showed that surveys are prone to error, where respondents answered untruthfully or made inaccurate assumptions. Researchers can face limited sampling and respondent availability during data collection because of the low response rate, which could take longer than normal (Varela et al., 2016). A disadvantage for respondents that partake in online surveys is that they need to have advanced technical skills using a computer (Zhang, 2000).

After IRB approval, I used the PIP instrument for question development of the survey. I also obtained permission from the authors to use the instrument (Appendix A). The collection account was validated using a pilot test. I piloted the survey to be sent to me initially to check the quality of the survey and test the questionnaire. I ensured the informed consent form was displayed before starting the survey. Conducting a pilot test by testing the survey process is considered essential to ensure the quality, accuracy, and process of the survey (Wang & Reio, 2017). I uploaded the research questions on SurveyMonkey and included the participants' eligibility requirements before submitting the survey to participants.

I used SurveyMonkey to gather information from participants. Researchers will receive a notification email from SurveyMonkey every time a response is submitted and when the required number of responses are received (SurveyMonkey, 2020a). I conducted daily checks to ensure the flow of responses was coming in from SurveyMonkey. After finishing data collection and achieved the required participants, the survey was closed. Results did not include participants that missed a question.

SurveyMonkey will exclude participants that miss any survey question (SurveyMonkey, 2020b). I downloaded only completed surveys, and I proceeded to download all responses for analysis and reviewed the questionnaires to ensure all questions were filled and answered.

Data Analysis

The objective of this quantitative correlational study was to examine the relationship between the independent and dependent variables. Independent variables include PMG, PMY, PMA. The dependent variable was PS. I analyzed the data in this study to answer the following research question and test the hypotheses:

What is the relationship, if any, between PMG, PMY, PMA, and PS in the IT industry?

H_0: There is no relationship between PMG, PMY, PMA, and PS in the IT industry.

H_1: There is a relationship between PMG, PMY, PMA, and PS in the IT industry.

Statistical Analysis

There are two types of regression techniques, which are simple linear regression and multiple linear regression. Researchers use linear regression to understand the mean change in a dependent variable, given a one-unit change in each independent variable (Hayes & Montoya, 2017). According to Hayes and Montoya (2017), simple linear regression is a linear regression model with a single explanatory variable. Linear regression analysis is appropriate when a researcher seeks to examine the linear relationship between the dependent and independent variables, and simple linear

regression is appropriate when the outcome variable relates to a single predictor variable (McNeish & Stapleton, 2016). Linear regression analysis was not appropriate because this study included more than one predictor variable.

Many researchers use multiple regression methods to determine the extent of relationships between variables (Plonsky & Oswald, 2017). Researchers use multiple regression as a statistical method to predict the value or assess a relationship between a dependent variable based on the values of two or more independent variables (Halls & Randall, 2018). I used multiple regression to examine if a relationship existed between the dependent variable and independent variables. I conducted multiple assumptions on the data. I used SPSS to conduct the analysis and to determine the results. I assessed eight assumptions. I evaluated the type of dependent and independent variables, assumptions of independence of residuals, linearity, homoscedasticity, multicollinearity, outliners, and normality. According to Plonsky and Ghanbar (2018), the multiple regression assumptions are multicollinearity, normality, linearity, homoscedasticity, and independence of residuals. Before assessing the existence, strength, and direction of the relationship between the variables, I examined the type of variables.

Data Cleaning and Missing Data

For data cleaning and screening procedures, I downloaded the data from SurveyMonkey onto my computer system and used SPSS software for the data analysis to ensure there were no errors or mistakes. I inputted the data into Excel to conduct the data cleaning and screening process on the collected data and eliminated discrepancies. I did not capture any errors because participants couldn't submit the survey unless all the

survey questions were answered. I checked and ensured the data are vigorous and uploaded to SPSS. Researchers use SPSS software for faster processing of the survey results (Piria et al., 2018). I used SurveyMonkey's software to record all responses and exported the data to Excel. I applied a consistent and arbitrary unique id code for each response to maintain anonymity. Researchers can use the automated feature in SPSS to identify any missing data (Hu et al., 2017).

The survey responses that did not qualify were counted as elimination. Researchers can eliminate data by checking responses that contain errors or missing data for a survey (Mukerjee & Prasad, 2017). According to Fatima et al. (2017), researchers use data cleaning by screening, detecting, and managing missing or corrupt data by eliminating the data. Since the questions were Likert-type questions, the survey was only considered complete when respondents completed all the questions. I provided participants enough time to read and answer the survey.

Statistical Analysis Assumptions

For multiple regression, I assessed eight assumptions. I evaluated the type of dependent and independent variables and conducted an analysis on the assumptions of independence of residuals, linearity, homoscedasticity, multicollinearity, outliners, and normality. According to Plonsky and Ghanbar (2018), the multiple regression assumptions are multicollinearity, normality, linearity, homoscedasticity, and independence of residuals. The assumptions were assessed to assess the type of dependent and independent variables, followed by assessing the independence of residuals, linearity, homoscedasticity, multicollinearity, outliners, and normality.

The first analysis I undertook is to identify the type of dependent variable. The dependent variable in this research was PS. PS numeric measured on a continuous scale. The variable was a ratio figure which indicated the rate of success for each participant. The values varied for each participant representing the success rate on a scale measurement, which represented the percentage success rate for each participant. The rates varied from 0.54 to 1, which represented the percentage of success.

The second analysis included the type of independent variables. The independent variables were PMG, PMY, and PMA. PMG was a nominal categorical variable having two categories, male and female, with no intrinsic ordering to the categories. PMG was a dichotomous variable with two categories, male and female. Male was coded as one and female as zero.

PMY and PMA were ordinal variables. PMY and PMA variables both had categories and were ordered by years of experience and age, respectively. Researchers can test ordinal variables with a common statistical framework (Williams, 2020). During analysis, researchers can assign numbers to objects so that the numerical relations reflect the empirical relations by always assigning the higher number to the heavier object (Konerding, 2020). The independent variable PMA being ordinal was coded to numeric by assigning a higher number to the highest age. PMY was ordinal and was converted to numeric by assigning the highest number to the highest years of experience.

The third analysis was to check the independence of residuals. Independence of residuals refers to the assumption that errors are independent of one another (Lewis-Beck & Lewis-Beck, 2015). When the assumption is violated, the independence of residuals

will show estimates of the regression coefficient, causing inaccurate results (Chen et al., 2018). I verified the assumption of independence of residuals by plotting and viewing the P-P and scatter plots. I also checked using the Durbin-Watson statistic, a test I carried out using SPSS Statistics. The Durbin-Watson statistic ranges between 0 and 4, and a value of 2 means that there is no autocorrelation detected in the sample (Rivel & Yirong, 2020). I calculated Durbin-Watson using SPSS, and the value was 2.062, indicating no autocorrelation in the sample.

The fourth analysis was to check for linearity. Linearity assumption means there is a linear relationship between independent and dependent variables when the dependent variable changes because of a change from one or more independent variables (Bangdiwala, 2018). Researchers use scatterplots to visually test the presence of linearity and homoscedasticity (Yu et al., 2020). I used the linear multiple regression random model function and sketched a scatterplot to check for any existence of linearity by visually inspecting the scatter diagram. From the scatterplot, there was a partial indication of linearity. I also tested normality by plotting partial regression plots using SPSS Statistics and visually inspected the scatterplots, which showed a linear relationship between the dependent variable and each of the independent variables whereby the dots align relatively on the diagonal straight lines, depicting that the data assumed normality. Therefore, the model did not violate the normality assumption.

The fifth analysis was determining if the data showed homoscedasticity. Homoscedasticity is where the dependent and independent variables' data values have equal variances (Zolna et al., 2016). I used the scatterplot in SPSS to determine if any

homoscedasticity existed by examining the variance of errors and checked if they were equal at each level of the independent variable. The absence of the homoscedasticity assumption increases the possibility of a Type I error, and a clear pattern in the scatterplot of the standardized residuals supports the homoscedasticity assumptions (Chang et al., 2017). To test for homoscedasticity, I used a scatterplot diagram and visually checked the chart to confirm there was no rectangular shape. Data points were randomly distributed, showing no curvature, and having a mean of zero demonstrates the realization of this assumption. According to Won et al. (2017), researchers use scatterplot diagrams to assess homoscedasticity, and a rectangular fashion is enough to assume it exists. Because there was no rectangular fashion shape, the data points were also randomly distributed, showing no curvature, and having a mean of zero demonstrates the realization of this assumption.

The sixth analysis was to determine if multicollinearity existed. Multicollinearity occurs when there are high intercorrelations or inter-association among independent variables (McClelland et al., 2017). Users can detect multicollinearity through the variation inflation factor (VIF) or scatterplots, and a VIF of one would indicate no correlation between variables, and a VIF of under 10 for any variable is acceptable (Vatcheva et al., 2016). The VIF values for the independent variables were all below 10, which indicated they were within the acceptable parameters, showing no multicollinearity. I concluded multicollinearity did not exist because the values were above one and less than 10.

The seventh analysis was to check the data had no significant outliers and highly influential points. Outliers can affect the intercept or the slope of the regression line when the intercept crosses the Y-axis at a lower or higher point (Johansen & Nielsen, 2016). Scatterplots are normally examined and scrutinized by researchers to determine outliers in data sets (Green & Salkind, 2016). I used scatterplots and conducted analytical procedures to detect any outliers. I evaluated outliers by reviewing Cook's distance. According to Menzel et al. (2017), if Cook's distance is less than one, then researchers do not have to remove outliers in their analysis. The residual statistics showed Cook's range at 0.143 and a mean of 0.012, which is higher than three times the average. However, the maximum value (0.143) was less than 0.5, indicating that the variable did not have outliers that would have undue influence on the model. I also confirmed that there were no outliners by visually inspecting the scatterplot. I also conducted further tests to consider whether I needed to apply the bootstrapping technique in extreme signs of outliners. I did not have to implement bootstrapping because the results did not show extreme signs of outliners. Bootstrapping is a statistical technique of resampling the original sample widely used in statistics to address data assumption violations (Warton et al., 2017).

The eighth and final assumption was to determine if the residuals were normally distributed. Normality refers to the normal distribution and clustering state of the data around the mean (Schmidt & Finan, 2018). Users can test data for linearity by visually examining the scatterplots, and a normally distributed variable is bell-shaped on the histogram (Jeong & Jung, 2016). I plotted a histogram to test for normality, and the

normally distributed attributes revealed a perfect belled-shaped curve. The results showed that the variable project manager's success rate had a normal distribution described by the bell-shaped. Therefore, the model did not violate the normality assumption. When violations of normality are present, researchers should examine the distribution of the residual plots (Kozak & Piepho, 2018). I did not have to plot a residual plot to identify violations of normality.

Bootstrapping is a statistical technique of resampling the original sample widely used in statistics to address data assumption violations (Warton et al., 2017). I did not face any violations of the assumptions, so using Bootstrap was unnecessary for this research. According to Hayes and Montoya (2017), Bootstrap provides an efficient way to overcome the violations by resampling the data. According to Hayes and Montoya (2017), researchers use bootstrapping in SPSS to increase accurate analysis despite assumption violation. Bootstrapping is an efficient way to overcome the violations by resampling the data and providing information through bootstrap factor analysis (Hayes & Montoya, 2017).

Interpretation of Inferential Results

Respondents rated each question on the survey between 1 and 7. The higher the rating was, the higher the success rate. Respondents scored the survey a maximum of 91 when all questions were rated 7. Percentile at 50th meant project failure when the score was below 45. Percentile between 50th and 80th meant neutral when the score was between 45 and 73. Percentile above 80th meant the project was a success when the score was above 73. I used multiple linear regression random sampling. I ran the SPSS

computer package to test and determine if a relationship existed between the dependent and independent variables. A summary table of the multiple regression SPSS outputs enabled me to interpret the coefficient of determination. R2 falls between 0 and 1, where the value 1 means a strong relationship exists between the variables (Zhang, 2017). R2 gives the proportion of variation in the dependent variable that can be explained by the independent variables (Hamilton et al., 2015). The value of R2 showed a value of 0.035, which indicated that only 3.5 % of the variation in PS being the dependent variable was explained by the variation in the independent variables being PMG, PMY, and PMA.

I used the SPSS analysis to show descriptive statistics of the variables in the survey. I explained descriptive statistics such as frequencies, means, variances, and standard deviation by using Excel and SPSS output. I showed the distribution of the data and presented the results on tables, charts, and graphs. My analysis showed no relationship between the variables. I rejected the alternative hypothesis (H1) and accepted the null hypothesis (Ho), implying no statistical relationship between the dependent and independent variables. I conclude that PMG, PMY, and PMA in the IT industry do not predict PS.

Study Validity

Types of validity include internal and external validity (Crano, 2019). Internal and external validity are concepts that reflect whether the results of a study are trustworthy and meaningful (Quaife et al., 2018). Various internal and external factors can hinder and threaten the study outcomes, and study validity is also subject to statistical conclusion validity (Kratochwill et al., 2018).

Internal Validity

Internal validity is the approximate truth about inferences regarding cause-effect or causal relationships (Crano, 2019). Internal validity is only relevant in studies in which researchers seek to examine causal relationships through experiments or quasi-experimental designs (Pattison et al., 2019). Because I did not examine relationships through experiments or quasi-experimental designs, I can conclude that threats to internal validity did not exist in this study.

I did not use a quasi-experimental, experimental, and non-experimental research design and instead used a non-experimental correlational design study to conduct analysis. In the non-experimental analysis, researchers cannot determine the effect of the independent variables on the dependent factors (Bujang et al., 2017). Through correlation, I identified the relationship between the dependent and independent variables. A threat to statistical conclusion validity is when the sampling procedure and sample size are not random, and the researcher adopts a probabilistic approach (Sim et al., 2018). This study included three statistical validity types that are: using a reliable instrument, data assumptions, and using an appropriate sample size. Factors that hinder the validity of a study include maturity rate, sample selection, type of instrument, and the method of analysis (Lonati et al., 2018).

I used an existing instrument that was valid, reliable, and endorsed by other researchers to increase internal validity. Researchers that use a valid and reliable instrument increase credibility and self-assurance and are more confident and certain with their research outcomes (Robinson & Randall, 2017). In quantitative studies, researchers

that use a reliable instrument present repeatability, reliability, and validity (Rubin & Babbie, 2016). Researchers using an existing instrument should ensure they use an instrument with previous successful records (Cypress, 2017). To ensure the instrument was valid and reliable, the strategy I used was checking scholars that used the instrument in previous studies, which confirmed the instrument was valid and reliable. I also obtained permission from the authors to use the instrument (Appendix A). Previous scholars that used the PIP instrument reported it as valid and reliable (Mazur et al., 2014).

Data assumptions are the appropriateness of choosing data for examining the relationship between the variables (Flatt & Jacobs, 2019). Many researchers use assumptions when conducting statistical tests, which could lead to inaccurate findings and inflated Type I or Type II errors (Greenland et al., 2016). Most researchers operate under certain assumptions to obtain valid results. The five multiple regression assumptions are multicollinearity, normality, linearity, homoscedasticity, and independence of residuals (Plonsky & Ghanbar, 2018).

For multiple regression, I assessed eight assumptions. I evaluated the type of dependent and independent variables and the assumptions of independence of residuals, linearity, homoscedasticity, multicollinearity, outliners, and normality. The first analysis was to identify and input the dependent variable as a ratio figure, which indicated each participant's success rate. The independent variables PMG, PMY, and PMA were ordinal, and the data in SPSS were numeric. The third analysis was to check the independence of residuals. I used Durbin-Watson to check the independence of residuals using SPSS, and the value was 2.062, indicating no autocorrelation in the sample.

The fourth analysis was to check for linearity. Researchers use scatterplots to visually test the presence of linearity and homoscedasticity (Yu et al., 2020). I sketched a scatterplot in SPSS to check for linearity by visually inspecting the scatter diagram. From the scatterplot, there was a partial indication of linearity. I also tested normality by plotting partial regression plots using SPSS Statistics and visually inspected the scatterplots, which showed a linear relationship between the dependent and independent variables.

The fifth analysis was determining if the data showed homoscedasticity. When data includes homoscedasticity, the dependent, and independent variables' data values have equal variances (Zolna et al., 2016). I used the scatterplot in SPSS to determine if any homoscedasticity existed by examining the variance of errors and checked if they were equal at each level of the independent variable. I used the scatterplot in SPSS to determine if any homoscedasticity existed by examining the variance of errors and checked if they were equal at each level of the independent variable. I also checked if a rectangular fashion shape appeared enough to assume it exists. According to Won et al. (2017), researchers use scatterplot diagrams, and a rectangular fashion was enough to assume it existed. In the plot, I did not see a rectangular fashion shape. The data points were also randomly distributed, showing no curvature, and having a mean of zero demonstrates the realization of this assumption.

The sixth analysis was to determine if multicollinearity existed. I checked if any multicollinearity existed by plotting a scatterplot. Multicollinearity occurs when there are high intercorrelations or inter-association among independent variables (McClelland et

al., 2017). Users can detect multicollinearity through the VIF or scatterplots (Vatcheva et al., 2016). The VIF values for the independent variables were all below 10, which indicated they were within the acceptable parameters, showing no multicollinearity. I concluded multicollinearity did not exist because the values were above one and less than 10.

