

LEADER-MEMBER EXCHANGE, PERCEIVED ORGANIZATIONAL SUPPORT,
PSYCHOLOGICAL SAFETY, AND SELF-EFFICACY IN PROJECT-BASED
ORGANIZATIONS

by

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ABSTRACT

Interactions between managers and their employees will likely affect the employees' perceptions of the organization. Yet, this relationship may be mediated by how the employee views the psychological safety of the work environment and how the employee perceives their ability to accomplish the task and goals given by their manager. This quantitative study investigated how project managers' relationship between managers and employees affected their perceived organizational support as mediated by psychological safety and self-efficacy. Participants associated with the Project Management Institute completed a demographic questionnaire and the Leader-Member Exchange Scale, Perceived Organizational Support Measure, Job Self-Efficacy Scale, and Psychological Safety portion of the Team Psychological Safety and Learning Behavior Survey. These scales and measures were assessed using hierarchical multiple regression. The results showed that the Leader-Member exchange positively correlated to an employee's perceived organizational support. Psychological safety partially mediates the relationship between the leader-member exchange and perceived organizational support. However, self-efficacy did not show support for mediation. The results indicated that the exchanges between leaders and members affect employees' perceptions of support by the organization, and this relationship is influenced by the employees' feelings of psychological safety of the team or group they work with.

Keywords: leader-member exchange, perceived organizational support, self-efficacy, psychological safety

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CHAPTER 1: INTRODUCTION

Introduction

Social exchanges between leaders and members correlate with outcomes such as job creativity and employee voice (Han & Bai, 2020; Liu et al., 2021). These elements are also outcomes of perceived organizational support (POS; Stinglehamber & Caesens, 2021). For project managers, the necessary exchanges between leaders and employees or teams are critical to completing a project. However, these exchanges are likely influenced by external and internal channels that impact the POS. This information may affect how project managers approach these exchanges. Thus, identifying the relationship between leader-member exchange (LMX) and POS would provide insight into the path leaders could take.

Background

The dynamic role between a supervisor and employee is often the source of positive or negative perceptions of the organization. Researchers continue to explore the magnitude of this relationship and its impact on the organization. One aspect of this relationship is how leaders and members exchange information, often referred to as the leader-member exchange (LMX) theory (McClane, 1991). LMX often affects an employee's attitude toward perceived organizational support (POS) through social exchanges of positive and negative influence (Hu et al., 2018). However, the relationship between LMX and POS may be mediated by psychological safety and self-efficacy (Kuvaas & Buch, 2020; Mao & Tian, 2022). Mediation is a statistical term for when a third variable partially or fully explains the relationship between two variables, and when removed, the strength between the first two variables is reduced significantly (Baron &

Kenny, 1986). Exploring the impact of these factors and the Biblical implications on the topics can help organizations utilize their environment to build employee support.

Leader-Member Exchange

The relationship between the supervisor, manager, or leader and subordinates can be a source of positive or negative perspectives toward the organization. While organizations attempt to support employees maximizing their productivity and efficiency, the relationship between employee and their immediate supervisor can be the focal point for many employees feeling supported (McClane, 1991). Recently, researchers have acknowledged the impact LMX can have on employee creativity and the ability to speak up at work (Lee et al., 2022; Liu et al., 2021). Since employee creativity is an outcome of self-efficacy and the ability to speak up at work is an outcome of psychological safety, it may be possible that psychological safety and self-efficacy mediate the relationship between LMX and positive attitudes in employees. Additionally, researchers explore this relationship between LMX and POS based on how supervisors delegate tasks and interact with employees (Lee et al., 2019; Singh & Vidyarthi, 2018). This research has explained how LMX impacts an employee's attitude toward organizational support without any mediating variables.

Perceived Organizational Support

Employees' perception of organizational support has been linked to LMX theory and what actions supervisors can apply for the desired impact. POS is the idea that employees view their organizations as having benevolent or malevolent intentions toward employees (Eisenberger & Stinglhamber, 2011). LMX researchers have explored how the relationship between supervisor and employee can be a significant focal point for many

employees regarding POS (Serban et al., 2021). However, researchers also highlight how multiple environmental and employee elements often impact POS. These elements provide evaluation points from internal indicators of the employee and external or environmental factors from work consideration (Roussin et al., 2018). These factors are often seen as mediators because they can help explain the relationship between variables; variables such as LMX and an employee's attitude toward the organization.

Psychological Safety as a Mediator

External influences allow employees to assess their organization and develop their perceptions, often forming opinions on specific topics such as POS (Kebede & Wang, 2022). One such external mediator is psychological safety (PS), or the perceived ability of employees to vocalize their concerns and thoughts without fear of negative repercussions (Edmondson & Lei, 2014). While supervisors may have open-door policies or provide communication points for employees, the environmental PS is an evaluation point for individuals on how an organization will support them if there are workplace concerns (Appelbaum et al., 2021). Research has shown how supervisors can build PS in their workplace and the impact on POS (Catalano et al., 2021; Parker & du Plooy, 2021). Likewise, PS has been shown as a mediator in the relationship between creative employees and work performance (Li et al., 2022; Mao & Tian, 2022). The mediating effects of PS are strongly related to leadership in many workplace behaviors, such as knowledge sharing or employee empowerment (Khan et al., 2020; Men et al., 2020). Yet, this is one of many factors that help direct the relationship toward POS.

Self-Efficacy as a Mediator

As PS provides an external evaluation point, self-efficacy (SE) provides an internal evaluation point. SE is the belief in one's ability to accomplish a task or goal and is predicated on accomplishments, learning, and encouragement (Liu et al., 2021; Stajkovic & Luthans, 1998). As an internal evaluation point, employees can evaluate their ability to accomplish tasks or succeed in the organization (Roussin et al., 2018). Likewise, SE mediates the relationship between organizational justice, or the perception of fair treatment, and POS differently for teams and individuals (Black et al., 2019; Jordan et al., 2022). SE has also been shown to mediate the relationship between LMX and self-facilitation in employees when higher quality exchanges, or interactions that support a positive relationship are more prevalent (Gashi & Mihelič, 2018; Yoon & Yoon, 2019). In addition, PS and SE are linked as joint mediators between training events and observed learning behaviors, such as open discussion of problems and solutions or questioning processes on tasks and an employee's ability to voice concerns (Li et al., 2020; Roussin et al., 2018). This builds on the possibility that SE mediates the relationship between LMX and POS. More research is necessary to build the connection between LMX and POS as mediated by SE.

Biblical Perspective

Many psychology frameworks are not explicitly written in God's word. This is often related to current terms used to describe actions and behaviors. While the current terms are not present, God's word has multiple examples and commands for the variables in this study. For example, LMX is demonstrated by both Elijah and Elisha in 2 Kings, and Jesus and his disciples in the gospels. Many commands are available on perceived organizational support, especially the commands God gives to masters concerning their

slaves (Colossians 4). God's word describes examples where God commands his people to be courageous speaking out for what is right, which could be an example of psychological safety. Likewise, self-efficacy's verbal encouragement is critical in the story of Gideon from Judges 6-8. Interpreting these stories and commands is possible through systematic theology and the commentaries theologians provide. Because scripture elucidates psychological ideas, a foundation for these variables can be found in God's word. Although God's word is focused on the outcomes of stories and commands, understanding how these variables are present in God's word, helps Christians see the value in the modern terms' psychology uses.

Problem Statement

There has been extensive research on the various components of the relationship between LMX theory and POS as mediated by PS and SE. LMX has been shown to support employees through task performance (Jokisaari & Vuori, 2018) and employee creativity (Lee et al., 2022). Additionally, PS has been shown to mediate the relationship between LMX and psychological empowerment, or employees' ability to speak out against behaviors they perceive as immoral (Hu et al., 2018). This supports modern research that PS mediates the relationship between LMX and work engagement (Mao & Tian, 2022). Likewise, SE has been linked to LMX as a mediator affecting employees' self-directing work (Gashi & Mihelič, 2018). SE of the leader has been shown to substantially impact the dynamic between the leader and member in regard to knowledge sharing (Kuvaas & Buch, 2020) and the process of presenting information in a form that can be used and owned by both parties when SE is high among employees (Kim et al., 2021). While many articles have demonstrated the mediating effects of SE and PS in the

relationship among different components of POS - such as creativity, knowledge sharing, and self-work - minimal research is available on how these variables affect POS.

The mediating effects of PS and SE in various workplace relationships are well documented. PS has been shown to mediate between high-commitment work systems and employee voice (Zhang et al., 2019). Second, SE has mediated the relationship between leadership and organizational commitment (Ashfaq et al., 2021). Finally, PS and SE's mediating effects are related to positive learning behaviors (Roussin et al., 2018). However, the mediating abilities have not been shown between LMX and POS.

The problem lies not in what is known but in what is unknown. While each element has been researched thoroughly, the research problem this study works to understand is how the construct of PS and SE mediate the relationship between LMX and POS. Researchers have looked at multiple workplace attitudes, which may allude to support for the mediating effects of PS and SE in the relationship between LMX and POS. However, no research links all four elements. Organizational psychology is not without calls for research on these topics. Lee and Han (2021) highlight the need to research social exchange relationships, creativity, and social support mediating processes. For example, creativity is often seen as a potential behavioral outcome of POS. The relationship between proactive personality and employee creativity is mediated by meaningful work but falls short of including the concept of POS (Akgunduz et al., 2018; Inam et al., 2021).

Understanding how one's work environment and belief in one's abilities affect the LMX and POS relationship will highlight how organizational support is perceived from internal and external perceptions. This practical application would allow managers to

gauge the workplace PS and an individual's SE to ensure the desired occupational support. Studying PS and SE as individual mediators will highlight how each element impact POS; however, both factors are likely to influence POS and thus should be examined in conjunction with each other and compared regarding their influence. This study would give leaders an understanding of the personal and combined impacts so that leaders can tailor their interactions to the needs of employees if a significant relationship exists.

Purpose of the Study

This quantitative regression study evaluates the relationship between leader-member exchange and perceived organizational support. Furthermore, the extent to which psychological safety and self-efficacy mediate the relationship between leader-member exchange and perceived organizational support will be examined.

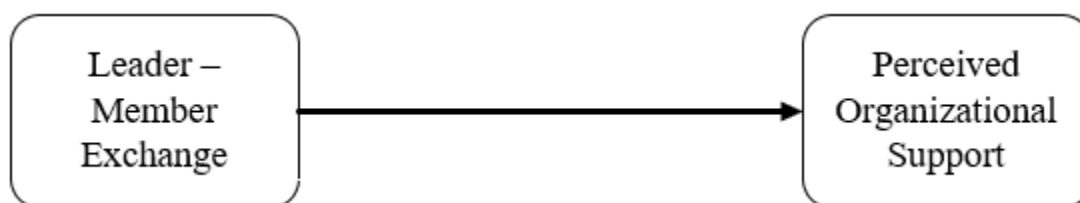
Research Question(s) and Hypotheses

Research Questions

RQ1: Is there a relationship between LMX and POS?