The seventh analysis was to check the data had no significant outliers and highly influential points. I used scatterplots and conducted analytical procedures to detect if outliers exist. Outliers can affect the intercept or the slope of the regression line when the intercept crosses the Y-axis at a lower or higher point (Johansen & Nielsen, 2016).

According to Menzel et al. (2017), if Cook's distance is less than one, then researchers do not have to remove outliers in their analysis. The residual statistics showed Cook's range at 0.143 and a mean of 0.012, which is higher than three times the average. However, the maximum value (0.143) was less than 0.5, indicating that the variable did not have outliers that would have undue influence on the model. The eighth and final assumption was to determine if the residuals were normally distributed). Users can test data for linearity by visually examining the scatterplots, and a normally distributed variable is bell-shaped on the histogram (Jeong & Jung, 2016). I tested normality using the standard P-P plot whereby the dots align relatively on the diagonal straight lines, depicting that the data assumed normality. Therefore, the model did not violate the normality assumption.

Researchers sometimes resort to assumptions to prove a theory is accepted when, in fact, it is challenging to prove if the results are true or false. In this study, I included

the following assumptions (a) The potential respondents from SurveyMonkey pool selection gave accurate and transparent information during the data collection exercise, (b) The number of respondents in SurveyMonkey selection were statistically significant and corresponded to the target population, (c) All the respondents were deemed as computer literate and had computer access to complete the survey, (d) Respondents had the necessary webpage logins and internet skills to enable them to complete the survey accurately, (e) SurveyMonkey selected respondents randomly to complete the survey, (g) The characteristics of the respondents were constant during the entire survey period to avoid fluctuation of the data, (h) Respondents were anonymous and had no interaction amongst each other, and took the survey independently.

I relied upon the respondents' coordination to provide truthful information during the completion of the survey questionnaire and checked the data results. Using data analysis, I showed the variation between age, gender, year of experience, and PS related to the IT industry. I provided respondents with enough time to fill out the survey. Respondents had 15 minutes to complete 13 questions and complete the survey at their earliest convenience. Respondents were free to participate voluntarily, which led participants interested in the study to participate. Participants were able to withdraw at any time during the survey. They also had the option to opt-out at the start by rejecting the terms and conditions. The withdrawal procedure was simple, and participants were free to withdraw from the survey. For a valid study, I included participants across the United States to partake in the survey. I also ensured the results and interpretations of the study findings were not biased. To portray and ensure internal validity was applied, I

reviewed similar surveys conducted previously and compared results by analyzing the data.

External Validity

For external validity, I considered the following factors: sampling technique, sample size, statistical power, data analysis, and reliability of the respondents. External validity is determined by how the findings in a sample can be generalized to the population (Leviton, 2017). One way to reduce the threat to external validity is by applying random sampling from the population because researchers can achieve a proper sample representation of the population (Lesko et al., 2017). I applied random sampling to achieve a proper sample representation of the population, and the representation enhanced the external validity and generalizability of research results. If the sample size represents the total population, the results will show the conclusion of the entire population (Bodenhorn et al., 2017). I determined the study sampling size using the probability error of margin of 5%, 0.13 effect size, and 0.95 for a confidence level. External validity involves generalizations of the study sample results to the overall population and other studies (Cohen, 2018).

After conducting a G*power multiple regression random sample, the estimated required sample size was 56. To increase the accuracy of this study, I inflated the sample size number to 105 participants. I collected data, analyzed the conclusive results, and determined if they were valid to address the hypothesis questions showing no relationship between the variables. SurveyMonkey Audience randomly selected participants through the selection process. Through random selection, I achieved equality in the distribution of

the characteristics of the respondents. I increased the sample size in this study to respondents who wish to drop out from completing the survey. Using the power and logic function to calculate sample size, researchers can increase validity in their study (Gürbüz et al., 2019). I adopted SurveyMonkey, where respondents were chosen randomly for the investigation to achieve external validity. Even though the respondents qualified to take the survey, some failed to participate in the survey as participation was voluntary. I also reduced the threat of external validity by including a proper sample selection, which included (a) project managers that were 18 years or older at the time of the survey, (b) project managers that have completed projects in the IT industry, and (c) project managers from the United States.

Transition and Summary

In section 2, I included the contents relevant to quantitative research. Section 2 included the purpose statement, the role of the researcher, participants, research method, research design, population and sampling, ethical research, data collection instruments, data collection techniques, data analysis, and study validity. In Section 3, I included the study results and presentation of the finding, application to professional practice, implications for social change, recommendations for action, recommendations for further research, reflections, and conclusions.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this quantitative, correlational study was to examine whether a relationship exists between PMG, PMY, PMA, and PS in the IT industry. The population of the study consisted of IT project managers from the United States. There were 105 IT project managers from SurveyMonkey Audience who responded to the online survey distribution platform. Multiple regression analysis indicated there is no statistically significant relationship in PS (3.5%) among PMG, PMY, and PMA (PS = - 0.016PMG - 0.002PMY - 0.024PMA + 0.841).

This section includes a discussion of the results of the study and findings relative to the research question and hypotheses. Section 3 also includes applications to professional practice, a detailed discussion on the applicability of the findings, and implications for social change in terms of tangible improvements to individuals, communities, and organizations. Finally, I include recommendations for action and future action related to improved practices in business.

Presentation of the Findings

In this subsection, I discuss testing of the assumptions, which included the assumptions of multiple regression. I present descriptive statistics, including analysis of the data and the values of mean and standard deviation. I also include the inferential statistic, which includes the multiple regression analysis to test the hypothesis. Finally, I include a theoretical conversation about the findings. I conclude with a concise summary

highlighting the test results showing why I failed to reject the null hypothesis implying no statistical relationship exists between the dependent and independent variables.

Tests of Assumptions

For multiple regression, I assessed eight assumptions: type of dependent variable, type of independent variables, independence of residuals, linearity, homoscedasticity, multicollinearity, outliners, and normality. I included 105 participants in my analysis. When all regression analysis assumptions are met, it will lead to accurate conclusions (Daoud, 2017). All assumptions have been met, and I did not face any violations in these assumptions.

Type of Dependent Variable

The first analysis I undertook was to identify the type of dependent variable. The dependent variable in this research was PS measured on a continuous scale. The variable was a numeric (ratio) figure, which indicated the PS rate for each participant. The values varied for each participant representing the PS rate on a scale measurement, representing each participant's PS rate. The rates varied from 0.54 to 1, which represented the percentage of success.

Type of Independent Variables

The second analysis included the type of independent variables. The independent variables were PMG, PMY, and PMA. PMG was a nominal categorical variable with two categories: male and female, with no intrinsic ordering. PMG was a dichotomous variable with two categories, male and female. In SPSS, I coded male as one and female as zero. Categorical independent variables in the regression analysis involve applying coding

methods in numerical values (Alkharusi, 2012). PMG was numeric, where one represented female and two represented males. PMY and PMA were ordinal variables. PMY and PMA variables both had categories and were ordered by years of experience and age, respectively. Researchers can test ordinal variables with a common statistical framework (Williams, 2020). During analysis, researchers can assign numbers to objects to reflect the empirical relations by always assigning the higher number to the heavier object (Konerding, 2020). The independent variable PMA being ordinal was coded to numeric by assigning a higher number to the highest age. PMY was ordinal and numeric in SPSS by assigning the highest number to the highest years of experience. The results of the analysis showed no relationship exists between the dependent and independent variables.

Independence of Residuals

The third analysis was to check the independence of residuals. Independence of residuals refers to the assumption that errors are independent of one another (Lewis-Beck & Lewis-Beck, 2015). When the assumption is violated, the independence of residuals will show estimates of the regression coefficient, causing inaccurate results (Chen et al., 2018). I verified the assumption of independence of residuals by plotting and viewing the P-P and scatter plots. I also checked using the Durbin-Watson statistic, a test I carried out using SPSS Statistics. The Durbin-Watson statistic ranges between 0 and 4, and a value of 2 means that there is no autocorrelation detected in the sample (Rivel & Yirong, 2020). I calculated Durbin-Watson using SPSS, as seen in Table 1, and the value was 2.062, indicating no autocorrelation in the sample.

Table 1

Independence of Residuals showing Durban Watsons

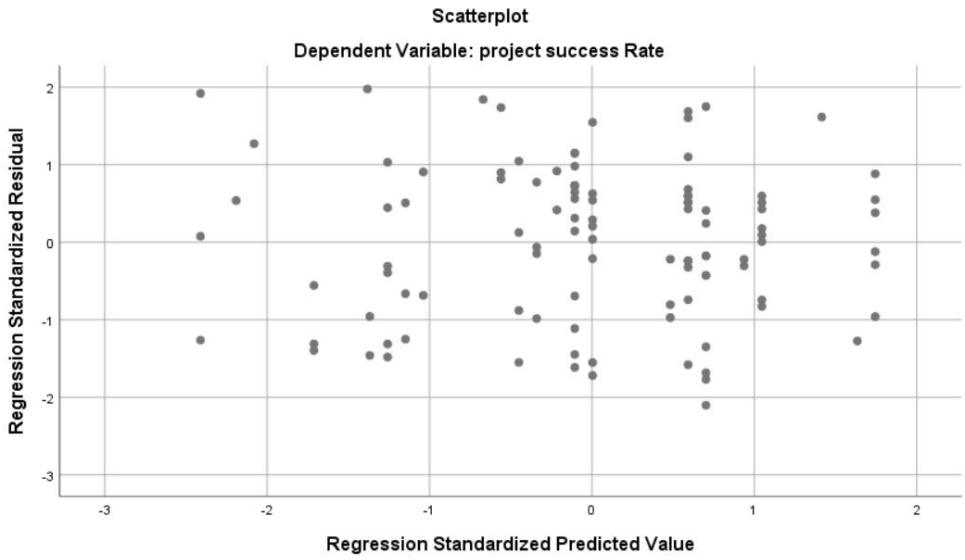
Model	Std Error of the estimate	Durbin-Watson
1	.11941	2.062

Linearity

The fourth analysis was to check for linearity. I evaluated linearity using a scatterplot. Figure 3 shows the scatterplot that illustrates the spread of data based on standardized residual and standard predicted values used to examine the linearity test. Researchers use scatterplots to visually test the presence of linearity and homoscedasticity (Yu et al., 2020). Data showed that there was no violation of the linearity assumption (see Figure 3). The plot of residual fit the expected pattern well enough to support the claim that the residual was normally distributed, and the points do not lie on a curve around zero, rather than fluctuating randomly, which satisfied the linearity assumption. I also tested normality by plotting partial regression plots using SPSS Statistics and visually inspected the scatterplots, which showed a linear relationship between the dependent variable and each of the independent variables whereby the dots align relatively on the diagonal straight lines, depicting that the data assumed normality. Therefore, the model did not violate the normality assumption.

Figure 3

Scatterplot of Regression Standardized Residuals



Homoscedasticity

The fifth analysis was determining if the data showed homoscedasticity. Like linearity, I tested homoscedasticity by using a scatterplot (see Figure 3). When data include homoscedasticity, the dependent and independent variables' data values have equal variances (Zolna et al., 2016). Homoscedasticity or error variance is an assumption used by many researchers and is detected by plotting the residuals data against predicted values (Yang & Mathew, 2018). Data in Figure 3 show that there was no violation of the homoscedasticity assumption. Researchers use scatterplot diagrams to assess homoscedasticity, and a rectangular fashion is enough to assume it exists (Won et al., 2017). Because there was no rectangular fashion shape, the data points were also randomly distributed, showing no curvature with a mean of zero demonstrating the realization of this assumption.

Multicollinearity

The sixth analysis was to determine if multicollinearity existed. I evaluated multicollinearity by viewing the correlation coefficients among the predictor variables. Researchers use correlation coefficients analysis to examine the potential relationship between the study predictor variables, and multicollinearity issues are determined by coefficient analysis (Thompson et al., 2017). All correlation coefficients had a VIF score below 10, as seen in Table 2. Values lower than .10 and higher than 10 show high collinearity in the data (Gómez et al., 2016). The VIF values were within the acceptable parameters, showing no multicollinearity.

Table 2

Tolerance and VIF of Independent and Dependent Variables

Variable	Collinearity Tolerance	Statistics VIF
PMA	0.736	1.359
PMG	0.998	1.002
PMY	0.735	1.361

Outliers

The seventh analysis was to check the data had no significant outliers and highly influential points. I evaluated outliers by reviewing Cook's distance (see Table 3). If Cook's distance is less than 1, then researchers do not have to remove outliers in their analysis (Menzel et al., 2017). Researchers can test to check for outlier's in a multiple regression model by examining Cook's distance that detects the presence of a significant point in the data (Eisazadeh et al., 2017). Table 3 illustrates the residual statistics from the multiple regression model. Based on the table, Cook's range = 0.143 and a mean of

0.012, which is higher than three times the average. However, the maximum value (0.143) was less than 0.5, indicating that the variable did not have outliers that had undue influence on the model. The results showed normality was not violated.

Table 3

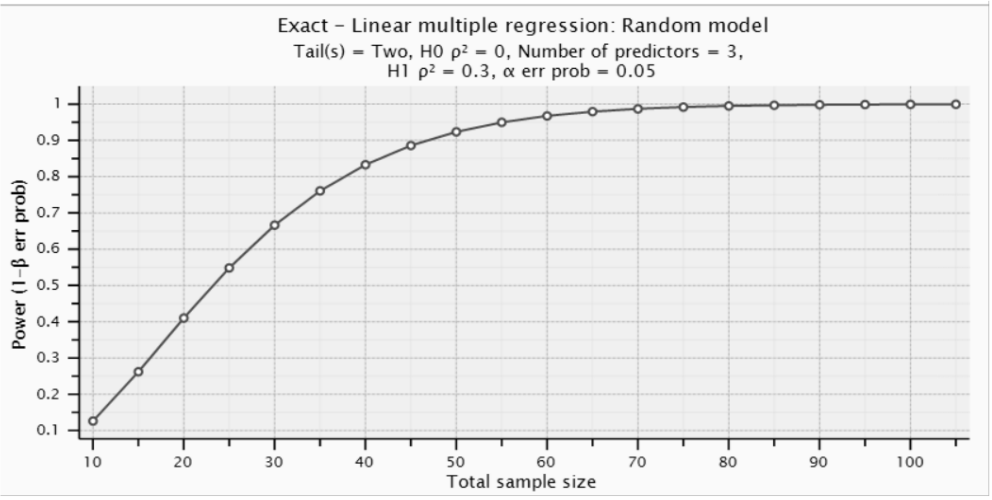
Residuals Statistics showing Cook's Distance

Minimum	Maximum	Mean	Std Deviation	*N*	Minimum
Cook's Distance	0	0.143	0.012	0.023	105

I also conducted a G*Power post hoc analysis, as shown in Figure 4, because the sample size I originally proposed was different from what I received on my survey. On the survey, I received a total of 105 responses. G*Power post hoc analysis showed a 99.96% confidence level at 105 sample size.

Figure 4

Random Model Function of Sample Size (Post Hoc Analysis)

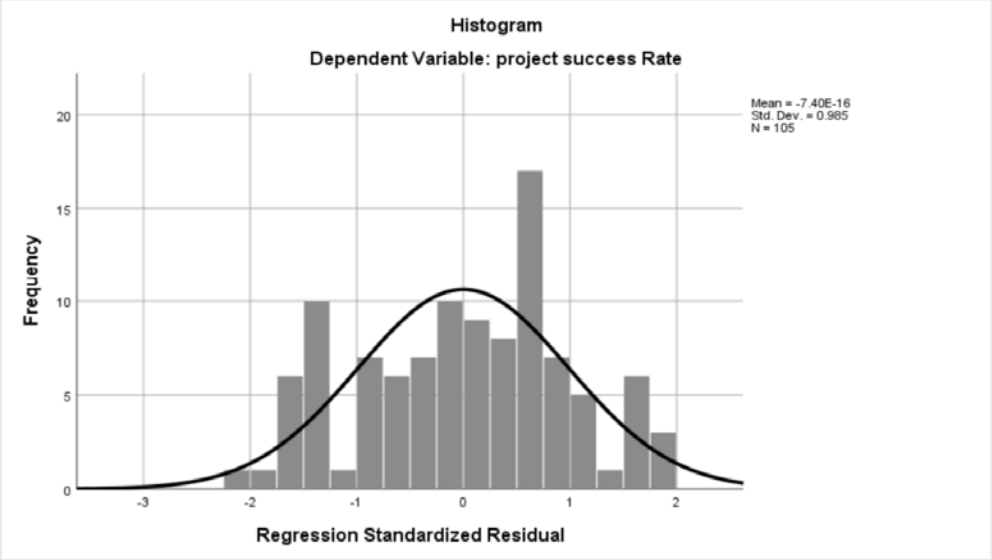


Normality

The eighth analysis and final assumption was to check if the residuals were normally distributed. Figure 5 shows the histogram of the regression standardized residuals to confirm normality was not violated. Normally distributed attributes reveal a perfect belled-shaped curve (Jeong & Jung, 2016). Figure 5 illustrates that the variable project manager's success rate had a normal distribution described by the bell-shaped. Therefore, the model did not violate the normality assumption.