Figure 1

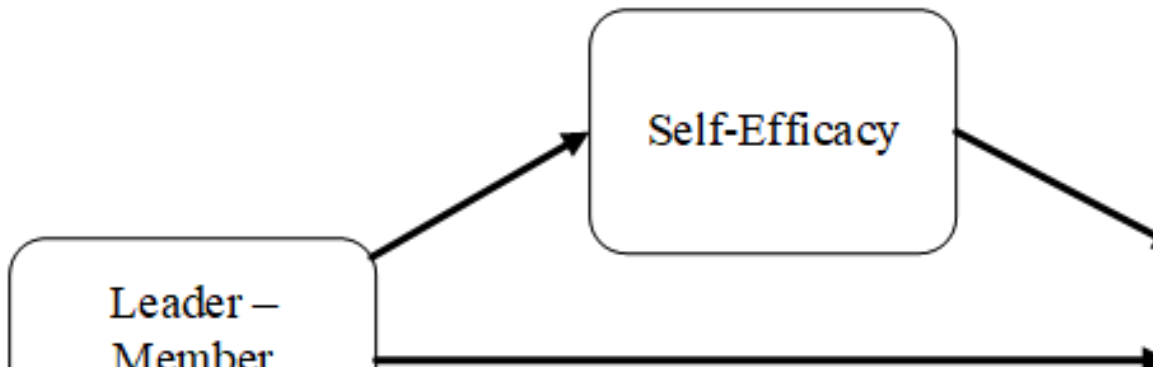
Hypothesized Relationship Between LMX and POS



RQ2: Is the relationship between LMX and POS mediated by SE?

Figure 2

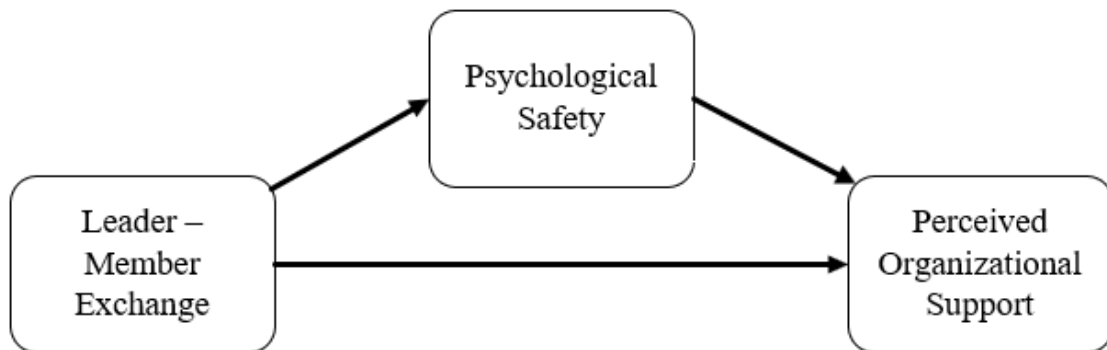
Relationship Between LMX and POS as Mediated by Self-Efficacy



RQ3: Is the relationship between LMX and POS mediated by PS?

Figure 3

Relationship Between LMX and POS as Mediated by Psychological Safety



Hypotheses

Hypothesis 1: There is a statistically significant relationship between LMX and POS.

Hypothesis 2: There is a statistically significant relationship between LMX and POS as mediated by SE.

Hypothesis 3: There is a statistically significant relationship between LMX and POS as mediated by PS.

Assumptions and Limitations of the Study

This study focuses on workplace relationships and the ways in which psychological safety and self-efficacy can impact perceived organizational support. The technical and theoretical assumptions being made as a result of the study design limit the study in scope and ability. For example, this study assumes that leader-member exchanges are taking place in person and thus virtual interactions are not addressed in this study. Likewise, it is assumed that project managers are not working alone on projects but have employees under them or employers over them. Thus, single-person projects are not within the scope of this study. This study's theory and technical aspects should be highlighted to see how researchers will address these assumptions and limitations.

LMX theory focuses on leaders' and followers' ability to meet and discuss job-related attributes. Thus, some work environments have more power to do this and are more likely to cultivate a better working relationship than others. For example, a co-located workforce will likely have more face-to-face meetings than a virtual environment. Therefore, the encounters leaders and members have are likely to be more natural than scheduled, possibly enhancing the positive effects of LMX. This study assumes that leaders and members can discuss work-related attributes regularly but is not measuring the impact of different meeting environments. Furthermore, the project's scope is not

limited to in-person meetings, but other factors that are not addressed by the study may play a role in the outcome of the meeting.

Workplace environments are assumed to have an interactive element. However, it is recognized that not all workplaces have a social component that could influence this study's results. Therefore, when recruiting participants for this study, the population of project managers provides a strong likelihood that will cover both fields and positions that have social elements to them. While this will not eliminate the risk of obtaining participants who work in isolation or have limited social encounters, it will limit the likelihood that such participants will participate. Additional demographic information may also be collected to eliminate participants from environments that may not be conducive to such a study, such as farming or businesses with fewer than five employees.

Regression analysis assumes that variables are normally distributed, and errors are not correlated (Nasirzadeh et al., 2021). If data are not normally distributed, it may be possible to scale variables to ensure the appropriate analysis can be conducted. However, regression is typically robust to moderate violations of the normality assumption.

Participants will be answering questionnaires about their perspectives and may not have complete clarity on the situation. Because this study focuses on a social element in the workplace, participants may answer questions based on perceptions. This assumes that what the participant experiences impacts the perception of the variables involved. However, researchers are limited in observing these behaviors in the workplace. Therefore, researchers must assume that what participants perceive accurately reflects behaviors found in the workplace.

Theoretical Foundations of the Study

This study is predicated on the work of four different theories: leader-member exchange (LMX) theory, perceived organizational support (POS), psychological safety (PS), and self-efficacy (SE). Each theory is independent of the others, but multiple researchers have found relationships among them (Appelbaum et al., 2021; Ashfaq et al., 2021; Xue et al., 2020). LMX theory has been the subject of multiple research articles focusing on the leader-follower relationship. This theory develops the workplace relationship through the quality and quantity of social exchanges (Cropanzano & Mitchell, 2005). The effects of this theory have been shown to have multiple psychological benefits (Jokisaari & Vuori, 2018). While research has focused on elements that make up POS, no study has directly focused on the relationship between LMX and POS.

Definition of Terms

The following is a list of definitions of terms used in this study.

Leader-Member Exchange (LMX) – This term refers to the dyadic relationship between a supervisor or manager and an individual employee or subordinate (Maruša et al., 2022). LMX is an explanation of the quality of exchanges that leads to the development of the relationship.

Mediation – Full mediation occurs when the relationship between two variables is fully explained by a third variable, which acts as an intermediary. (Baron & Kenny, 1986). If the third variable is controlled for, the relationship between the first two variables becomes nonexistent. Partial mediation occurs when the mediating variable partially explains the relationship between the two variables of interest (Sardeshmukh &

Vandenberg, 2017). If the mediating variable is removed, the relationship between the two variables is reduced but does not disappear completely.

Perceived Organizational Support – This is the belief of the extent to which an organization values an employee and their well-being (Eisenberger et al., 1986).

A project – is a “temporary endeavor undertaken to create a unique product, service or result” (Project Management, 2017a, p. 4). While projects are temporary, they often have deliverables beyond the end of the project.

Project Management – Project management is a methodology that applies particular “knowledge, skills, tools, and techniques to project activities to meet project requirements (Project Management, 2017a, p. 10).

Psychological Safety – This refers to one’s ability to share and engage in groups without fear of negative consequences to self-image, status, or career (Edmondson & Lei, 2014).

Self-Efficacy – Self-efficacy is one’s belief in one’s ability to accomplish tasks and achieve goals (Bandura, 2001).

Study Significance

Multiple groups are looking for information on the psychological effects of business. This study will answer the call of various groups to shed some light on how psychology can be utilized in the workplace. Academia, corporations, and project managers may use this information, which can be explored individually.

While some researchers have theorized that POS is an outcome of leadership exchanges, there remains a gap in researching the potential mediating effects on this relationship, such as SE and PS (Roussin et al., 2018). Because researchers tend to focus on populations that they have access to, much of the knowledge to date has pertained to

specific groups. There have been multiple studies in Asia looking at the mediating effects of SE and PS; however, these studies have recommended further research in western countries (Choi et al., 2021) and calls to bring in a variety of fields instead of focusing on a specific field (Lee et al., 2020). Thus, academia will benefit from this study as it closes the gap by including multiple fields and looking at new environments.

Businesses can also benefit from this study as it will allow leaders to understand how internal and external elements may impact employees' POS. The results of this study should indicate not only the strength of the relationship but how SE and PS can affect that relationship. Understanding the internal and external impact can help organizational leaders tailor their exchanges to increase their desired results. Likewise, coaching and consulting could utilize this information to show how leaders' exchanges may be filtered or amplified based on the psychological environment.

Lastly, the project management field will specifically benefit from this study. Project management has included psychological concepts in their methodology (Mariam et al., 2020). Because of their desire to capture the inputs, tools and techniques, and outputs of different project events, project managers may be able to utilize this data to help build justification for crucial communication techniques. Project management as a field has researched how psychology affects the management of teams and continually looks to new information that may help create processes beneficial to such a dynamic career (Weiss & Hoegl, 2016).

Summary

Studies have shown that LMX and POS are correlated (Huang et al., 2021). However, while PS and SE have been shown to act as mediators between LMX and

multiple other variables that relate to POS, there has never been a study examining the ability of PS and SE to mediate the relationship between LMX and POS specifically (Appelbaum et al., 2021; Bang et al., 2022; Mao & Tian, 2022; X. Zhou et al., 2021). Unfortunately, researchers seem to vary on the possible outcomes of this relationship, thus creating a knowledge gap.

This study aims to identify the relationship between LMX and POS in project-based fields. By surveying project management practitioners, this research seeks to understand the mediating effects of psychological safety and self-efficacy on the relationship between LMX and POS. In doing so, this research will answer the call for more psychological research relating to LMX and POS (Maruša et al., 2022). Likewise, project-management-based research will be able to draw on the conclusion of this study by understanding the roles of psychological safety and self-efficacy. This study adds to the existing research on LMX in project-based organizations by identifying the relationship between variables and the likely path to POS.

The next chapter reviews the current literature on the variables of this study. This includes perceived organizational support, leader-member exchange, psychological safety, self-efficacy, and project management. Finally, a Biblical foundation for these elements is addressed by looking at examples and commands in God's word.

CHAPTER 2: LITERATURE REVIEW

Overview

The interactions and exchanges between employees and their immediate supervisors often influence employee relationships within an organization and with employees' direct supervisors or managers (Kurtessis et al., 2017). Leader-member exchange (LMX) theory describes the interaction between a supervisor or manager and their subordinate employee (Huang et al., 2021). As organizations work to support employees, the social exchanges between leaders and members may set a foundation for perceived organizational support (POS). This relationship is likely mediated by internal and external influences such as psychological safety (PS) and self-efficacy (SE). It has been shown to influence how leadership affects employee behavior (Roussin et al., 2018). Research has found that leaders developing subordinates' self-efficacy can lead to higher independence and trust in that employee (Felfe & Schyns, 2006). Likewise, psychological safety positively relates to employee engagement (Frazier et al., 2017). The relationship between LMX and POS is not directly known. However, if a relationship exists, it is likely to be influenced by PS and SE.

Additionally, God's word supports many social exchanges that build support. Hebrews 10: 24-25 implores Christians to encourage others through love and good deeds. Likewise, Romans 14:19 says, "Let us therefore make every effort to do what leads to peace and to mutual edification" ("New International Version," 2011).

While there are multiple components to perceived organizational support (POS), this study focuses on the relationship between LMX and POS and the potential mediating impact of PS and SE. This study is based on previous research described in the literature,

focusing on existing gaps in research. While this review focuses on the variables specified for the study, other topics such as leadership, employee creativity, employee voice, and error reporting will be discussed.