Figure 5

Scatterplot of Regression Standardized Residuals

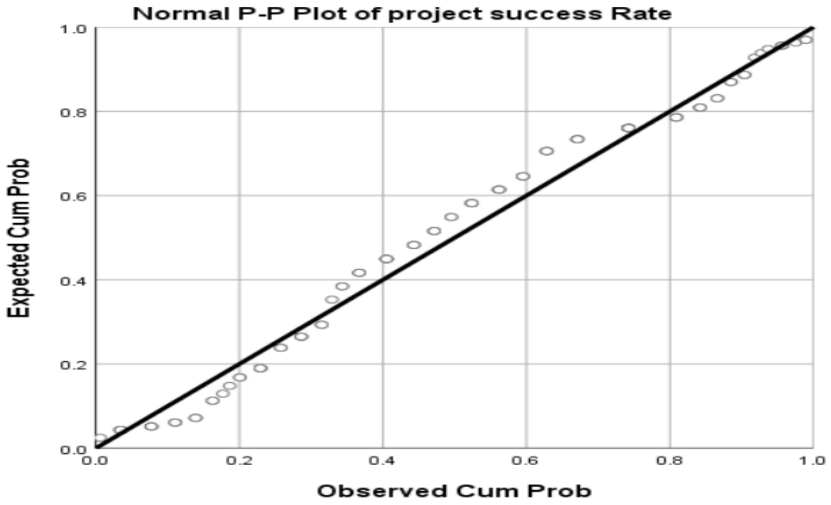


Additionally, Figure 6 shows the plot of a P-P scatterplot. Researchers identify normality and linearity violations by examining the distribution of the residual plots (Kozak & Piepho, 2018). I physically examined residual plots to identify if there were any violations of normality. I visually inspected the histogram, scatterplot, and normal probability to determine if relationships in the dispersion of the residual data points

existed. Similarly, I tested normality using the standard P-P plot whereby the dots align relatively on the diagonal straight lines, depicting that the data assumed normality. Therefore, the model did not violate the normality assumption.

Figure 6

Normality P-P Scatterplot



Descriptive Statistics

Table 4 includes the descriptive statistics for the four variables. PS had an average mean of .7752, PMA had an average mean of 2.24, PMG had an average mean of 1.50, and PMY had an average of 1.92.

Table 4

Descriptive Statistics showing Mean and Std Deviation

Variable	Mean	Std Deviation	N
PS	0.77	0.119	105
PMA	2.24	0.838	105
PMG	1.5	0.502	105
PMY	1.92	0.958	105

The survey included males and females, though I received more male participants (50.48%) than females (49.52%). Participants' experience varied from 0 to above 20 years. The majority of the respondents had between 0 and 5 years (40 %) of experience, followed closely by participants with between 6 and 10 years of work experience (37.14%). Nevertheless, some participants had between 11 and 20 years of working experience (13.3%), and 9.52% of the respondents revealed having more than 20 years of working experience. The ages of participants varied between 18 and 46. Most respondents were between 25 and 35 years of age (50.48%), whereas 23.81% of participants were between 36 to 45. The statistics also showed that 17.4% were between 18 and 24 years, and 8.57% of the research participants were above 46.

Table 5 illustrates the finding from Cronbach's alpha examination. A Cronbach's value of higher than .70 is considered reliable and satisfies the condition (Greco et al., 2018). The study embraced Cronbach's alpha value to examine the reliability of the collected questions from participants in the regression model. Since the test involved 13 questions, the decision rule was acceptable because Cronbach's alpha value was greater than 0.7.

Table 5

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of items
0.917	0.918	13

Inferential Results

According to Cohen (1988), a significance level of 0.05 is practical and realistic for a study. Researchers use multiple regression as a statistical method to predict the value or assess a relationship between a dependent variable based on the values of two or more independent variables (Halls & Randall, 2018). Using multiple linear regression, I determined that a significant relationship did not exist between the independent and dependent variables.

The independent variables included PMG, PMY, and PMA. The dependent variable was PS. The null hypothesis was that no significant statistical relationship existed between PMG, PMY, PMA, and PS. The alternative hypothesis was that a significant statistical relationship existed between PMG, PMY, PMA, and PS. Table 6 and Table 7 illustrate the model coefficients from the multiple regression analysis. According to Fauzi (2017), by convention, researchers should reject the null hypothesis (Ho) in favor of the alternative hypothesis (H1) when the P-value is below 0.05. According to Panagiotakos (2008), the p-value is used for hypothesis testing. I used a standard multiple linear regression analysis, $\alpha = 0.05$ (two-tailed). For the independent samples t-test, I used SPSS to determine if a relationship existed between the variables.

PMG was a dichotomous variable, so I had to conduct a moderation analysis. I conducted a regression test on males and females separately to check the significance value to confirm if PMG was a moderator. Researchers can practice the testing of a linear moderation hypothesis by using regression analysis by including each product independently of the other with the dependent variable (Hayes & Montoya, 2017). Based

on tables 6 and 7, the p-value for the predictor attributes is not significant because the p values were not less than α=0.05 for both males and females. If PMG were proven to be a moderator, the formula could be represented as PS = 0.826 + (-0.031PMA + 0.014PMY) + (0.837 - 0.010PMA – 0.024PMY) or PS = - 0.041PMA - 0.010PMY - 0.001.

Table 6

Regression Analysis Summary for Predictors for females

Female	Unstandardized Coefficients		Standardized Coefficients Beta	t	sig
Variable	B	SE B	β		
Constant	0.826	0.055		14.955	0.000
PMA	-0.031	0.024	-0.194	-1.256	0.215
PMY	0.014	0.021	0.106	0.685	0.497

Table 7

Regression Analysis Summary for Predictors for males

Male	Unstandardized Coefficients		Standardized Coefficients Beta	t	sig
Variable	B	SE B	β		
Constant	0.837	0.043		19.423	.000
PMA	-0.010	0.022	-0.080	-0.463	0.645
PMY	-0.024	0.020	-.0203	-1.184	0.242

I conducted a multiple regression analysis instead of an ordinal regression because the dependent variable was not ordinal and was a continuous dependent variable and was a numerical (ratio). PMG was a dichotomous variable and not a moderator. Males and females were not significant, as shown in Table 6 and Table 7. I conducted multiple regression with PMG included as part of the independent variables, which

included females and males. Males were coded as one and females as zero and ran a multiple regression test. Based on table 8, the p-value for the predictor attributes is not significant because the p values were not less than α=0.05. I rejected the alternative hypothesis (H1) and accepted the null hypothesis (Ho), implying that there was no statistical relationship between the dependent and independent variables. I conclude that PMG, PMY, and PMA in the IT industry do not predict PS. Multiple regression analysis indicated no statistically significant relationship (PS = - 0.016PMG - 0.002PMY - 0.024PMA + 0.841).

Table 8

Regression Analysis Summary for Predictors

	Unstandardized Coefficients		Standardized Coefficients Beta	t	p
Variable	B	SE B	β		
Constant	0.841	0.036		23.198	.000
PMA	-.024	.016	-.165	-1.444	.152
PMY	-.002	.014	-.020	-.174	.862
PMG	-.016	.023	-.066	-.675	.501

Table 9 shows the value of R2 in multiple regression SPSS outputs. Predictors were constant, included PMG, PMY, and PMA. I interpreted the coefficient of determination, R2. The value of R2 shows how much the independent variables explain the dependent variable (Owen & Prieur, 2017). R2 falls between 0 and 1, where the value 1 means a strong relationship exists between the variables (Zhang, 2017). R2 gives the proportion of variation in the dependent variable that can be explained by the independent variables (Hamilton et al., 2015). According to Kumari and Yadav (2018),

when R2 is 1, there exists a perfect linear relationship, and the closer R2 is closer to 0, the weaker the relationship. The value of R2 showed a value of 0.035, which indicates that only 3.5 % of the variation in PS being the dependent variable can be explained by the variation in the independent variables being PMG, PMY, and PMA.

Table 9

Model Summary (R2 value)

Model	R	R Square	R Square Adjusted R square	Std Error of the estimate
1	0.188	0.035	0.007	0.11941

After analyzing table 8 and table 9, I concluded that PMG, PMY, and PMA do not predict PS. The results showed no relationship existed between the variables. Thus, I rejected the alternative hypothesis (*H*1) in favor of the null hypothesis (*H*0), implying that there was no statistical relationship between the dependent and independent variables. I conclude that PMG, PMY, and PMA in the IT industry do not predict PS in the IT industry at a 95% confidence level.

Analysis Summary

The purpose of this study was to examine if a relationship exists between PMG, PMY, PMA, and PS. I used a standard multiple linear regression and independent samples to examine the ability of PMG, PMY, PMA to predict PS. Organizations hiring project managers' in the IT industry cannot rely on these variables to predict PS. After conducting the statistical tests, I rejected the alternative hypothesis (H1) in favor of the null hypothesis (Ho), implying no statistical relationship exists between the dependent

and independent variables. PS cannot be predicted by PMG, PMY, PMA in the IT industry.

Theoretical Discussion of Findings

The theoretical foundation of this study was the CSFs theory. According to Baccarini (1999), success criteria should be project-specific, and a core project management concept. The importance of determining factors to understand PS was carried out by the PMI, and the causes of success and failure on projects have been the theme in many types of research (Shenhar et al., 2002). According to Parson (2020), project managers' characteristics have been identified as a critical component of CSFs in managing projects and achieving PS.

Hekman et al. (2017) examined the influence of genders and PS on projects and showed that either gender is likely to achieve PS. The scholars showed that PS was different for male and female gender, but they were likely to achieve similar results. This study results aligned with Hekman et al. (2017), in which this research findings showed that PS was not contingent on PMG. The results showed that males and females can achieve similar results and was not a critical factor that impacts PS. Gunter (2020) researched the relationship between project managers' competencies and PS, and the results showed a significant positive predictive relationship between both variables. My research involved PMG, PMY, PMA, which are not related to project managers' competencies, which could have had different results if I had included competency as a dependent variable.

Levý (2020) researched project managers' leadership and PS. This study's theoretical framework encompassed several theories to understanding the relationship between leadership, project managers, and PS. The findings of this research showed leadership in project managers had a weak relationship with PS. According to Brière et al. (2015), project managers with higher years of experience could achieve desirable project outcomes compared to project managers with fewer years of experience. The findings of Brière et al. showed that PMY was not a factor that predicts PS in IT projects. Hoxha and McMahan (2019) evaluated the effect of the PMA on PS, and the study showed that older project managers, compared to younger ones, focus on project control, and concluded that PMA does not have a critical negative impact on PS. The findings of this research confirm the findings of Hoxha and McMahan, showing that the PMA does not predict PS.

Applications to Professional Practice

Project failure can be extremely damaging and costly for many organizations. This study's resulting data did not show a relationship between PMG, PMY, PMA, and PS. Project sponsors should not justify, hire, and target potential project managers based on PMG, PMY, and PMA to predict PS. Projects are critical to the sustainable growth and survival of businesses (Biloslavo et al., 2018). PS is crucial to overall organizational success (Ekrot et al., 2016). Project managers have a significant role in the success of projects (Ekrot et al., 2016; Sadeghi et al., 2014). Despite the availability of upskilling project managers, many organizations continue to realize an increased failure on projects

(Jorgensen & Yamashita, 2016). According to Benoy and Gracias (2015), PMY was not a core factor that had a relationship with PS.

Statistically proven findings from this study can provide new insights for researchers and practitioners on the holistic implications of the self-efficacy theory in the project management environments. Organizations should not count on the PMG, PMY, and PMA to hire managers. There was no relationship between the linear combination of the elements of PMG, PMY, PMA, and PS, and the data showed PS was achieved by project managers' irrelevant of their age, experience, and gender.

Implications for Social Change

The implications for social change include the potential to maintain or increase employment for project managers in the IT industry. Another implication is to promote better IT services to the community by improving PS rates on projects. Understanding there is no relationship between PMG, PMY, PMA, and PS in the IT industry may enable project sponsors to select the right project manager to complete community critical IT projects by focusing on other project manager's characteristics that predict PS. Other implications include spreading a sense of equality among project management job seekers as the selection process will not include project manager's characteristics that do not predict PS; hence, the rejected project managers will understand that they were not rejected because of their PMG, PMY, and PMA values as these variables do not contribute to PS. Employing the right project manager reduces the risks of project failure that can benefit organizations by saving cost on projects and increasing employment for

IT project managers. Organizations hiring the right project manager can also successfully deliver IT infrastructure and on time to communities that need it the most.

The implications for social change include the opportunity for members of the community to work as independent IT contractors to provide outstanding service to IT organizations. This would include project managers who are unemployed or females who can increase their income and reduce the burden on social service programs, especially for single moms who could access home-based businesses. With COVID-19 and the struggle of many project managers searching for jobs, this could potentially open doors to find permanent or contractual work in other service areas and the opportunity to engage with industry leaders working in IT.

Recommendations for Action

The purpose of this quantitative correlational study was to examine if a relationship exists between PMG, PMY, PMA, and PS. The population of the study consisted of (a) project managers that were 18 years or older at the time of the survey, (b) project managers that have completed projects in the IT industry, and (c) project managers from the United States. The survey included a mix of males and females. The males were 50.48%, while the females were 49.52%. Participants involved in the survey were a total of 105. I conducted a multiple regression analysis to analyze the data. The findings led me to accept the null hypothesis because there was no statistically significant relationship between the independent variables, PMG, PMY, PMY, and the dependent variable, PS. After conducting the research, I have gathered a few recommendations that would benefit the business practice.

The publication of this study may add to the business practice that project managers' age, experience, and gender do not predict PS. Researchers can conclude that these features of project managers do not affect PS when conducting similar research. Many project sponsors can eliminate these factors from the required characteristics when recruiting for project managers. Project stakeholders and business leaders can have peace of mind when hiring project managers by not relying on a specific age, experience, or gender. Project team members can confirm that the gender, age, or experience of project managers they work with do not predict PS. Many employees change jobs to work for project managers with a specific age or gender, thinking the rate of PS is increased. The research can reduce employee turnover by bringing awareness to employees across IT organizations that PMG, PMY, and PMA do not predict PS. I intend to present the findings of the study to many organizations. I intend to publish this study in the ProQuest dissertation database. Additionally, I may present the findings of the study at relevant meetings, gatherings, and events.

Recommendations for Further Research

My recommendation for further researchers is to study different disciplines of project management. This research focused only on project managers working in the IT industry. Researchers may conduct other studies to understand the core issues of why projects fail. Researchers can also conduct a similar study with similar variables and apply them to other industries, such as mining or construction, to determine if they predict PS. The second recommendation includes targeting different countries. This research only focused on participants located in the United States. Including other

countries in a study could result in different conclusions. I recommend further investigation of various factors that could hinder PS, such as technology, skills, education level, income, culture, or location.

Because this study only relied on an online survey, I had no interaction with participants to understand their perspective based on the questions related to PS. The issue I faced conducting my research is the limitation of using the online survey. The study was limited to participants that had access to a computer. Participants were anonymous, and I could not contact them and make possible corrections and confirm the extent of the accuracy of the answers, which possibly resulted in some of the data obscured and inaccurate. To address these limitations, researchers can conduct a mixed-method approach to obtain in-depth information, knowledge of the problem and provide rich datasets (Täuscher & Laudien, 2018). I recommend researchers to conduct a mixed study quantitative and qualitative combined to include interviewing project managers and understanding concerns, opinions, and feedback and having more in-depth information on participants.

Researchers must demonstrate that their studies are credible and reliable. According to Moon (2019), researchers can increase the findings' reliability and credibility through the triangulation method and enhance the research data quality. The second limitation was that the project manager needed to spend the time required to complete the survey and reveal information that would enhance the research data quality. I recommend researchers to use another instrument that takes participants less time to

complete. An instrument that includes fewer questions and less time increases the willingness of participants to reveal quality information.

Reflections

My experiences and shortcomings as a project manager prompted my interest in project management because I wanted to make a change in the IT industry. Along the journey, I faced many challenges associated with this research. After much research before I conducted this study, I realized there is a serious gap in the industry that needs attention. Many organizations hire project managers without understanding how to achieve PS by hiring the right project manager. Through the findings of this research, organizations can recruit project managers and not rely on a specific age, years of experience, or gender because these variables do not predict PS.

Initially, I had a bias towards project managers with less than 5 years of experience, which I determined to exclude as participants in this research. Researchers should provide detailed information, and trustworthiness is the perceived motivation to make valid assertions without bias (Yin et al., 2016). After going back and forth with my professor and chair, I reduced the bias by including project managers with different years of experience. My research was quantitative, and I tried to reduce bias towards participants throughout the study. The research required a high level of intellectual maturity and critical thinking. I also enhanced my skills; I learned to be proactive and patient. The knowledge and experience gained through this process were both exciting and rewarding. I wish to proceed in research and conduct similar research on issues

related to the project managers in different industries and apply a quantitative methodology to understand how PS varies across the various industries.