Description of Search Strategy

The databases employed for this literature review were EBSCO host, Google Scholar, and the Jerry Falwell online library. Keywords included leader-member exchange, LMX, perceived organizational support, leadership support, self-efficacy, efficacy, psychological safety, social-cognitive theory, job attitudes, and project management. Searches were limited to peer-reviewed articles within the last five years. Keywords alone resulted in multiple searches with over 100,000 articles. To further define search terms, Boolean search terms (and, not, and or) were utilized to narrow search results that had two or more keywords. An example of a search would be: ‘psychological safety’ AND ‘self-efficacy.’

Likewise, biblical research utilized Google Scholar and Jerry Falwell online library with all the above keywords. However, the search was limited to the discipline of religion and the additional search terms “Bible,” “God,” and “Christian.” No time limitations were placed on the biblical research as minimal articles on the keywords were available using limited time frames. Servant leadership was included with elements of servant leadership in conjunction with LMX theory. Systematic theology commentaries were used to help unify psychological principles with theological concepts. Keywords for the word studies included support, relationship, and discipleship.

Review of Literature

Social exchanges in the work environment likely impact employee perceptions of the organization. While organizational psychologists have worked to identify different outcomes for employees, those studying leader-member exchange theory have focused their attention on the job attitudes that result in low or high-quality exchanges. As a result, ideas on how organizations should support their employees have emerged and research about what is needed to build that perceived organizational support (POS; Kurtessis et al., 2017). However, while many antecedents to POS exist, this construct has not been directly linked to LMX theory in research. Additionally, mediators can explain the process in the relationship between LMX and POS.

This literature will focus on POS, how it is affected by LMX, and the potential mediating effects of psychological safety (PS) and self-efficacy (SE). Likewise, project management is reviewed as a field that has studied the practical benefits of these variables, providing a foundation for theoretical concepts and managerial usage. Finally, this review will present evidence of a relationship between LMX and POS as mediated by PS and SE.

Job Attitudes

Job attitudes are derived from social psychology research on attitudes. Attitudes are evaluative responses toward an object (Eagly & Chaiken, 1998). These evaluations are positively or negatively directed toward the object of their assessment and differ in intensity (Sessa & Bowling, 2020). Thus, job attitudes are the evaluative responses toward workplace objects. These job attitudes affect how an individual feels about the object and provides a foundation for beliefs about that object (Sessa & Bowling, 2020).

For example, the belief that one's supervisor supports them and has their best intention in mind is an example of high perceived organizational support. Researchers have utilized job attitudes to assess the effectiveness of changes or interventions (Sessa & Bowling, 2020). Thus, researchers find value in identifying and evaluating job attitudes based on the outcomes they may produce. This allows organizations to change or improve employee relations based on their desired outcomes such as increased job performance or commitment.

Organizational Support Theory

Organizational support theory is based on the idea that providing positive resources to employees will produce a feeling of commitment to the organization (Caesens & Stinglhamber, 2020). According to this theory, employees have socioemotional needs, such as approval which can be met if organizations provide the appropriate support (Kurtessis et al., 2017). Additionally, self-enhancement is a critical motivator for employees but may only be present once they perceive their organization's support (Eisenberger & Stinglhamber, 2011). Employees who feel supported by their organizations will build commitment toward the organization (Caesens & Stinglhamber, 2020). The main component of this theory surrounds the concept of perceived organizational support but also highlights the need for employee growth.

Perceived Organizational Support

Employee commitment to an organization is often supported by the organization's commitment to the employee. Deriving from organizational support theory, perceived organizational support (POS) refers to the "employees' beliefs about the extent to which the organization values their contribution and cares about their well-being" (Eisenberger

et al., 1986, p. 501). POS represents the employee's overall orientation toward their organization. This perspective works to understand how employees feel supported and how organizations can improve this support but is not concerned with how the employees support the organization. According to Kurtessis et al. (2017), POS has four elements (1) employee-organization relationship quality, (2) job conditions, rewards, practices, and HR policies, (3) treatment by organizational members, and (4) employee attributes. When POS is high, organizations and employees benefit in psychological ways. For employees, POS has been positively linked to job satisfaction (Côté et al., 2021; Mascarenhas et al., 2022) and organizational self-efficacy (Cheng et al., 2020). Organizations benefit from employees engaging more at work (Carrell et al., 2022; Mascarenhas et al., 2022) and increased actions toward tasks outside the employee's job description (Thompson et al., 2020). Low levels of POS have also been linked to burnout (Soni & Agarwal, 2018) and turnover intent (Batista & Reio, 2019; Chun et al., 2022). In sum, empirical research has demonstrated many positive effects of POS, and workplace research has documented similar results. Likewise, when individual elements of POS are explored, one can see how POS may be linked to other theories for additional benefits.

The employee's relationship with their supervisor may play a critical role as the supervisor is often the first layer of engagement with the organization. However, researchers have suggested that employees vary in their belief about their supervisor being a representative of the organization (Eisenberger et al., 2010). Positive social exchanges between a supervisor and employee have positively affected employee commitment (Stinglhamber et al., 2015) and job satisfaction (Côté et al., 2021). Leader-member exchange theory may offer additional insight into how leaders can increase the

quality of exchanges, producing higher POS. Researchers found LMX to mediate between organizational leadership and POS resulting in higher organizational commitment (Gaudet & Tremblay, 2017). The supervisor's role has also been shown to directly impact employee commitment when the supervisor acts as a representative of their organization compared to an independent agent (Eisenberger et al., 2010). While the supervisor affects the employee's perceptions, mediation of the relationship between LMX and POS has not explicitly been explored. Thus, a relationship between LMX and POS is likely, but may be mediated by variables such as SE and PS.

Given the variables of interest in this study, when considering employee treatment by an organizational member, this paper will focus on the exchanges between supervisor and employee. However, organizational support theory also highlights the effect of colleagues and others, which can impact POS (Eisenberger & Stinglhamber, 2011). Colleagues can have a psychological influence based on cultural factors such as psychological safety. Research has shown that psychological safety could negatively influence POS when learning to complete tasks if humiliation techniques are used (Appelbaum et al., 2021).

Social Cognitive Theory

Social Cognitive Theory (SCT) was developed by Albert Bandura and built a framework for understanding individual motivation and regulation (Bandura, 2001). SCT works to show how environmental factors impact individual perceptions and behaviors. This is done by setting expectations, learning, reinforcing, and regulating individual behavior (Schunk, 2012). In contrast to behaviorism, which rejects environmental influences on individual behavior, SCT combines observational learning with

behaviorism and environmental factors to describe human interaction and development (Bandura, 2001).

For the current study, SCT components of self-efficacy and reciprocal determinism are foundational as they structure the environment and an individual's response to their environment. Reciprocal determinism is a model of an individual, environment, and behavior (Bandura, 2001). According to this model, individuals will cognitively assess their environment and past behaviors to conclude what behaviors are acceptable for that environment (Lo Schiavo et al., 2019). In organizational settings, reciprocal determinism shows individuals as both influencers and as being influenced by their environment (Sendjaya et al., 2020). For example, the individual's exchanges with their leaders may result in changes in the leader's behavior toward the employee's actions. LMX theory provides a critical relationship perspective that may impact individuals to assess their behavior and possibly develop self-efficacy (Jawahar et al., 2018).

Reciprocal determinism also calls for assessing the individual's environment (Dace et al., 2020). This assessment determines which behaviors will be regulated. One such evaluation an individual would make is how safe the environment is for them to share mistakes or withhold information. Psychological safety provides a conceptual framework in which individuals may assess their ability to express errors and share information. An individual's assessment of their environment may determine how much regulation they place on their behaviors as they may not perceive their environment as a safe place to experiment and possibly fail.

Lastly, self-efficacy provides a critical element of belief in one's behavior. Specifically, self-efficacy refers to confidence in one's ability to control their behaviors to accomplish goals or tasks (Bandura, 1997). This belief serves as a self-assessment of one's abilities. As described by SCT, this evaluation is likely to be impacted by social exchanges and environmental factors (Bandura, 2001). Self-efficacy provides the internal assessment that would acknowledge one's abilities in the workplace. One's perception of their organization may be affected if one's supervisor or manager treats them in alignment with these self-assessment results.

Leader-Member Exchange Theory

Leader-member exchange (LMX) theory is a dyadic relationship theory between a supervisor, manager, or leader and an individual follower (Scandura & Graen, 1984). LMX theory's basic premise is that leaders develop different relationship qualities for each team member. Relationships can be categorized as high or low, which speak to the exchange's support, trust, and interaction quality (Scandura & Graen, 1984). The social exchanges between a leader and follower affect the follower's attitude toward the leader and the organization (Rockstuhl et al., 2012). These exchanges give leaders the ability to adapt to the needs of employees by assessing the level of exchange needs of individuals.

LMX research previously focused on the technical elements of these social exchanges but has moved on to the psychological attributes and benefits surrounding the social exchanges (Maruša et al., 2022). Research on the quality of exchanges has focused on leadership and psychological support in social exchanges. For example, Berkovich and Eyal (2021) showed how a school principal's charisma and emotional feedback positively influence their relationship with teachers. Likewise, leadership methods

including exchanges purposing to support or encourage employees, were positively related to employees' psychological safety and empowerment (Hu et al., 2018). In addition, research on building quality relationships has highlighted that social exchanges may be mediated by psychological factors such as work engagement and authentic leadership (Du, Ma, Lin, et al., 2021; Wagner & Koob, 2022).

Research on the quality of LMX often highlights the positive psychological benefits of the exchanges. For example, high exchanges have been positively correlated with increasing employees' voices in the organization (Gashi & Mihelič, 2018). Increased employees' voice also allows for confidence in employees to speak out on issues or report mistakes based on the mediation of trust (Unler & Caliskan, 2019). Likewise, job performance has increased based on high-quality exchanges (Regts et al., 2018). However, much of the current research focuses on the elements that support employees' psychological well-being; research falls short of connecting to POS.

The relationship between LMX and employees' work engagement has also been mediated by factors such as psychological safety and employees' work ethics (Mao & Tian, 2022). POS has been shown to mediate the relationship between LMX and employee turnover intent (Huang et al., 2021). By showing POS as a mediator between LMX and employee turnover intent, researchers build a case toward a relationship, but likely this is mediated by other variables.

Researchers have referred to a relationship between LMX and POS, but often this comes from these variables being the mediator between other relationships. (Gaudet & Tremblay, 2017). Researchers have also worked to show how LMX and POS work as mediators in the relationship between destructive leadership and job satisfaction. It has

been shown that LMX fully mediated the relationship and POS partially mediated it when the leadership showed destructive traits such as bullying, abusive supervision, and mobbing (Bellou & Dimou, 2022). Likewise, Woo-Sung et al. (2021) found that LMX was positively related to self-efficacy and mediated by POS.

Psychological Safety

First described in 1965, psychological safety (PS) has risen in popularity among psychological researchers (Frazier et al., 2017). Today, psychological safety is defined as a common belief within a group that interpersonal risk-taking is safe for any individual (Edmondson, 1999a). This differs from the willingness to be vulnerable because it reflects the group culture toward risk-taking. Edmondson (2004) clarified that PS focuses on a person's belief that others will benefit from them when taking risks, compared to a vulnerability in which a person sacrifices to give others the benefit of the doubt.