Conclusion

The purpose of this quantitative correlational study was to examine the relationship between PMG, PMY, PMA, and PS in the IT industry. The predictor variables were project PMG, PMY, and PMA. The criterion variable was PS. The target population consisted of project managers located in the United States from the IT industry. The research question was, what is the relationship, if any, between PMG, PMY, PMA, and PS in the IT industry? I used the quantitative method to determine if a relationship exists between PMG, PMY, PMA, and PS. Based on the results of my research, I concluded that a relationship does not exist between PMG, PMY, PMA, and PS. Because the findings did not show a relationship between the variables, many organizations can comfortably hire IT project managers and not rely on PMG, PMY, and PMA. Project sponsors can also have peace of mind that these variables do not predict PS.

References

Adams, R. J., Smart, P., & Huff, A. S. (2017). Shades of grey: Guidelines for working with the grey literature in systematic reviews for management and organizational studies. *International Journal of Management Reviews, 19*(4), 432–454. https://doi.org/10.1111/ijmr.12102

Aga, D. A., Noorderhaven, N., & Vallejo, B. (2016). Transformational leadership and project success: The mediating role of team building. *International Journal of Project Management, 34*(5), 806–818. https://doi.org/10.1016/j.ijproman.2016.02.012

Aggarwal, R., & Ranganathan, P. (2019). Study designs: Part 2–Descriptive studies. *Perspectives in clinical research, 10*(1), 34. https://doi.org/10.4103/picr.PICR_154_18

Ahmed, R., & Anantatmula, V. S. (2017). Empirical study of project managers leadership competence and project performance. *Engineering Management Journal, 29*(3), 189–205. https://doi.org/10.1080/10429247.2017.1343005

Ahmed, R., & bin Mohamad, N. A. (2016). Differentiating between Leadership Competencies and Styles: A critical review in project management perspective. *International Journal of Information Technology Project Management (IJITPM), 7*(1), 58–71. https://doi.org/10.4018/IJITPM.2016010105

Akanni, P. O., Oke, A. E., & Akpomiemie, O. A. (2015). Impact of environmental factors on building project performance in Delta State Nigeria. *HBRC Journal, 11*(1), 91–97. https://doi.org/10.1016/j.hbrcj.2014.02.010

Akobeng, A. K. (2016). Understanding type I and type II errors, statistical power and sample size. *Acta Paediatrica, 105*(6), 605–609. https://doi.org/10.1111/apa.13384

Alami, A. (2016). Why do information technology projects fail. *Procedia Computer Science*, *100*, 62-71. https://doi.org/10.1016/j.procs.2016.09.124

Alan, S., Ertac, S., Kubilay, E., & Loranth, G. (2020). Understanding gender differences in leadership. *The Economic Journal*, *130*(626), 263–289. https://doi.org/10.1093/ej/uez050

Alavinia, P., & Farhady, S. (2012). Using differentiated instruction to teach vocabulary in mixed ability classes with a focus on multiple intelligences and learning styles. *International Journal of Applied Science and Technology, 2*(4), 72–82. https://www.ijastnet.com

Alias, Z., Zawawi, E. M. A., Yusof, K., & Aris, N. M. (2014). Determining critical success factors of project management practice: A conceptual framework. *Procedia-Social and Behavioral Sciences, 153*(2014), 61–69. https://doi.org/10.1016/j.sbspro.2014.10.041

Alkharusi, H. (2012). Categorical variables in regression analysis: A comparison of dummy and effect coding. *International Journal of Education, 4*(2), 202. https://doi.org/10.5296/ije.v4i2.1962

AlNasseri, H., & Aulin, R. (2015). Assessing understanding of planning and scheduling theory and practice on construction projects. *Engineering Management Journal, 27*(2), 58–72. https://doi.org/10.1080/10429247.2015.1035963

Alreemy, Z., Chang, V., Walters, R., & Wills, G. (2016). Critical success factors (CSFs) for information technology governance (ITG). *International Journal of Information Management, 36*(6), 907–916. https://doi.org/10.1016/j.ijinfomgt.2016.05.017

Al-Zoubi, M. (2018). The role of technology, organization, and environment factors in enterprise resource planning implementation success in Jordan. *International Business Research, 11*(8), 48–65. https://doi.org/10.5539/ibr.v11n8p48

Amin, S., & Kamal, Y. (2016). Impact of natural born leader qualities on the project team performance: The influences of demographics gender and age. *International Journal of Management, Accounting and Economics, 3*(5), 306–318. https://www.ijmae.com/article_115288.html

Anagnostopoulos, C., Gillooly, L., Cook, D., Parganas, P., & Chadwick, S. (2017). Stakeholder communication in 140 characters or less: A study of community sport foundations. *International Journal of Voluntary and Nonprofit Organizations, 28*(5), 2224–2250. https://doi.org/10.1007/s11266-016-9802-4

Anderson, S. F., Kelley, K., & Maxwell, S. E. (2017). Sample-size planning for more accurate statistical power: A method adjusting sample effect sizes for publication bias and uncertainty. *Psychological Science, 28*(11), 1547–1562. https://doi.org/10.1177/0956797617723724

Anwar, M., He, W., Ash, I., Yuan, X., Li, L., & Xu, L. (2017). Gender difference and employees' cybersecurity behaviors. *Computers in Human Behavior, 69*, 437–443. https://doi.org/10.1016/j.chb.2016.12.040

Apuke, O. D. (2017). Quantitative research methods: A synopsis approach. Kuwait Chapter of Arabian. *Journal of Business and Management Review, 33*(5471), 1–8. https://doi.org/10.12816/0040336

Ardolino, M., Rapaccini, M., Saccani, N., Gaiardelli, P., Crespi, G., & Ruggeri, C. (2018). The role of digital technologies for the service transformation of industrial companies. *International Journal of Production Research, 56*(6), 2116–2132. https://doi.org/10.1080/00207543.2017.1324224

Arthurs, J. D., & Busenitz, L. W. (2003). The boundaries and limitations of agency theory and stewardship theory in the venture capitalist/entrepreneur relationship. *Entrepreneurship Theory and Practice, 28*(2), 145–162. https://doi.org/10.1046/j.1540-6520.2003.00036.x

Aspers, P., & Corte, U. (2019). What is qualitative in qualitative research. *Qualitative Sociology, 42*(2), 139–160. https://doi.org/10.1007/s11133-019-9413-7

Atkinson, R. (1999). Project management: Cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria. *International Journal of Project Management*, *17*(6), 337–342. https://doi.org/10.1016/S0263-7863(98)00069-6

Ayat, M., Imran, M., Ullah, A., & Kang, C. W. (2020). Current trends analysis and prioritization of success factors: A systematic literature review of ICT projects. *International Journal of Managing Projects in Business, 13*(6), 1–28. https://doi.org/10.1108/IJMPB-02-2020-0075

Baccarini, D. (1999). The logical framework method for defining project success. *Project*

Management Journal, *30*(4), 25–32. https://doi.org/10.1177/875697289903000405

Back, A. L., Steinhauser, K. E., Kamal, A. H., & Jackson, V. A. (2016). Building resilience for palliative care clinicians: An approach to burnout prevention based on individual skills and workplace factors. *Journal of Pain and Symptom Management, 52*(2), 284–291. https://doi.org/10.1016/j.jpainsymman.2016.02.002

Bakhshi, J., Ireland, V., & Gorod, A. (2016). Clarifying the project complexity construct: Past, present and future. *International Journal of Project Management, 34*(7), 1199–1213. https://doi.org/10.1016/j.ijproman.2016.06.002

Bangdiwala, S. I. (2018). Regression: Simple linear. *International Journal of Injury Control and Safety Promotion, 25*(2), 113–115. https://www.worldwidescience.org

Banihashemi, S., Hosseini, M. R., Golizadeh, H., & Sankaran, S. (2017). Critical success factors (CSFs) for integration of sustainability into construction project management practices in developing countries. *International Journal of Project Management, 35*(6), 1103–1119. https://doi.org/10.1016/j.ijproman.2017.01.014

Baporikar, N. (2013). CSF approach for IT strategic planning. *International Journal of Strategic Information Technology and Applications (IJSITA), 4*(2), 35–47. https://doi.org/10.4018/jsita.2013040103

Bartel, A. P., Rossin-Slater, M., Ruhm, C. J., Stearns, J., & Waldfogel, J. (2018). Paid family leave, fathers' leave-taking, and leave-sharing in dual-earner households. *Journal of Policy Analysis and Management, 37*(1), 10–37.

https://pubmed.ncbi.nlm.nih.gov/29320808/

Battaglia, F., Farhan, S. A., Narmeen, M., Karimuddin, A. A., Jalal, S., Tse, M., & Khosa, F. (2020). Does gender influence leadership roles in academic surgery in the United States of America? A cross-sectional study. *International Journal of Surgery*, *83*, 67-74. https://doi.org/10.1016/j.ijsu.2020.08.029

Bausch, S., Michel, A., & Sonntag, K. (2014). How gender influences the effect of age on self-efficacy and training success. *International Journal of Training and Development, 18*(3), 171-187. https://psycnet.apa.org/record/2014-33243-002

Becker, T. E., Atinc, G., Breaugh, J. A., Carlson, K. D., Edwards, J. R., & Spector, P. E. (2016). Statistical control in correlational studies: 10 essential recommendations for organizational researchers. *Journal of Organizational Behavior, 37*(2), 157-167. https://psycnet.apa.org/record/2015-44807-001

Benoy, J., & Gracias, N. (2015). Strategic talent management: A proposed model for building talent pipeline of project managers. *International Journal of Management, 6*(7),69–85. https://www.iaeme.com

Berger, R. (2015). Now I see it, now I don't: Researcher's position and reflexivity in qualitative research. *Qualitative Research, 15*(2), 219-234. https://doi.org/10.1177/1468794112468475

Bezak, S., & Nahod, M.-M. (2011). Project manager's role analysis as a project management concept. *Tehnicki Vjesnik, 18*(1), 33-40. https://doi.org/10.1016/j.proeng.2017.08.048

Biloslavo, R., Bagnoli, C., & Edgar, D. (2018). An eco-critical perspective on business

models: The value triangle as an approach to closing the sustainability gap. *Journal of Cleaner Production, 174*, 746-762. https://doi.org/10.1016/j.jclepro.2017.10.281

Binder, J. (2016). *Global project management: Communication, collaboration and management across borders*. Routledge. https://doi.org/10.4324/9781315584997

Blaskovics, B. (2016). The impact of project manager on project success: The case of ICT sector. *Society and Economy, 38*(2), 261-281. https://www.econpapers.repec.org

Blixt, C., & Kirytopoulos, K. (2017). Challenges and competencies for project management in the Australian Public Service. *International Journal of Public Sector Management, 30*(3), 286-300. https://doi.org/10.1108/IJPSM-08-2016-0132

Bodenhorn, H., Guinnane, T. W., & Mroz, T. A. (2017). Sample-selection biases and the industrialization puzzle. *The Journal of Economic History, 77*(1), 171-207. https://doi.org/10.1017/S0022050717000031

Bond, U. E. (2015). *Project management, leadership, and performance: A quantitative study of the relationship between project managers' leadership styles, years of experience and critical success factors (CSFs) to* project success (Doctoral dissertation). ProQuest Dissertations & Theses database. (UMI No. 3682570)

Bosnjak, M., Das, M., & Lynn, P. (2016). Symposium issue on methods for probability-based online and mixed-mode panels. *Social Science Computer Review, 34*(1), 1-5. https://journals.sagepub.com/toc/ssc/34/1

Brakewood, B., & Poldrack, R. A. (2013). The ethics of secondary data analysis: Considering the application of Belmont principles to the sharing of neuroimaging data. *Neuroimage, 82*, 671-676. https://doi.org/10.1016/j.neuroimage.2013.02.040

Brannen, J. (2017). *Mixing methods: Qualitative and quantitative research* (5th ed.). Routledge. https://doi.org/10.4324/9781315248813

Bredillet, C., Tywoniak, S., & Dwivedula, R. (2015). What is a good project manager? An Aristotelian perspective. *International Journal of Project Management, 33*(2), 254-266. https://doi.org/10.1016/j.ijproman.2014.04.001

Bregman, R., Peng, D. X., & Chin, W. (2015). The effect of controversial global sourcing practices on the ethical judgments and intentions of US consumers. *Journal of Operations Management, 36*(1), 229-243. https://daneshyari.com/article/preview/1031724.pdf

Brescoll, V. L. (2016). Leading with their hearts? How gender stereotypes of emotion lead to biased evaluations of female leaders. *The Leadership Quarterly, 27*(3), 415-428. https://doi.org/10.1016/j.leaqua.2016.02.005

Brière, S., Proulx, D., Flores, O. N., & Laporte, M. (2015). Competencies of project managers in international NGOs: Perceptions of practitioners. *International Journal of Project Management, 33*(1), 116-125. https://doi.org/10.1016/j.ijproman.2014.04.010

Bryman, A. (2015). *Social research methods*. Oxford University Press.

Bryman, A. (2017). *Quantitative and qualitative research: Further reflections on their integration*. Routledge.

Buengeler, C., Homan, A. C., & Voelpel, S. C. (2016). The challenge of being a young manager: The effects of contingent reward and participative leadership on team level turnover depend on leader age. *Journal of Organizational Behavior, 37*(8), 1224-1245. https://doi.org/10.1002/job.2101

Bujang, M. A., Sa'at, N., & Bakar, T. M. I. T. A. (2017). Determination of minimum sample size requirement for multiple linear regression and analysis of covariance based on experimental and non-experimental studies. *Epidemiology, Biostatistics and Public Health, 14*(3), 5-9. https://1library.net/document/zk8x0gpz-determination-requirement-multiple-regression-analysis-covariance-experimental-experimental.html

Campuzano, M. V. (2019). Force and inertia: A systematic review of women's leadership in male-dominated organizational cultures in the United States. *Human Resource Development Review, 18*(4), 437-469. https://doi.org/10.1177/1534484319861169

Carvalho, M. M. D., & Rabechini Junior, R. (2015). Impact of risk management on project performance: The importance of soft skills. *International Journal of Production Research, 53*(2), 321-340. https://doi.org/10.1080/00207543.2014.919423

Cattell, K., Bowen, P., & Edwards, P. (2016). Stress among South African construction professionals: A job demand-control-support survey. *Construction Management and Economics, 34*, 700-723. https://doi.org/10.1080/01446193.2016.1203967

Chambliss, D. F., & Schutt, R. K. (2018). *Making sense of the social world: Methods of investigation*. Sage Publications.

Chang, C. H., Pal, N., & Lin, J.-J. (2017). A revisit to test the equality of variances of several populations. *Communications in Statistics - Simulation and Computation, 46*, 6360-6384. https://doi.org/10.1080/03610918.2016.1202277

Chen, L. (2016). Linking leader personality traits to motivation to lead: A self-concept approach. *Social Behavior and Personality: An International Journal, 44*(11), 1913-1925. https://doi.org/10.2224/sbp.2016.44.11.1913

Chen, W., Hribar, P., & Melessa, S. (2018). Incorrect inferences when using residuals as dependent variables. *Journal of Accounting Research, 56*(3), 751-796. https://doi.org/10.1111/1475-679X.12195

Chen, Y. (2019). *Students' mobile technology self-efficacy and use intention in online learning environment* (Doctoral dissertation or master's thesis). ProQuest Dissertations & Theses database. (UMI No. 2316004220)

Chipulu, M., Ojiako, U., Gardiner, P., Williams, T., Mota, C., Maguire, S., Shou, Y., Stamati, T., & Marshall, A. (2015). Exploring the impact of cultural values on project performance: The effects of cultural values, age and gender on the perceived importance of project success /failure factors. *International Journal of Operations & Production Management, 34*(3), 364-389. https://doi.org/10.1108/IJOPM-04-2012-0156

Choi, S. D., Guo, L., Kang, D., & Xiong, S. (2017). Exergame technology and interactive interventions for elderly fall prevention: A systematic literature review. *Applied Ergonomics, 65*, 570-581. https://doi.org/10.1016/j.apergo.2016.10.013

Choshin, M., & Ghaffari, A. (2017). An investigation of the impact of effective factors on

the success of e-commerce in small-and medium-sized companies. *Computers in Human Behavior, 66*, 67-74. https://doi.org/10.1016/j.chb.2016.09.026

Chou, J. S., & Yang, J. G. (2012). Project management knowledge and effects on construction project outcomes: An empirical study. *Project Management Journal, 43*(5), 47-67. https://doi.org/10.1002/pmj.21293

Chua, D. C. L., & Comendador, B. E. V. (2017). Blue sentinels: An IT project management tool towards productive projects. *Journal of Software*, *12*, 831-839. https://doi.org/10.17706/jsw.12.11.831-839

Clarke, A. (1999). A practical use of key success factors to improve the effectiveness of project management. *International Journal of Project Management*, *17*(3), 139-145. https://doi.org/10.1016/S0263-7863(98)00031-3

Cohen, A. J. (2018). *Toleration and freedom from harm: Liberalism reconceived*. Routledge.

Cohen, M. A. (1988). Some new evidence on the seriousness of crime. *Criminology, 26*(2), 343-353. https://doi.org/10.1111/j.1745-9125.1988.tb00845.x

Connelly, L. M. (2013). Limitation section. *Medsurg Nursing, 22*, 325-325, 336. https://www.medsurgnursing.net/cgibin/WebObjects/MSNJournal.woa

Cook, A., & Glass, C. (2015). Diversity begets diversity: The effects of board composition on the appointment and success of women CEOs. *Social Science Research, 53*, 137-147. https://doi.org/10.1016/j.ssresearch.2015.05.009

Couper, M. P. (2017). New developments in survey data collection. *Annual Review of Sociology, 43*(1), 121-145. https://doi.org/10.1146/annurev-soc-060116-053613

Crano, W. D. (2019). Reflections on a proposal designed to enhance the internal and internal validity of research in psychology. *Psychological Inquiry, 30*(4), 211-215. https://doi.org/10.1080/1047840X.2019.1693868

Creasy, T., & Anantatmula, V. S. (2013). From every direction-How personality traits and dimensions of project managers can conceptually affect project success. *Project Management Journal, 44*(6), 36-51. https://doi.org/10.1002/pmj.21372

Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.

Croasmun, J. T., & Ostrom, L. (2011). Using Likert-Type scales in the social sciences. *Journal of Adult Education, 40*(1), 19-22. https://eric.ed.gov/?id=EJ961998

Cypress, B. S. (2017). Rigor or reliability and validity in qualitative research: Perspectives, strategies, reconceptualization, and recommendations. *Dimensions of Critical Care Nursing, 36*(4), 253-263. https://doi.org/10.1097/DCC.0000000000000253

Daoud, J. I. (2017). *Multicollinearity and regression analysis: Journal of Physics,* Bristol, England: IOP Publishing. http://irep.iium.edu.my/59610/7/59610_Daoud_2017_J_Phys_Conf_Ser.pdf

Das, D., & Ngacho, C. (2017). Critical success factors influencing the performance of development projects: An empirical study of Constituency Development Fund projects in Kenya. *IIMB management review, 29*(4), 276-293. https://doi.org/10.1016/j.ijproman.2013.07.005

Davis, K. (2014). Different stakeholder groups and their perceptions of project success.

International Journal of Project Management, 32(2), 189-201. https://doi.org/10.1016/j.ijproman.2013.02.006

Davis, K. (2017). An empirical investigation into different stakeholder groups perception of project success. *International Journal of Project Management, 35*(4), 604-617. https://doi.org/10.1016/j.ijproman.2017.02.004

De Araújo, C. C. S., & Pedron, C. D. (2015). IT project manager competencies and IT project success: A qualitative study. *Organizational Project Management, 2*(1), 53-75. https://doi.org/10.5130/opm.v2i1.4142

De Carvalho, M. M., Patah, L. A., & de Souza Bido, D. (2015). Project management and its effects on project success: Cross-country and cross-industry comparisons. *International Journal of Project Management, 33*(7), 1509-1522. https://doi.org/10.1016/j.ijproman.2015.04.004

Delmon, J. (2017). *Public-private partnership projects in infrastructur*e: *An essential guide for policy makers*. Cambridge University Press. https://doi.org/10.1017/9781108163729

De Moura, R. L., Carneiro, T. C. J., & Diniz, B. D. (2017). Influência das características pessoais do gerente de projetos no desempenho dos projetos: *Gestão & Produção* [Influence of the project manager's personal characteristics on project performance: Management and Production]. *São Carlos, 25*(4), 752, 763. https://doi.org/10.1590/0104-530X3595-16

De Rezende, L. B., & Blackwell, P. (2019). Project management competency framework. *Iberoamerican Journal of Project Management, 10*(1), 34-59.

http://www.ijopm.org/index.php/IJOPM/article/view/439

Derrick, B., Toher, D., & White, P. (2016). Why Welch's test is Type I error robust. *The Quantitative Methods in Psychology, 12*(1), 30-38. https://core.ac.uk/download/pdf/207042153.pdf

Dikko, M. (2016). Establishing construct validity and reliability: Pilot testing of a qualitative interview for research in Takaful (Islamic Insurance). *Qualitative Report*, *21*(3), 521-528. https://nsuworks.nova.edu/tqr/vol21/iss3/6/

Djimeu, E. W., & Houndolo, D. G. (2016). Power calculation for causal inference in social science: Sample size and minimum detectable effect determination. *Journal of Development Effectiveness, 8*(4), 508-527. https://doi.org/10.1080/19439342.2016.1244555

Dreher, G. F., & Ash, R. A. (1990). A comparative study of mentoring among men and women in managerial, professional, and technical positions. *Journal of Applied Psychology, 75*(5), 539-546. https://doi.org/10.1037/0021-9010.75.5.539

Dulaimi, M. F., & Langford, D. (1999). Job behavior of construction project managers: Determinants and assessment. *Journal of Construction Engineering and Management, 125*(4), 256-264. https://trid.trb.org/view/505956

Dumay, J., Bernardi, C., Guthrie, J., & Demartini, P. (2016). Integrated reporting: A structured literature review. *Accounting Forum, 40*, 166-185. https://www.tandfonline.com/doi/abs/10.1016/j.accfor.2016.06.001

Dwivedi, Y. K., Wastell, D., Laumer, S., Henriksen, H. Z., Myers, M. D., Bunker, D., Elbanna, A., Ravishankar, M. N., & Srivastava, S. C. (2015). Research on

information systems failures and successes: Status update and future directions. *Information Systems Frontiers, 17*(1), 143-157. https://doi.org/10.1007/s10796-014-9500-y

Ebner, K., Mueller, B., & Ahlemann, F. (2019). Understanding the success of strategic IT benchmarking: Exploring the role of the individual level. *Information & Management, 56*(5), 640-656. https://doi.org/10.1016/j.im.2018.10.005

Edmonds, W. A., & Kennedy, T. D. (2016). *An applied guide to research designs: Quantitative, qualitative, and mixed methods*. Sage Publications.

Eisazadeh, H., Bunn, J. R., & Aidun, D. K. (2017). Numerical and neutron diffraction measurement of residual stress distribution in dissimilar weld. *Welding Journal, 96*(1), 1-5. https://www.osti.gov/biblio/1338491

Ekrot, B., Kock, A., & Gemünden, H. G. (2016). Retaining project management competence: Antecedents and consequences. *International Journal of Project Management, 34*(2), 145-157. https://doi.org/10.1016/j.ijproman.2015.10.010

Englund, R., & Bucero, A. (2019). *The complete project manager: Integrating people, organizational, and technical skills*. Berrett-Koehler Publishers.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1-4. http://article.sciencepublishinggroup.com/html/10.11648.j.ajtas.20160501.11.html

Fatima, A., Nazir, N., & Khan, M. G. (2017). Data cleaning in data warehouse: A survey of data pre-processing techniques and tools. *IJ Information Technology and*

Computer Science, 3, 50-61. https://doi.org/10.5815/ijitcs.2017.03.06

Fauzi, A. (2017). The effect of Edmodo on students' writing skill in recount text. *International Journal of Pedagogy and Teacher Education, 1*(2), 73-79. https://www.ncbi.nlm.nih.gov

Finch, P. (2003). Applying the Slevin-Pinto project implementation profile to an information systems project. *Project Management Journal, 34*(3), 32-39. https://doi.org/10.1177/875697280303400305

Flatt, C., & Jacobs, R. L. (2019). Principle assumptions of regression analysis: Testing, techniques, and statistical reporting of imperfect data sets. *Advances in Developing Human Resources, 21*, 484-502. https://doi.org/10.1177/1523422319869915

Flöthmann, C., Hoberg, K., & Wieland, A. (2018). Competency requirements of supply chain planners & analysts and personal preferences of hiring managers. *Supply Chain Management: An International Journal, 23*(6), 480-499. https://doi.org/10.1109/UKSIM.2010.65

Franco, A., Malhotra, N., Simonovits, G., & Zigerell, L. J. (2017). Developing standards for post-hoc weighting in population-based survey experiments. *Journal of Experimental Political Science, 4*(2), 161-172. https://doi.org/10.1017/XPS.2017.2

Frankfort-Nachmias, C., Nachmias, D., & DeWaard, J. (2014). *Research methods in the social sciences* (8th ed.). Worth Publications.

Frieder, R. E., Wang, G., & Oh, I.-S. (2018). Linking job-relevant personality traits,

transformational leadership, and job performance via perceived meaningfulness at work: A moderated mediation model. *Journal of Applied Psychology, 103*(3), 324–333. https://doi.org/10.1037/apl0000274

Friesen, P., Kearns, L., Redman, B., & Caplan, A. L. (2017). Rethinking the Belmont report. *The American Journal of Bioe*thics, *17*(7), 15-21. https://doi.org/10.1080/15265161.2017.1329482

Fritz, M. M., Schöggl, J. P., & Baumgartner, R. J. (2017). Selected sustainability aspects for supply chain data exchange: Towards a supply chain-wide sustainability assessment. *Journal of Cleaner Production, 141*(10), 587-607. https://doi.org/10.1016/j.jclepro.2016.09.080

Furnell, S., Fischer, P., & Finch, A. (2017). Can't get the staff: The growing need for cyber-security skills. *Computer Fraud & Security*, *2*(2), 5-10. https://doi.org/10.1016/S1361-3723(17)30013-1

Gadison, P. D. (2016). *A study of the relationship between the project management office (PMO) leader sources of power and the quality of the PMO leader member exchange influence on* project success (Doctoral dissertation). ProQuest Dissertations & Theses database. (UMI No. 10129805)

Garcés, G. (2020). A literature review on leadership qualities among project managers of building refurbishment. *Revista Ingeniería de Construcción, 35*, 45-59. https://doi.org/10.1016/j.rser.2016.01.103

Gatzert, N., & Kosub, T. (2016). Risks and risk management of renewable energy projects: The case of onshore and offshore wind parks. *Renewable and*

Sustainable Energy Reviews, 60, 982-998. https://doi.org/10.1016/j.rser.2016.01.103

Ghauri, P., Grønhaug, K., & Strange, R. (2020). *Research methods in business studies.* Cambridge University Press.

Godwyn, M., & Stoddard, D. (2017). *Minority women entrepreneurs: How outsider status can lead to better business practices*. Routledge.

Gomes, C. F., Yasin, M. M., & Small, M. H. (2012). Discerning interrelationships among the knowledge, competencies, and roles of project managers in the planning and implementation of public sector projects. *International Journal of Public Administration, 35*, 315-328. https://doi.org/10.1080/01900692.2012.655461

Gómez, R. S., Pérez, J. G., Martín, M. L., & García, C. G. (2016). Collinearity diagnostic applied in ridge estimation through the variance inflation factor. *Journal of Applied Statistics, 43*(10), 1831-1849. https://doi.org/10.1080/02664763.2015.1120712

González, G. E. G., Coronado, C. A. L., & Casas, G. H. P. (2016). Project manager profile characterization in energy sector. *International Journal of Information Technology Project Management (IJITPM), 7*, 64-84. https://doi.org/10.4018/IJITPM.2016100105

Graham-Rowe, E., Jessop, D. C., & Sparks, P. (2015). Predicting household food waste reduction using an extended theory of planned behaviour. *Resources, Conservation and Recycling, 101*, 194-202. https://doi.org/10.1016/j.resconrec.2015.05.020

Gravetter, F. J., & Forzano, L. A. B. (2018). *Research methods for the behavioral sciences*. Cengage Learning.

Greco, L. M., O'Boyle, E. H., Cockburn, B. S., & Yuan, Z. (2018). Meta-analysis of coefficient alpha: A reliability generalization study. *Journal of Management Studies, 55*(4), 583-618. https://doi.org/10.1111/joms.12328

Green, S., & Salkind, N. (2016). *Using SPSS for Windows and Macintosh: Analyzing and understanding data* (8th ed.). Pearson Publication. https://www.worldcat.org/title/using-spss-for-windows-and-macintosh-analyzing-and-understanding-data/oclc/50064695/editions?referer=di&editionsView=true

Greenland, S., Senn, S. J., Rothman, K. J., Carlin, J. B., Poole, C., Goodman, S. N., & Altman, D. G. (2016). Statistical tests, P values, confidence intervals, and power: A guide to misinterpretations. *European Journal of Epidemiology, 31*(4), 337-350. https://doi.org/10.1007/s10654-016-0149-3

Grundy, S. (2017). Education leadership. in J. Blackmore, & Kenway (Eds.), *Gender matters in educational administration and policy: A feminist introduction*. Routledge. https://doi.org/10.4324/9781315175089-13

Gunduz, M., & Almuajebh, M. (2020). Critical success factors for sustainable construction project management: Sustainability. *Open Access Journal*, *12*(5), 1-17. https://doi.org/10.3390/su12051990

Gunter, R. C. (2020). *Emotional intelligence and its relationship to project manager leadership competencies and project success* (Doctoral dissertation). ProQuest Dissertations & Theses database. (UMI No. 27999729)

Gürbüz, B., Öncü, E., & Emir, E. (2019). The Turkish adaptation of leisure facilitator scale: A validity and reliability study. *Physical Education of Students, 23*(2), 64-69. https://sportedu.org.ua/index.php/PES/article/view/790

Halls, J. N., & Randall, A. L. (2018). Nesting patterns of loggerhead sea turtles (Caretta caretta): Development of a multiple regression model tested in North Carolina, *ISPRS International Journal of Geo-Information, 7*(9), 348. https://doi.org/10.3390/ijgi7090348

Hamilton, D., Ghert, M., & Simpson, A. (2015). Interpreting regression models in clinical outcome studies. *Bone & Joint Research*, *4*, 152-153. https://doi.org/10.1302/2046-3758.49.2000571

Harms, P. D., Wood, D., Landay, K., Lester, P. B., & Lester, G. V. (2018). Autocratic leaders and authoritarian followers revisited: A review and agenda for the future. *Leadership Quarterly, 29*(1), 105-122. https://doi.org/10.1016/j.leaqua.2017.12.007

Harriss, D. J., MacSween, A., & Atkinson, G. (2017). Standards for ethics in sport and exercise science research: 2018 update. *International Journal of Sports Medicine, 38*(14), 1126-1131. https://doi.org/10.1055/s-0043-124001

Haughton, G., Bankoff, G., & Coulthard, T. (2015). In search of 'lost' knowledge and outsourced expertise in flood risk management. *Transactions of the Institute of British Geographers, 40*(3), 375-386. https://doi.org/10.1111/tran.12082

Hayes, A. F., & Montoya, A. K. (2017). A tutorial on testing, visualizing, and probing an interaction involving a multicategory variable in linear regression analysis.

Communication Methods and Measures, 11(1), 1-30. https://doi.org/10.1080/19312458.2016.1271116

Hekman, D. R., Johnson, S. K., Foo, M. D., & Yang, W. (2017). Does diversity-valuing behavior result in diminished performance ratings for non-white and female leaders? *Academy of Management Journal*, *60*(2), 771-797. https://doi.org/10.5465/amj.2014.0538

Hjelmbrekke, H., Hansen, G. K., & Lohne, J. (2015). A motherless child why do construction projects fail. *Procedia Economics and Finance, 21*, 72-79. https://doi.org/10.1016/S2212-5671(15)00152-5

Holman, L., Head, M. L., Lanfear, R., & Jennions, M. D. (2015). Evidence of experimental bias in the life sciences: Why we need blind data recording. *PLoS Biology, 13*(7), e1002190. https://doi.org/10.1371/journal.pbio.1002190

Hosford, B. (2017). *Correlational study of project managers' competence, experience, education, and technology experience on* project success (Doctoral dissertation). ProQuest Dissertations & Theses database. (UMI No. 10269745)

Hoxha, L., & McMahan, C. (2019). The influence of project manager's age on project success. *Journal of Engineering, Project, and Production Management, 9*(1), 12-19. https://doi.org/10.2478/jeppm-2019-0003

Høyland, S., Hollund, J. G., & Olsen, O. E. (2015). Gaining access to a research site and participants in medical and nursing research: A synthesis of accounts. *Medical Education*, *49*(2), 224-232. https://doi.org/10.1111/medu.12622

Hu, Z., Melton, G. B., Arsoniadis, E. G., Wang, Y., Kwaan, M. R., & Simon, G. J.