Researchers have expanded on the concept to show PS is a personal evaluation of the environment to gauge risk-taking behaviors (Roussin et al., 2018). Settings low in psychological safety are described as producing more significant fears in individuals of negative social consequences such as embarrassment and avoidance of asking questions (Safdar et al., 2017). However, high PS environments have been linked to increased knowledge sharing, learning behaviors, and work engagement (Newman et al., 2017).

Before the benefits of PS can be explored, an understanding of the construct is necessary. PS is a team-level climate assessment based on one's perceived ability to take risks (Edmondson, 1999a). This is done by assessing multiple relationships. The quality of the relationship between supervisors and employees is critical in assessing PS, as employees must evaluate their ability to take behavioral risks (Roussin & Webber, 2012).

Likewise, individuals must also assess their coworkers' ability to share failures and the group's perception of those failures as positive or negative (Hirak et al., 2012). Lastly, an organizational assessment has been theorized to occur where an individual assesses if the organization is capable and willing to support employees (Carmeli et al., 2010).

However, individuals are likely to assess the needs of their immediate team, resulting in a level of PS regarding the coworkers around them rather than the entire organization (Parker & du Plooy, 2021).

The outcomes of PS have focused on both the individual and the team. For teams, increased communication and decreased errors have been positively linked to PS (Akan et al., 2020). Likewise, knowledge sharing (Men et al., 2020; Rivera et al., 2021) and increased voice behavior, such as talking in front of committees, challenging unsafe acts, or raising concerns, when PS is present in teams (Hu & Casey, 2021; Zhang et al., 2019). For individuals, learning behaviors consist of activities to obtain and process data to adapt or improve actions, and risks have increased in high PS environments (Catalano et al., 2021). Higher workplace performance, innovation, and creativity levels have also been linked to PS (H. Wang et al., 2021; Y. M. Wang et al., 2021; Yang, 2020).

For organizations to obtain these benefits from PS, supporting behaviors must be apparent. Quality of social relationships (Wang et al., 2020) and organizational support for diversity (Du, Ma, & Lin, 2021) are growing areas of psychological research.

However, supportive leadership behaviors are a crucial area for psychological safety.

Leader inclusiveness (Hirak et al., 2012), openness in communication (Thorgren & Caiman, 2019), and integrity (Wadei et al., 2021) have all been shown to support PS.

Likewise, leadership behaviors can help PS. For example, encouraging subordinates to

take risks and share failures by modeling or verbal encouragement has increased PS levels (Li et al., 2022). These actions are linked to social exchanges and build employee self-efficacy (Catalano et al., 2021). Thus, LMX theory and PS have many links.

One way PS has been linked to LMX is through the mediating effects of PS on the relationship between LMX and various organizational variables. For example, the relationship between ethical leadership and creativity has been shown to be mediated by PS in Chinese organizations (Li et al., 2022). Likewise, PS has been found to mediate the relationship between LMX and voice behaviors (Opoku et al., 2019). PS acts as a mediator in the relationship between individual cognition and individual creativity (Pan et al., 2021), organizational politics and voice behaviors (Bergeron & Thompson, 2020), and the relationship between employee commitment and voice behaviors (Zhang et al., 2019). Researchers highlight gaps in knowledge when focusing on different outcomes related to POS, but not necessarily the concept itself.

Self-Efficacy

SCT's main component is self-efficacy, or one's belief in their ability to control their behaviors to accomplish goals or tasks (Bandura, 1997). SE is derived from personal expectations of one's ability to master skills and meet expected outcomes, which determine an individual's willingness to engage in related behaviors (Bandura, 2001). People are likely to engage in behaviors if they believe it will produce the expected outcome, motivating them to engage further with these behaviors. SE can be seen as an evaluation based on prior experiences, external input, and personal awareness. How these factors interact with each other is likely to produce an attitude based on one's knowledge,

skills, and abilities regarding the task or job to be accomplished. This evaluation results in a belief that one can or cannot achieve tasks.

Self-efficacy is based on four sources: (1) performance accomplishments, (2) vicarious experiences, (3) verbal persuasion, and (4) physiological information (Bandura, 1997). Performance accomplishments relate prior successes or mastery experiences to the current situation. Repeated failures may decrease one's self-efficacy, but consistent wins will diminish previous shortcomings and build upon a person's knowledge base to help predict a future outcome on similar tasks (Bandura, 1977). Vicarious experiences are a person's observations of tasks or behaviors (Schunk, 2012). Verbal persuasion is using instructions, suggestions, and advice to convince a person to believe they can achieve a goal or task. Leadership often encourages and motivates others to perform complicated tasks (Rigotti et al., 2020). Lastly, physiological information involves a person's capability to produce a specific outcome or behavior. This assessment is likely to be an accumulation of the last three elements and a cognitive process to encourage or discourage the behavior. Individuals with negative physiological states focused on pain, stress, or failure typically experience lower self-efficacy (Hauck et al., 2008).

Within the four sources is a hierarchy for building self-efficacy (Bandura, 1997). First, repeated task execution influences self-efficacy more than other sources due to direct information about success or loss (Olmedo-Moreno et al., 2020). Second, vicarious experiences allow an individual to observe behaviors and tasks. Third, modeled behavior provides information on functions that can be assessed and utilized later. Fourth, persuasion tends to weaken SE when prior actions or observations are not available for recollection. Regardless, it is still a source given that individuals can rely on motivation

and encouragement to believe they can accomplish tasks or goals. Lastly, physiological information builds SE the least because people can only judge their ability based on their physical or emotional states (Bandura, 1997).

The concept of a subset of SE has emerged to highlight different tasks or activities over time. Occupational self-efficacy is one of those subsets and is defined as a belief in one's ability to accomplish work-related tasks or activities (Felfe & Schyns, 2006). This concept is often evaluated regarding one's ability to cope with different performance behaviors and occupational development. These evaluations focus on information-gathering or barrier removal efficacy, goal-setting, persistence, and interpersonal efficacy (Peng et al., 2021). These evaluations will increase one's occupational self-efficacy or lower it, motivating their behavior toward a task. Thus, if one can participate in or observe a task, they are more likely to feel more comfortable performing it or have a higher occupational SE toward the task.