(2017). Strategies for handling missing clinical data for automated surgical site infection detection from the electronic health record. *Journal of Biomedical informatics, 68*, 112-120. https://doi.org/10.1016/j.jbi.2017.03.009

Hughes, D. L., Dwivedi, Y. K., Rana, N. P., & Simintiras, A. C. (2016). Information systems project failure–analysis of causal links using interpretive structural modelling. *Production Planning & Control, 27*(16), 1313-1333. https://doi.org/10.1080/09537287.2016.1217571

Hyde, J. S., Bigler, R. S., Joel, D., Tate, C. C., & van Anders, S. M. (2019). The future of sex and gender in psychology: Five challenges to the gender binary. *American Psychologist, 74*(2), 171-193. https://doi.org/10.1037/amp0000307

Iqbal, N., Anwar, S., & Haider, N. (2015). Effect of leadership style on employee performance. *Arabian Journal of Business and Management Review, 5*(5), 1-6. https://www.hilarispublisher.com/abstract/effect-of-leadership-style-on-employee-performance-20279.html

Irmen, A. (2017). Capital-and labor-saving technical change in an aging economy. *International Economic Review, 58*(1), 261-285. https://doi.org/10.1111/iere.12216

Jahangirian, M., Taylor, S. J., Young, T., & Robinson, S. (2017). Key performance indicators for successful simulation projects. *Journal of the Operational Research Society, 68*(7), 747-765. https://doi.org/10.1057/jors.2016.1

Jeong, Y., & Jung, M. J. (2016). Application and interpretation of hierarchical multiple regression. *Orthopaedic Nursing, 35*(5), 338-341.

https://doi.org/10.1097/NOR.0000000000000279

Jiang, W., Lu, Y., & Le, Y. (2016). Trust and project success: A twofold perspective between owners and contractors. *Journal of Management in Engineering, 32*(6), 12-19. https://ascelibrary.org/doi/abs/10.1061/%28ASCE%29ME.1943-5479.0000469

Jin, X., Zhang, G., Liu, J., Feng, Y., & Zuo, J. (2017). Major participants in the construction industry and their approaches to risks: A theoretical framework. *Procedia Engineering, 182*, 314-320. https://doi.org/10.1016/j.proeng.2017.03.100

Johansen, S., & Nielsen, B. (2016). Asymptotic theory of outlier detection algorithms for linear time series regression models. *Scandinavian Journal of Statistics, 43*(2), 321-348. https://doi.org/10.1111/sjos.12174

Jorgensen, M., & Yamashita, A. (2016). Cultural characteristics and their connection to increased risk of software project failure. *Journal of Social Work, 11*(6), 606-614. https://doi.org/10.17706/jsw.11.6.606-614

Joslin, R., & Muller, R. (2016). The impact of project methodologies on project success in different project environments. *International Journal of Managing Projects in Business, 9*, 364-388. https://doi.org/10.1108/IJMPB-03-2015-0025

Kearney, E. (2008). Age differences between leader and followers as a moderator of the relationship between transformational leadership and team performance. *Journal of Occupational and Organizational Psychology, 81*(4), 803-811. https://doi.org/10.1348/096317907X256717

Keehan, S. P., Cuckler, G. A., Sisko, A. M., Madison, A. J., Smith, S. D., Stone, D. A., Poisal, J. A., Wolfe, C. J., & Lizonitz, J. M. (2017). National health expenditure projections, 2016-25: Price increases, aging push sector to 20 percent of economy. *Health Affairs, 36*(3), 553-563. https://doi.org/10.1377/hlthaff.2016.1627

Kerzner, H. (2017). *Project management: A systems approach to planning, scheduling, and controlling*. John Wiley & Sons.

Kerzner, H. (2018). *Project management best practices: Achieving global excellence.* John Wiley & Sons.

Kidwell, J. M., Stevens, R. E., & Bethke, A. L. (2013). Differences in ethical perceptions between male and female managers: Myth or reality. *The Journal of Business Ethics 12*, 329-335. https://doi.org/10.1007/978-94-007-4126-3_16

Kirk, R. E. (2013). *Experimental design: Procedures for the behavioral sciences*. Sage Publications. https://doi.org/10.4135/9781483384733

Kissi, J., Dainty, A., & Tuuli, M. (2013). Examining the role of transformational leadership of portfolio managers in project performance. *International Journal of Project Management, 31*(4), 485-497. https://doi.org/10.1016/j.ijproman.2012.09.004

Klopotan, I., Buntak, K., & Drožđek, I. (2016). Employee loyalty: Differences between genders and the public and the private sector. *Interdisciplinary Description of Complex Systems: INDECS*, *14*(3), 303-313. https://doi.org/10.7906/indecs.14.3.3

Konerding, U. (2020). Is a ratio scale assumption for physician ratings justified? comment on “what patients’ value in physicians: Analyzing drivers of patient

satisfaction using physician-rating website data". *The Journal of Medical Internet Research, 22*(10). https://doi.org/10.2196/18289

Kozak, M., & Piepho, H. P. (2018). What's normal anyway? Residual plots are more telling than significance tests when checking ANOVA assumptions. *Journal of Agronomy and Crop Science, 204*(1), 86-98. https://doi.org/10.1111/jac.12220

Kratochwill, T. R., Levin, J. R., & Horner, R. H. (2018). Negative results: Conceptual and methodological dimensions in single-case intervention research. *Remedial and Special Education, 39*(2), 67-76. https://doi.org/10.1177/0741932517741721

Kulik, C. T., Ryan, S., Harper, S., & George, G. (2014). Aging populations and management. *Academy of Management Journal*, *57,* 929-935. https://doi.org/10.5465/amj.2014.4004

Kumari, K., & Yadav, S. (2018). Linear regression analysis study. *Journal of the Oractice of Cardiovascular Sciences*, *4*(1), 33-36. https://www.j-pcs.org/text.asp?2018/4/1/33/231939

Lain, D., & Loretto, W. (2016). Managing employees beyond age 65: From the margins to the mainstream. *Employee Relations, 38*, 646-664. https://doi.org/10.1108/ER-04-2015-0062

Lancaster, K. (2017). Confidentiality, anonymity and power relations in elite interviewing: Conducting qualitative policy research in a politicised domain. *International Journal of Social Research Methodology, 20*(1), 93-103. https://doi.org/10.1080/13645579.2015.1123555

Larson-Hall, J., & Plonsky, L. (2015). Reporting and interpreting quantitative research

findings: What get reported and recommendations for the field. *Language Learning, 65*, 127-159. https://doi.org/10.1111/lang.12115

Lauren, B. (2018). *Communicating project management: A participatory rhetoric for development teams.* Routledge.

Leonardi, P. M. (2017). How to build high impact theories of organizational communication: Strategies of discovery and reconceptualization. *Management Communication Quarterly, 31*(1), 123-129. https://doi.org/10.1177/0893318916675426

Lesko, C. R., Buchanan, A. L., Westreich, D., Edwards, J. K., Hudgens, M. G., & Cole, S. R. (2017). Generalizing study results: A potential outcomes perspective. *Epidemiology, 28*(4), 553-565. https://doi.org/10.1097/EDE.0000000000000664

Leviton, L. C. (2017). Generalizing about public health interventions: A mixed-methods approach to external validity. *Annual Review of Public Health, 38*, 371-391. https://doi.org/10.1146/annurev-publhealth-031816-044509

Levý, L. (2020). *The relationship between authentic leadership in project managers and project success* (Doctoral dissertation). ProQuest Dissertations & Theses database. (UMI No. 2386182143)

Lewis-Beck, C., & Lewis-Beck, M. (2015). *Applied regression: An introduction* (2nd ed.). Sage Publications.

Li, J., Xia, J., & Zajac, E. J. (2018). On the duality of political and economic stakeholder influence on firm innovation performance: Theory and evidence from Chinese firms. *Strategic Management Journal, 39*(1), 193-216.

https://doi.org/10.1002/smj.2697

Liang, X., Su, L. Y. F., Yeo, S. K., Scheufele, D. A., Brossard, D., Xenos, M., & Corley, E. A. (2014). Building buzz: (Scientists) communicating science in new media environments. *Journalism & Mass Communication Quarterly*, *91*(4), 772-791. https://www.visionsinmethodology.org

Liao, C. (2017). Leadership in virtual teams: A multilevel perspective. *Human Resource Management Review, 27*(4), 648-659. https://doi.org/10.1016/j.hrmr.2016.12.010

Liphadzi, M., Aigbavboa, C., & Thwala, W. (2015). Relationship between leadership styles and project success in the South Africa construction industry. *Procedia Engineering, 123,* 284–290. https://www.pdfs.semanticscholar.org

Lock, D. (2017). *The essentials of project management* (4th ed.). Routledge. https://doi.org/10.4324/9781315239941

Locke, L., Spirduso, W. W., & Silverman, S. J. (2014). *Proposals that work: A guide for planning dissertations and grant proposals* (6th ed.). Sage Publications. https://doi.org/10.1177/1094428108325128

Lohse, J., Goeschl, T., & Diederich, J. H. (2017). Giving is a question of time: Response times and contributions to an environmental public good. *Environmental and Resource Economics, 67*(3), 455-477. https://doi.org/10.1007/s10640-016-0029-z

Lonati, S., Quiroga, B. F., Zehnder, C., & Antonakis, J. (2018). On doing relevant and rigorous experiments: Review and recommendations. *Journal of Operations Management, 64*, 19-40. https://doi.org/10.1016/j.jom.2018.10.003

Luţaş, M., Nistor, R., Radu, M., & Beleiu, I. (2020). Perceptions regarding the profile of

an ideal project manager. *Amfiteatru Economic*, *22*(54), 608-622. https://doi.org/10.24818/EA/2020/54/608

Mahaney, R. C., & Lederer, A. L. (2011). An agency theory explanation of project success. *Journal of Computer Information Systems, 51*(4), 102-113. https://www.tandfonline.com/doi/abs/10.1080/08874417.2011.11645506

Malone, H. E., Nicholl, H., & Coyne, I. (2016). Fundamentals of estimating sample size. *Nurse Researcher, 23*(5), 21-25. http://journals.rcni.com/nurse-researcher/fundamentals-of-estimating-sample-size-nr.23.5.21.s5

Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample size in qualitative interview studies: Guided by information power. *Qualitative Health Research, 26*(13), 1753-1760. https://doi.org/10.1177/1049732315617444

Maqbool, R., Sudong, Y., Manzoor, N., & Rashid, Y. (2017). The impact of emotional intelligence, project managers' competencies, and transformational leadership on project success: An empirical perspective. *Project Management Journal, 48*(3), 58-75. https://doi.org/10.1177/875697281704800304

Martínez-Mesa, J., González-Chica, D. A., Duquia, R. P., Bonamigo, R. R., & Bastos, J. L. (2016). Sampling: How to select participants in my research study. *Air Medical Journal, 91*(3), 326-330. https://doi.org/10.1590/abd1806-4841.20165254

Masa'deh, R. E., Obeidat, B. Y., & Tarhini, A. (2016). A Jordanian empirical study of the associations among transformational leadership, transactional leadership, knowledge sharing, job performance, and firm performance: A structural equation modelling approach. *Journal of Management Development, 35*, 681-705.

https://www.emerald.com/insight/content/doi/10.1108/JMD-09-2015-0134/full/html

Maslach, C., & Leiter, M. P. (2016). Understanding the burnout experience: Recent research and its implications for psychiatry. *World Psychiatry, 15*(2), 103-111. https://doi.org/10.1002/wps.20311

Matthias, A., Patrick, B., & Konrad, S. (2017). Evaluation of project success: A structured literature review. *International Journal of Managing Projects in Business, 10,* 796-821. https://doi.org/10.1108/IJMPB-01-2017-0004

Mazur, A., Pisarski, A., Chang, A., & Ashkanasy, N. M. (2014). Rating defence major project success: The role of personal attributes and stakeholder relationships. *International Journal of Project Management, 32*(6), 944-957. https://eprints.qut.edu.au/65096/

McClelland, G. H., Irwin, J. R., Disatnik, D., & Sivan, L. (2017). Multicollinearity is a red herring in the search for moderator variables: A guide to interpreting moderated multiple regression models and a critique of Iacobucci, Schneider, Popovich, and Bakamitsos. *Behavior Research Methods, 49*(1), 394-402. https://doi.org/10.3758/s13428-016-0785-2

McCormick, T. H., Lee, H., Cesare, N., Shojaie, A., & Spiro, E. S. (2017). Using Twitter for demographic and social science research: Tools for data collection and processing. *Sociological Methods & Research, 46*(3), 390-421. https://doi.org/10.1177/0049124115605339

McCusker, K., & Gunaydin, S. (2015). Research using qualitative, quantitative or mixed

methods and choice based on the research. *Perfusion, 30*(7), 537-542. https://doi.org/10.1177/0267659114559116

McKibben, W. B., & Silvia, P. J. (2016). Inattentive and socially desirable responding: Addressing subtle threats to validity in quantitative counseling research. *Counseling Outcome Research and Evaluation, 7*(1), 53-64. https://doi.org/10.1177/2150137815613135

McNeish, D. M., & Stapleton, L. M. (2016). The effect of small sample size on two-level model estimates: A review and illustration. *Educational Psychology Review, 28*(2), 295-314. https://doi.org/10.1007/s10648-014-9287-x

Menberu, C. (2020). Assessments of construction project managers' competence and its impact on project success. The case of Bahir Dar city public building construction projects. *Dspace Institution, 2*, 1-113. http://repository.smuc.edu.et/handle/123456789/3049

Mencl, J., Wefald, A. J., & van Ittersum, K. W. (2016). Transformational leader attributes: Interpersonal skills, engagement, and well-being. *Leadership & Organization Development Journal, 37*, 635-657. https://psycnet.apa.org/record/2016-29593-005

Meng, X., & Boyd, P. (2017). The role of the project manager in relationship management. *International Journal of Project Management*, 35(5), 717-728. https://doi.org/10.1016/j.ijproman.2017.03.001

Menges, J. I., Tussing, D. V., Wihler, A., & Grant, A. M. (2017). When job performance is all relative: How family motivation energizes effort and compensates for

intrinsic motivation. *Academy of Management Journal*, *60*(2), 695-719. https://doi.org/10.5465/amj.2014.0898

Menzel, A., Hempel, S., Klotz, S., Moora, M., Pyšek, P., Rillig, M. C., Zobel, M., & Kuhn, I. (2017). Mycorrhizal status helps explain invasion success of alien plant species. *Ecology, 98*(1), 92-102. https://doi.org/10.1002/ecy.1621

Meredith, J. R., Mantel, S. J., & Shafer, S. M. (2017). *Project management: A managerial approach.* John Wiley & Sons.

Mertler, C. A., & Reinhart, R. V. (2016). *Advanced and multivariate statistical methods: Practical application and interpretation* (6th ed.). Routledge.

Mikhieieva, O., & Waidmann, M. (2017). Communication management tools for managing projects in an intercultural environment. *PM World Journal, 6*(8), 1-15. https://pmworldlibrary.net/wp-content/uploads/2017/08/pmwj61-Aug2017-Mikhieieva-Waidmann-communication-management-tools.pdf

Miller, S. (2005). *Experimental design and statistics*. Routledge. https://doi.org/10.4324/9780203977644

Millhollan, C., & Kaarst-Brown, M. (2016). Lessons for IT project manager efficacy: A review of the literature associated with project success. *Project Management Journal, 47*(5), 89-106. https://doi.org/10.1177/875697281604700507

Miner, K. N., & Cortina, L. M. (2016). Observed workplace incivility toward women, perceptions of interpersonal injustice, and observer occupational well-being: Differential effects for gender of the observer. *Frontiers in Psychology, 482*, 1-12. https://doi.org/10.3389/fpsyg.2016.00482

Mithas, S., & Rust, R. T. (2016). How information technology strategy and investments influence firm performance: Conjecture and empirical evidence. *MIS Quarterly, 40*(1), 223-245. https://doi.org/10.25300/MISQ/2016/40.1.10

Monghasemi, S., Nikoo, M. R., Fasaee, M. A. K., & Adamowski, J. (2017). A hybrid of genetic algorithm and evidential reasoning for optimal design of project scheduling: A systematic negotiation framework for multiple decision-makers. *International Journal of Information Technology & Decision Making*, *16*(2), 389-420. https://doi.org/10.1142/S0219622017500079

Moon, M. D. (2019). Triangulation: A method to increase validity, reliability, and legitimation in clinical research. *Journal of Emergency Nursing, 45*(1), 103-105. https://doi.org/10.1016/j.jen.2018.11.004

Moradi, S., Kähkönen, K., & Aaltonen, K. (2020). Project managers' competencies in collaborative construction projects. *Buildings*, *10*(3), 50-58. https://www.mdpi.com/2075-5309/10/3/50

Mukerjee, H. S., & Prasad, U. D. (2017). Definitions of project success in technology (IT) solutions: Perspectives of consultants from India. *South Asian Journal of Management, 24*(4), 142-157. https://www.questia.com/library/journal/1P4-2018570876/definitions-of-project-success-in-implementation-of

Muller, R., & Jugdev, K. (2012). Critical success factors in projects: Pinto, Slevin, and Prescott the elucidation of project success. *International Journal of Managing Projects in Business*, *5*(4), 757-775. https://doi.org/10.1108/17538371211269040

Muller, R., & Turner, J. R. (2017). *Project-oriented leadership: Advances in project*

management. Routledge.

Muller, R., Turner, J. R., Andersen, E. S., Shao, J., & Kvalnes, Ø. (2016). Governance and ethics in temporary organizations: The mediating role of corporate governance. *Project Management Journal, 47*(6), 7-23. https://doi.org/10.1177/875697281604700602

Müller, R., & Turner, R. (2007). The influence of project managers on project success criteria and project success by type of project. *European Management Journal*, *25*(4), 298-309. https://doi.org/10.1016/j.emj.2007.06.003

National Commission for the Protection of Human Subjects and Biomedical and Behavioral Research. (1979). *The Belmont Report: Ethical principles and guidelines for the protection of human subjects of research*. U.S. Department of Health and Human Services. https://www.hhs.gov/ohrp/humansubjects/guidance/Belmont.html

Nauman, S., & Piracha, M. S. S. (2016). Project stakeholder management - A developing country perspective. *Journal of Quality and Technology Management, 12*, 1-24. https://jqtm.com.pk/index.php/JQTM/article/view/19

Nelson, E. J., Loux, T., Arnold, L. D., Siddiqui, S. T., & Schootman, M. (2019). Obtaining contextually relevant geographic data using Facebook recruitment in public health studies. *Health & Place, 55*, 37-42. https://doi.org/10.1016/j.healthplace.2018.11.002

Nelson, J. A. (2015). Are women really more risk-averse than men? A re-analysis of the literature using expanded methods. *Journal of Economic Surveys, 29*(3), 566-585.

https://doi.org/10.1111/joes.12069

Neumeier, A., Radszuwill, S., & Garizy, T. Z. (2018). Modeling project criticality in IT project portfolios. *International Journal of Project Management*, *36*(6), 833-844. https://doi.org/10.1016/j.ijproman.2018.04.005

Nicholas, J. M., & Steyn, H. (2017). *Project management for engineering, business and technology* (5th ed.). Routledge.

Noble, H., & Smith, J. (2015). Issues of validity and reliability in qualitative research. *Evidence-Based Nursing*, *18*(2), 34-35. https://doi.org/10.1136/eb-2015-102054

Ojiako, U., Chipulu, M., Gardiner, P., Williams, T., Mota, C., Maguire, S., Shou, Y., & Stamati, T. (2014). Effect of project role, age and gender differences on the formation and revision of project decision judgements. *International Journal of Project Management*, *32*(4), 556-567 https://doi.org/10.1016/j.ijproman.2013.09.001

Olsen, R. B., Bell, S. H., & Nichols, A. (2018). Using preferred applicant random assignment (para) to reduce randomization bias in randomized trials of discretionary programs. *Journal of Policy Analysis and Management, 37*(1), 167-180. https://doi.org/10.1002/pam.22005

Oluikpe, P. I. (2015). Knowledge creation and utilization in project teams. *Journal of Knowledge Management, 19*, 351-371. https://doi.org/10.1108/JKM-06-2014-0214

Oshagbemi, T. (2008). The impact of personal and organizational variables on the leadership styles of managers. *The International Journal of Human Resource*

Management, 19(10), 1896-1910. https://doi.org/10.1080/09585190802324130

Owen, A. B., & Prieur, C. (2017). On Shapley value for measuring importance of dependent inputs. *SIAM/ASA Journal on Uncertainty Quantification, 5*(1), 986-1002. https://doi.org/10.1137/16M1097717

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research, 42*(5), 533-544. https://doi.org/10.1007/s10488-013-0528-y

Panagiotakos, D. (2008). The value of p-value in biomedical research. *The Open Cardiovascular Medicine Journal*, *2*, 97-99. https://doi.org/10.2174/1874192400802010097

Parson, S. J. (2020). *Relationship between U.S. construction project managers' leadership styles and construction project success* (Doctoral dissertation). ProQuest Dissertations & Theses database. (UMI No. 2438697674)

Paton, S., & Hodgson, D. (2016). Project managers on the edge: Liminality and identity in the management of technical work. *New Technology, Work and Employment, 31*(1), 26-40. https://doi.org/10.1111/ntwe.12056

Pattison, S., Gutwill, J., Auster, R., & Cannady, M. (2019). Experimental and quasi-experimental designs in visitor studies: A critical reflection on three projects. *Visitor Studies, 22*(1), 43-66. https://doi.org/10.1080/10645578.2019.1605235

Peker, S., Inandi, Y., & Giliç, F. (2018). The Relationship between leadership styles

(autocratic and democratic) of school administrators and the mobbing teachers suffer. *European Journal of Contemporary Education, 7*(1), 150-164. https://eric.ed.gov/?id=EJ1172917

Perryman, A. A., Fernando, G. D., & Tripathy, A. (2016). Do gender differences persist: An examination of gender diversity on firm performance, risk, and executive compensation. *Journal of Business Research, 69*(2), 579-586. https://doi.org/10.1016/j.jbusres.2015.05.013

Petrovčič, A., Petrič, G., & Manfreda, K. L. (2016). The effect of email invitation elements on response rate in a web survey within an online community. *Computers in Human Behavior, 56*, 320-329. https://doi.org/10.1016/j.chb.2015.11.025

Pimchangthong, D., & Boonjing, V. (2017). Effects of risk management practice on the success of IT project. *Procedia Engineering, 182*, 579-586. https://doi.org/10.1016/j.proeng.2017.03.158

Pinto, J. K., Patanakul, P., & Pinto, M. B. (2017). "The aura of capability": Gender bias in selection for a project manager job. *International Journal of Project Management, 35*(3), 420-431. https://doi.org/10.1016/j.ijproman.2017.01.004

Pinto, J. K., & Slevin, D. P. (1988). Critical success factors across the project life cycle. *Project Management Journal*, *19*(3), 67-75. https://doi.org/10.1002/(ISSN)1938-9507

Piria, M., Simonović, P., Kalogianni, E., Vardakas, L., Koutsikos, N., Zanella, D., Ristovska, M., Apostolou, A., Adrović, A., Mrdak, D., & Tarkan, A. S. (2018).

Alien freshwater fish species in the Balkans vectors and pathways of introduction. *Fish and Fisheries*, *19*(1), 138-169. https://doi.org/10.1111/faf.12242

Plonsky, L., & Ghanbar, H. (2018). Multiple regression in L2 research: A methodological synthesis and guide to interpreting R2 values. *The Modern Language Journal, 102*(4), 713-731. https://doi.org/10.1111/modl.12509

Plonsky, L., & Oswald, F. L. (2017). Multiple regression as a flexible alternative to ANOVA in L2 research. *Studies in Second Language Acquisition, 39*(3), 579-592. https://doi.org/10.1017/S0272263116000231

Podsakoff, P. M., & Podsakoff, N. P. (2019). Experimental designs in management and leadership research: Strengths, limitations, and recommendations for improving publish ability. *The Leadership Quarterly, 30*(1), 11-33. https://doi.org/10.1016/j.leaqua.2018.11.002

Prabhu, R. S. B., & Ramesh, M. (2019). Brand credibility and purchase preferences in mobile phone network service. *Age, 26*(35), 146-150. https://www.researchgate.net/profile/Ramesh_M2/publication/334823548_BRAND_CREDIBILITY_AND_PURCHASE_PREFERENCES_IN_MOBILE_PHONE_NETWORK_SERVICE/links/5d4277f14585153e59326433/BRAND-CREDIBILITY-AND-PURCHASE-PREFERENCES-IN-MOBILE-PHONE-NETWORK-SERVICE.pdf

Pretorius, S., Steyn, H., & Bond-Barnard, T. J. (2018). Leadership styles in projects: Current trends and future opportunities. *South African Journal of Industrial Engineering, 29*(3), 161-172. https://doi.org/10.7166/29-3-2057

Project Management Institute. (2012). *A guide to the project management body of knowledge* (5th ed.). Author.

Project Management Institute. (2016). Pulse of the profession. https://www.pmi.org/learning/thought-leadership/pulse/pulse-of-the-profession-2016

Project Management Institute. (2017). *A guide to the project management body of knowledge* (6th ed.). Author.

Project Management Institute. (2018). Job growth and talent gap. https://www.pmi.org/learning/careers/job-growth

Propper, R. E., Wolfarth, A., Brunye, T. T., Carlei, C., & Lall, S. (2019). Categorical and coordinate spatial task performance in inconsistent-handers versus consistent-right-handers: Part II. *Cognitive Processing, 20*(4), 441-446. https://doi.org/10.1007/s10339-019-00926-x

Qazi, A., Dickson, A., Quigley, J., & Gaudenzi, B. (2018). Supply chain risk network management: A Bayesian belief network and expected utility-based approach for managing supply chain risks. *International Journal of Production Economics, 196*, 24-42. https://doi.org/10.1016/j.ijpe.2017.11.008

Quaife, M., Terris-Prestholt, F., Di Tanna, G. L., & Vickerman, P. (2018). How well do discrete choice experiments predict health choices: A systematic review and meta-analysis of external validity. *The European Journal of Health Economics, 19*(8), 1053-1066. https://doi.org/10.1007/s10198-018-0954-6

Radujković, M., & Sjekavica, M. (2017). Project management success factors. *Procedia*

engineering, 196, 607-615. https://doi.org/10.1016/j.proeng.2017.08.048

Rahi, S. (2017). Research design and methods: A systematic review of research paradigms, sampling issues and instruments development. *International Journal of Economics & Management Sciences, 6*(2), 1-5. https://doi.org/10.4172/2162-6359.1000403

Ramazani, J., & Jergeas, G. (2015). Project managers and the journey from good to great: The benefits of investment in project management training and education. *International Journal of Project Management, 33*(1), 41-52. https://doi.org/10.1016/j.ijproman.2014.03.012

Ranney, M. L., Meisel, Z. F., Choo, E. K., Garro, A. C., Sasson, C., & Morrow, G. K. (2015). Interview-based qualitative research in emergency care part II: Data collection, analysis and results reporting. *Academic Emergency Medicine, 22*(9), 1103-1112. https://doi.org/10.1111/acem.12735

Rappaport, J., & Richter, S. (2013). An application of Schein's theory of organizational culture to experiential learning. *Northeast Decision Sciences Institute Annual Meeting Proceedings, 4*, 387-401. https://www.nedsi.org/proc/2013/proc/p12082500

Reinharz, S. (2017). *On becoming a social scientist: From survey research and participant observation to experimental analysis*. Routledge.

Rezvani, A., Chang, A., Wiewiora, A., Ashkanasy, N. M., Jordan, P. J., & Zolin, R. (2016). Manager emotional intelligence and project success: The mediating role of job satisfaction and trust. *International Journal of Project Management*, *34*(7),

1112-1122. https://doi.org/10.1016/j.ijproman.2016.05.012

Rice, S., Winter, S. R., Doherty, S., & Milner, M. (2017). Advantages and disadvantages of using internet-based survey methods in aviation-related research. *Journal of Aviation Technology and Engineering*, *7*(1), 5. https://doi.org/10.7771/2159-6670.1160

Rivel, B. P. D., & Yirong, Y. (2020). The effect of monetary policy on the general price level in the democratic Republic of Congo. *American Journal of Economics, 10*(6), 407-417. http://article.sapub.org/10.5923.j.economics.20201006.10.html

Robinson, D. B., & Randall, L. (2017). Marking physical literacy or missing the mark on physical literacy? A conceptual critique of Canada's physical literacy assessment instruments. *Measurement in Physical Education and Exercise Science, 21*(1), 40-55. https://doi.org/10.1080/1091367X.2016.1249793

Rockart, J. F. (1978). A new approach to defining the chief executive's information needs. *MIT Working Paper, 57*, 81-92. https://dspace.mit.edu/handle/1721.1/1942

Rockart, J. F., & Bullen, V. (1981). *A primer on critical success factors.* https://www.researchgate.net/publication/5175561_A_primer_on_critical_success_factors

Rodríguez, P., Montequín, V. R., Morán, H., & de Arriba, L. (2017). Gender influence in project management: Analysis of a case study based on master students. *Procedia Computer Science, 121*, 461-468. https://doi.org/10.1016/j.procs.2017.11.062

Rogo, V., Rarasati, A. D., & Gumuruh, H. (2020). The influence of transformational leadership and soft skills on project manager for project success factors. *IOP*

Conference Series: Materials Science and Engineering. 830, 1-7. https://doi.org/10.1088/1757-899X/830/2/022057

Roller, M. R. (2015). *Qualitative research design.* Roller Marketing Research. http://www.rollerresearch.com/publications.html

Roy, K., Zvonkovic, A., Goldberg, A., Sharp, E., & LaRossa, R. (2015). Sampling richness and qualitative integrity: Challenges for research with families. *Journal of Marriage and Family, 77*(1), 243-260. https://doi.org/10.1111/jomf.12147

Ruben, B. D., & Gigliotti, R. A. (2016). Leadership as social influence: An expanded view of leadership communication theory and practice. *Journal of Leadership & Organizational Studies, 23*(4), 467-479. https://doi.org/10.1177/1548051816641876

Rubin, A., & Babbie, E. R. (2016). *Essential research methods for social work* (4th ed.). Cengage Learning.

Rutberg, S., & Bouikidis, C. D. (2018). Focusing on the fundamentals: A simplistic differentiation between qualitative and quantitative research. *Nephrology Nursing Journal, 45*(2), 209-213. https://pubmed.ncbi.nlm.nih.gov/30303640/

Sadeghi, H., Mousakhani, M., Yazdani, M., & Delavari, M. (2014). Evaluating project managers by an interval decision-making method based on a new project manager competency model. *Arabian Journal for Science and Engineering, 39*(2), 1417-1430. https://doi.org/10.1007/s13369-013-0631-0

Sadgrove, K. (2016). *The complete guide to business risk management*. Routledge. https://doi.org/10.4324/9781315614915

Saengchai, S., Joemsittiprasert, W., & Jermsittiparsert, K. (2020). Human resource development and success of engineering procurement construction project: What role engineering education and human resource competency can play. *Test Engineering and Management*, *82*, 3476-3487. https://www.researchgate.net/publication/338720036_Human_Resource_Development_and_Success_of_Engineering_Procurement_Construction_Project_What_Role_Engineering_Education_and_Human_Resource_Competency_can_play

Sankaran, S., Vaagaasar, A. L., & Bekker, M. C. (2019). Assignment of project team members to projects. *International Journal of Managing Projects in Business. 1,* 1-10. https://repository.up.ac.za/handle/2263/73844?show=full

Santos, G. G. (2016). Career barriers influencing career success: A focus on academics' perceptions and experiences. *Career Development International, 21*, 60-84. https://www.emerald.com/insight/content/doi/10.1108/CDI-03-2015-0035/full/html

Santos-Vijande, M. L., López-Sánchez, J. Á., & Rudd, J. (2016). Frontline employees' collaboration in industrial service innovation: Routes of co-creation's effects on new service performance. *Journal of the Academy of Marketing Science*, *44*(3), 350-375. https://doi.org/10.1007/s11747-015-0447-4

Sava, D. C. (2016). *The relationship between project managers' age, gender, and professional experience on career success: A correlation study* (Doctoral dissertation). ProQuest Dissertations & Theses database. (UMI No. 10075467)

Schaller, J. (2016). Booms, busts, and fertility testing the Becker model using gender-

specific labor demand. *Journal of Human Resources, 51*(1), 1-29. https://doi.org/10.3368/jhr.51.1.1

Schmidt, A. F., & Finan, C. (2018). Linear regression and the normality assumption. *Journal of Clinical Epidemiology, 98*, 146-151. https://doi.org/10.1016/j.jclinepi.2017.12.006

Schoenherr, T., Ellram, L. M., & Tate, W. L. (2015). A note on the use of survey research firms to enable empirical data collection. *Journal of Business Logistics, 36*(3), 288-300. https://doi.org/10.1111/jbl.12092

Schönbrodt, F. D., Wagenmakers, E. J., Zehetleitner, M., & Perugini, M. (2017). Sequential hypothesis testing with Bayes factors: Efficiently testing mean differences. *Psychological methods, 22*(2), 322- 350. https://doi.org/10.1037/met0000061

Schweizer, M. L., Braun, B. I., & Milstone, A. M. (2016). Research methods in healthcare epidemiology and antimicrobial stewardship quasi-experimental designs. *Infection Control & Hospital Epidemiology, 37*(10), 1135-1140. https://doi.org/10.1017/ice.2016.117

Seboni, L., & Tutesigensi, A. (2015). Project manager to project allocations in practice: An empirical study of the decision-making practices of a multi-project-based organization. *Construction Management and Economics, 33*(5), 428-443. https://doi.org/10.1080/01446193.2015.1077981

Seeber, I. (2019). How do facilitation interventions foster learning? The role of evaluation and coordination as causal mediators in idea convergence. *Computers*

in Human Behavior, 94, 176-189. https://doi.org/10.1016/j.chb.2018.11.033

Setia, M. S. (2016). Methodology series module 5: Sampling strategies. *Indian Journal of Dermatology, 61*(5), 505-520. https://doi.org/10.4103/0019-5154.190118

Sharma, B. (2016). A focus on reliability in developmental research through Cronbach's Alpha among medical, dental and paramedical professionals. *Asian Pacific Journal of Health Sciences, 3*(4), 271-278. https://doi.org/10.21276/apjhs.2016.3.4.43

Sharma, G. (2017). Pros and cons of different sampling techniques. *International Journal of Applied Research, 3*(7), 749-752. https://www.allresearchjournal.com/archives/2017/vol3issue7/PartK/3-7-69-542.pdf

Shaw, D. (2016). Managing dualities in organizational change projects. *Journal of Change Management, 16*(3), 201-222. https://doi.org/10.1080/14697017.2015.1118142

Shenhar, A. J., Tishler, A., Dvir, D., Lipovetsky, S., & Lechler, T. (2002). Refining the search for project success factors: A multivariate, typological approach. *R&D Management*, *32*(2), 111-126. https://doi.org/10.1111/1467-9310.00244

Sidani, Y. M., & Rowe, W. G. (2018). A reconceptualization of authentic leadership: Leader legitimation via follower-centered assessment of the moral dimension. *The Leadership Quarterly, 29*(6), 623-636. https://doi.org/10.1016/j.leaqua.2018.04.005

Silverman, D. (2015). *Interpreting qualitative data* (5th ed.). Sage Publications.

Sim, J., Saunders, B., Waterfield, J., & Kingstone, T. (2018). Can sample size in qualitative research be determined a priori? *International Journal of Social Research Methodology, 21*(5), 619-634. https://doi.org/10.1080/13645579.2018.1454643

Singh, R., & Jankovitz, L. (2018). Effective project management techniques to prepare information professionals for the future workforce. In S. Hines & A. Daughtery (Eds.), Advances in library administration and organization 2018: Project management in the library workplace. *Emerald Publishing Limited, 38*, 279-294. https://doi.org/10.1108/s0732-067120180000038017

Slevin, D. P., & Pinto, J. K. (1986). The project implementation profile: New tool for project managers. *Project Management Journal, 17*(4), 57-70. https://www.pmi.org/learning/library/project-implementation-profile-tool-project-managers-5220

Sommerville, J., Craig, N., & Hendry, J. (2010). The role of the project manager: All things to all people. *Structural Survey. 28*,132-141. https://doi.org/10.1108/02630801011044235

Squires, J. E., Hoben, M., Linklater, S., Carleton, H. L., Graham, N., & Estabrooks, C. A. (2015). Job satisfaction among care aides in residential long-term care: A systematic review of contributing factors, both individual and organizational. *Nursing Research and Practice*. https://doi.org/10.1155/2015/157924

Srinivasan, V. (2012). Multi generations in the workforce: Building collaboration. *IIMB Management Review, 24*(1), 48-66. https://doi.org/10.1016/j.iimb.2012.01.004

Stamarski, C. S., & Son Hing, L. S. (2015). Gender inequalities in the workplace: The effects of organizational structures, processes, practices, and decision makers' sexism. *Frontiers in psychology*, *6*, 6-20. https://doi.org/10.3389/fpsyg.2015.01400

Stamevski, V., & Stamevska, E. (2017). Leadership style. *Economics and Management, 13*(1), 191-200. https://econpapers.repec.org/article/neojournl/v_3a13_3ay_3a2017_3ai_3a1_3ap_3a191-200.htm

Storey, L., Howard, J., & Gillies, A. (2016). *Competency in Healthcare: A practical guide to competency frameworks*. CRC Press.

Stratton, S. J. (2019). Data sampling strategies for disaster and emergency health research. *Prehospital and Disaster Medicine, 34*(3), 227-229. https://doi.org/10.1017/S1049023X19004412

Sunindijo, R. Y. (2015). Project manager skills for improving project performance. *International Journal of Business Performance Management, 16*(1), 67-83. https://doi.org/10.1504/IJBPM.2015.066041

SurveyMonkey. (2015). *Everything you wanted to know but were afraid to ask*. https://www.surveymonkey.com/mp/aboutus*SurveyMonkey*

SurveyMonkey. (2018a). *Buying responses with SurveyMonkey Audience.* https://www.surveymonkey.com/market-research/solutions/audience-panel/

SurveyMonkey. (2018b). *SurveyMonkey Audience for academics*. https://help.surveymonkey.com/articles/en_US/kb/How-do-Academics-use-

SurveyMonkey-Audience

SurveyMonkey. (2018c). *SurveyMonkey Audience for academics. Privacy Policy*. https://help.surveymonkey.com/servlet/servlet.FileDownload?file=0153A000004oAJh

SurveyMonkey. (2018d). *SurveyMonkey Audience for academics. Disqualifying Respondents*. https://help.surveymonkey.com/articles/en_US/kb/Disqualifying-Respondents

SurveyMonkey. (2020a). *SurveyMonkey Audience. Instant Notifications.* https://help.surveymonkey.com/articles/en_US/kb/Instant-Notifications

SurveyMonkey. (2020b). *SurveyMonkey Audience. Excluding Respondents who Skipped Questions.* https://help.surveymonkey.com/articles/en_US/kb/How-are-respondents-able-to-skip-required-questions

Svejvig, P., & Andersen, P. (2015). Rethinking project management: A structured literature review with a critical look at the brave new world. *International Journal of Project Management, 33*(2), 278-290. https://doi.org/10.1016/j.ijproman.2014.06.004

Sweis, R. (2015). An investigation of failure in information systems projects: The case of Jordan. *Journal of Management Research, 7*(1), 173-185. https://doi.org/10.5296/jmr.v7i1.7002

Syahputra, Z. (2014). Budget participation on managerial performance: Related factors in that influenced to government's employee (Study of Indonesian Local Government). *Journal of Economics and Sustainable Development, 5*(21), 95-

100. https://iiste.org/Journals/index.php/JEDS/article/view/16172

Tabassi, A. A., Roufechaei, K. M., Ramli, M., Bakar, A. H. A., Ismail, R., & Pakir, A. H. K. (2016). Leadership competences of sustainable construction project managers. *Journal of Cleaner Production, 124*, 339-349. https://doi.org/10.1016/j.jclepro.2016.02.076

Taherdoost, H. (2016). Sampling methods in research methodology; how to choose a sampling technique for research. *How to Choose a Sampling Technique for Research 2*, 10-12. https://doi.org/10.2139/ssrn.3205035

Taneja, S., Pryor, M. G., & Toombs, L. A. (2011). Frederick W. Taylor's scientific management principles: Relevance and validity. *Journal of Applied Management and Entrepreneurship, 16*(3), 60-78. http://www.joebm.com/papers/342-M031.pdf

Täuscher, K., & Laudien, S. M. (2018). Understanding platform business models: A mixed methods study of marketplaces. *European Management Journal*, *36*(3), 319-329. https://doi.org/10.1016/j.emj.2017.06.005

Teddlie, C., & Yu, F. (2007). Mixed methods sampling: A typology with examples. *Journal of Mixed Methods Research, 1*(1), 77-100. https://doi.org/10.1177/1558689806292430

Teller, C., Kotzab, H., Grant, D. B., & Holweg, C. (2016). The importance of key supplier relationship management in supply chains. *International Journal of Retail & Distribution Management*, *44*, 109-123. https://doi.org/10.1108/IJRDM-05-2015-0072

Thaler, T., & Levin-Keitel, M. (2016). Multi-level stakeholder engagement in flood risk management. A question of roles and power: Lessons from England. *Environmental Science & Policy, 55*, 292-301. https://doi.org/10.1016/j.envsci.2015.04.007

Thompson, C. G., Kim, R. S., Aloe, A. M., & Becker, B. J. (2017). Extracting the variance inflation factor and other multicollinearity diagnostics from typical regression results. *Basic and Applied Social Psychology, 39*(2), 81-90. https://doi.org/10.1080/01973533.2016.1277529

Thoroughgood, C. N., & Sawyer, K. B. (2018). Who wants to follow the leader? Using personality and work value profiles to predict preferences for charismatic, ideological, and pragmatic styles of leading. *Journal of Business and Psychology, 33*(2), 181-202. https://doi.org/10.1007/s10869-016-9486-1

Tlili, A., Essalmi, F., Jemni, M., & Chen, N. S. (2016). Role of personality in computer-based learning. *Computers in Human Behavior, 64*, 805-813. https://doi.org/10.1016/j.chb.2016.07.043

Todorović, M. L., Petrović, D. Č., Mihić, M. M., Obradović, V. L., & Bushuyev, S. D. (2015). project success analysis framework: A knowledge-based approach in project management. *International Journal of Project Management, 33*(4), 772-783. https://doi.org/10.1016/j.ijproman.2014.10.0 09

Tóth, J. (2020). *Competency-based success factors regarding project management experience: Chapters from the academic aspect of project management-research and teaching methodologies*. PMUni Publications.

https://pmuni.org/papers/2019/Book/PMUni_book_2019.pdf

Tran, T. M. T., Yuen, K. F., Li, K. X., Balci, G., & Ma, F. (2020). A theory-driven identification and ranking of the critical success factors of sustainable shipping management. *Journal of Cleaner Production*, *243*, 1-14. https://doi.org/10.1016/j.jclepro.2019.118401

Valkenburg, P. M., Peter, J., & Walther, J. B. (2016). Media effects: Theory and research. *Annual Review of Psychology, 67*, 315-338. https://doi.org/10.1146/annurev-psych122414-033608

Varela, C., Ruiz, J., Andrés, A., Roy, R., Fusté, A., & Saldaña, C. (2016). Advantages and disadvantages of using the website SurveyMonkey in a real study: Psychopathological profile in people with normal-weight, overweight and obesity in a community sample. *E-methodology, 5*, 1-5. https://www.e-methodology.eu

Vatcheva, K. P., Lee, M., McCormick, J. B., & Rahbar, M. H. (2016). Multicollinearity in regression analyses conducted in epidemiologic studies. *Epidemiology, 6*(2), 225-227. https://doi.org/10.4172/2161-1165.1000227

Verghese, A. K. (2017). Internal communication: Practices and implications. SCMS *Journal of Indian Management, 14*(3), 103-113. https://www.scms.edu.in

Von Bastian, C. C., Souza, A. S., & Gade, M. (2016). No evidence for bilingual cognitive advantages: A test of four hypotheses. *Journal of Experimental Psychology: General, 145*(2), 246-258. https://doi.org/10.1037/xge0000120

Wahyuni, D. (2012). The research design maze: Understanding paradigms, cases, methods and methodologies. *Journal of Applied Management Accounting*

Research, 10(1), 69–80. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2103082

Wang, L. C., & Calvano, L. (2015). Is business ethics education effective? An analysis of gender, personal ethical perspectives, and moral judgment. *Journal of Business Ethics, 126*(4), 591-602. https://doi.org/10.1007/s10551-013-1973-y

Wang, V. C., & Reio, T. G. (2017). *Handbook of research on innovative techniques, trends, and analysis for optimized research methods.* IGI Global.

Warton, D. I., Thibaut, L., & Wang, Y. A. (2017). The PIT-trap: A model-free bootstrap procedure for inference about regression models with discrete, multivariate responses. *PloS One, 12*(7), 8-10, https://doi.org/10.1371/journal.pone.0181790

Williams, R. A. (2020). *Ordinal regression models: Problems, solutions, and problems with the solutions.* Sage Publications. https://doi.org/10.4135/9781526421036938055

Williams, T. (2016). Identifying success factors in construction projects: A case study. *Project Management Journal, 47*, 97-112. https://doi.org/10.1002/pmj.21558

Winch, G., & Leiringer, R. (2016). Owner project capabilities for infrastructure development: A review and development of the "strong owner" concept. *International Journal of Project Management, 34*(2), 271-281. https://doi.org/10.1016/j.ijproman.2015.02.002

Witteman, H. O., Hendricks, M., Straus, S., & Tannenbaum, C. (2019). Are gender gaps due to evaluations of the applicant or the science? A natural experiment at a national funding agency. *The Lancet, 393*, 531-540.

https://doi.org/10.1016/S0140-6736(18)32611-4

Won, N. C., Wan, C. Y., & Sharif, M. Y. (2017). Effect of leadership styles, social capital, and social entrepreneurship on organizational effectiveness of social welfare organization in Malaysia: Data screening and preliminary analysis. *International Review of Management and Marketing, 7*(2), 117-122. https://ideas.repec.org/a/eco/journ3/2017-02-18.html

Wu, W. W., Eom, M. T., & Song, J. (2019). Spheres of IT project complexity and IT project manager archetypes and roles: A case study. *Information Systems Management, 36*(4), 323-335. https://doi.org/10.1080/10580530.2019.1651114

Wu, Y. C. J., & Shen, J. P. (2016). Higher education for sustainable development: A systematic review. *International Journal of Sustainability in Higher Education, 17,* 633-651. https://scholar.lib.ntnu.edu.tw/en/publications/higher-education-for-sustainable-development-a-systematic-review

Yang, Y., & Mathew, T. (2018). The simultaneous assessment of normality and homoscedasticity in linear fixed effects models. *Journal of Statistical Theory and Practice, 12*(1), 66–81. https://doi.org/10.1080/15598608.2017.1320243

Yardley, L., & Bishop, F. L. (2015). Using mixed methods in health research: Benefits and challenges. *British Journal of Health Psychology, 20*(1), 1-4. https://doi.org/10.1111/bjhp.12126

Yassine, A. A., Mostafa, O., & Browning, T. R. (2017). Scheduling multiple, resource-constrained, iterative, product development projects with genetic algorithms. *Computers & Industrial Engineering, 107*, 39-56.

https://doi.org/10.1016/j.cie.2017.03.001

Yin, D., Mitra, S., & Zhang, H. (2016). Research note: When do consumers value positive vs. negative reviews? An empirical investigation of confirmation bias in online word of mouth. *Information Systems Research, 27*(1), 131-144. https://www.semanticscholar.org/paper/Research-Note-When-Do-Consumers-Value-Positive-vs.-Yin-Mitra/c8505f0cd41dda5cf50752ca85761ce860e9145a

Young, A. (2019). Channeling fisher: Randomization tests and the statistical insignificance of seemingly significant experimental results. *The Quarterly Journal of Economics, 134*(2), 557-598. https://doi.org/10.1093/qje/qjy029

Yu, L., Sevilimedu, V., Vogel, R., & Samawi, H. (2020). Quasi-Likelihood ratio tests for homoscedasticity in linear regression. *Journal of Modern Applied Statistical Methods, 18*(1), 19-22. https://doi.org/10.22237/jmasm/1556669460

Zaman, U., Nawaz, S., Tariq, S., & Humayoun, A. A. (2019). Linking transformational leadership and "multi-dimensions" of project success: Moderating effects of project flexibility and project visibility using PLS-SEM. *International Journal of Managing Projects in Business, 13*(1), 103-127. https://doi.org/10.1108/IJMPB-10-2018-0210

Zaniboni, S. (2015). The interaction between older workers' personal resources and perceived age discrimination affects the desired retirement age and the expected adjustment. *Work, Aging and Retirement, 1*(3), 266-273. https://doi.org/10.1093/workar/wav010

Zhang, D. (2017). A coefficient of determination for generalized linear models. *The*

American Statistician, 71(4), 310-316. https://doi.org/10.1080/00031305.2016.1256839

Zhang, Y. (2000). Using the Internet for survey research: A case study. *Journal of the American Society for Information Science, 51*(1), 57-68. https://econpapers.repec.org/article/blajamest/v_3a51_3ay_3a2000_3ai_3a1_3ap_3a57-68.htm

Ziek, P., & Anderson, J. D. (2015). Communication, dialogue and project management. *International Journal of Managing Projects in Business, 8*, 788-803. https://doi.org/10.1108/IJMPB-04-2014-0034/full/html

Zilberstein, K., & Messer, E. (2010). Building a secure base: Treatment of a child with disorganized attachment. *Clinical Social Work Journal, 38*(1), 85-97. https://doi.org/10.1007/s10615-007-0097-1

Zolna, K., Dao, P. B., Staszewski, W. J., & Barszcz, T. (2016). Towards homoscedastic nonlinear cointegration for structural health monitoring. *Mechanical Systems and Signal Processing, 75*, 94-108. https://doi.org/10.1016/j.ymssp.2015.12.014

Zulch, B. (2016). A proposed model for construction project management communication in the South African construction industry. *Acta Structilia, 23*(1), 1-35. https://doi.org/10.1016/j.respol.2015.12.002

Zwikael, O., & Smyrk, J. R. (2019). *Project success: In project management.* Springer International Publishing. https://doi.org/10.1109/TEM.2019.2925057

Appendix A: Permission to use PIP Instrument

MH Michael Hijazi
Tue 4/7/2020 10:02 PM
jk [redacted]

Hi Jeffrey/Dennis,

I hope you are doing well. My name is Michael Hijazi from Walden University living in Melbourne, Australia. I am researching project success and understanding if a relationship exists between project success and project managers. My research involves surveying participants, and I am seeking a good and reliable instrument. After researching various instruments, I came to realize the project implementation profile (PIP) is reliable and a good fit for my doctoral study. Can I please ask your permission to use the PIP for research purposes only. I appreciate your help with this and hope you can get back to me at your earliest convenience.

Kind Regards,
Michael Hijazi
0413 555 820

PJ Pinto, Jeffrey [redacted]
Tue 4/7/2020 10:18 PM
Michael Hijazi; dpslevin@katz.pitt.edu

Good morning, Mr. Hijazi,

Thank you for your note. This response represents our permission for you to the use the Project Implementation Profile (PIP) for your research. Please note that this permission does not extend to using it for training or consulting purposes. Do you need an e-version of the PIP or have you pulled it off previously published work? Please let me know.

Best of luck with your work.

Jeff Pinto

Jeffrey K. Pinto, Ph.D.
Professor of Management and Andrew Morrow and
Elizabeth Lee Black Chair of Technology Management
[redacted]

Appendix B: Demographic Questionnaire

Please indicate your gender:

- Male
- Female

Please select the category that includes your age:

- 18 -24
- 25 -35
- 36- 45
- Above 46

Please indicate years of experience:

- 0 -5 years
- 6 to 10 years
- 11 to 20 years
- More than 20 years