The motivation that results from occupational SE is likely to influence whether one feels supported by their organization. For example, researchers have found that employees with higher self-efficacy can better cope with stress (Clauss et al., 2021). This may be because employees view stressors as challenges to overcome rather than threats. Likewise, employees with low self-efficacy tend to respond negatively to stressors, resulting in negative behaviors such as avoidance or disengagement (Rastogi et al., 2018).

SE is considered as a possible mediator between LMX and POS based on findings regarding the relationship between SE and POS. According to an Academy of Management study, the correlation between POS and SE may be positive but weak

(Kurtessis et al., 2017). However, SE has also been shown to be a mediator between POS and coping strategies for PTSD (T. Zhou et al., 2021) and between POS and volunteer support (Bang et al., 2022). However, Kang & Sohn (2020) found POS to be a moderator between LMX and SE, meaning that it amplified the strength of the relationship between LMX and SE. These findings highlight the need for research to identify if a mediating relationship exists between LMX and POS.

Researchers have also analyzed SE as a mediator between LMX and multiple dependent variables. For example, a 2018 study found support for LMX quality being negatively related to counterproductive performance as mediated by SE (Jawahar et al., 2018). Additionally, SE has been found to mediate the relationship between LMX and customer service (Yoon & Yoon, 2019). Customer service and proactive performance are both elements of POS (Stinglhamber & Caesens, 2021). However, SE has not been specifically found to mediate the relationship between LMX and POS. Researchers have encouraged future studies to see which path represents the relationships (Kang & Sohn, 2020; Yoon & Yoon, 2019).

Project Management

Project Management (PM) is a business methodology of using tasks and goals to meet business objectives. Specifically, PM is a set of methods and techniques for planning, scheduling, and controlling objective-oriented work and projects (Samset & Volden, 2016). The Project Management Institute (PMI) is the collective body of project managers across the globe that works to standardize this methodology by providing a common vocabulary and a code of ethics and conduct for project managers. This institute offers a body of knowledge and framework for managers and is increasingly popular

globally (Iyer & Banerjee, 2019). With over 650,000 members, this institute has grown to provide resources such as tools, techniques, and templates for those using their methodology (Appleby & Prashara, 2020). In addition, PMI sponsors and includes research on this methodology as it spans different fields, geographic areas, and industries. Research generally focuses on project complexity, capabilities, and concerns but often stretches into psychology to research job performance or provide insight into work-related psychological variables (De Rezende et al., 2018).

PM methodologies are broken down into ten knowledge areas that focus on processes such as scheduling or budgeting. Additionally, the PMI (2017b) has defined five process groups to ensure processes are captured and applied as intended, including planning and executing. Many of these knowledge areas or process groups will likely affect behavior as different social exchanges are necessary for project completion. For example, a project manager may need to interact with stakeholders, teams, or individuals to ensure a project's scope is clear, and personnel requirements are met. This has led the PMI to research many psychological constructs and perform their studies on project-based organizations, methods, and teams. Topics such as LMX, PS, SE, and POS are all areas that have been explored within the project management research. Not all project management and psychology associations fall under the PMI's purview. However, project management research is common in business and management research. The difference is that project-related research tends to focus more on applying psychological concepts to meet the project requirements.

Project management is no different from other leader/follower control forms. The project manager generally serves as the overall leader of a project, with teams or

individuals making up the followers. The project manager is typically accountable to stakeholders or a program manager. Thus, concepts like LMX theory are still applicable when utilizing PM. However, unique insights based on the PM population have been found in research. While these articles focus on LMX's effect on project management, key insights are available on many psychological constructs. For example, LMX is mediated by psychological empowerment or the psychological need for individuals to have a sense of control over their work (Soeprapto, 2021). Project management also highlights how LMX quality has decreased based on the COVID-19 pandemic, contributing to unfinished tasks and emotional exhaustion (Koch & Schermuly, 2021). Researchers have also observed a correlation between higher-level LMX and project success, highlighting the importance of individual-level LMX as critical to project success (Boonyathikarn & Kuntanbutr, 2021). Chinese construction project research observed how LMX impacts perceived organizational support by developing a safety climate measured through psychological capital (He et al., 2021).

Psychological concepts related to PM tend to focus on practical solutions or outcomes rather than the psychological benefits alone. For example, project management has specifically looked at the need for POS as organizations increase their demand for qualified project managers (Ekrot et al., 2018). Researchers found that work-family conflict negatively correlated with professional commitment when employers provided POS through emotional and instrumental support (Zheng & Wu, 2018). PM researchers have utilized psychological research on POS to show how managers may apply concepts such as motivating and supporting individuals (Cripe & Burleigh, 2022).

Psychological safety is a growing concept in project management. Like psychology, PM research on PS focuses on benefits such as employee voice, creativity, and innovation. However, there is also a focus on team performance. PM researchers have looked at how changing managerial frameworks can foster PS while building on the positive outcomes of team learning and reducing the free-rider problem, where team members decrease involvement while receiving team benefits (Marder et al., 2021). In research and development projects, PS has been used to increase team performance through increased knowledge sharing and decreased turnover intentions (Liu & Keller, 2021). Project-related research aligns with psychological research on PS and continues to expand on the concept. However, some project management methodologies, such as Scrum, rely on psychological safety for team members to confidently discuss problems they encounter (Marder et al., 2021). One study suggested that these techniques may foster interpersonal knowledge resulting in a higher PS, highlighting additional benefits from interaction with the project leader (Holtzhausen & de Klerk, 2018). These findings may be predicated on the higher self-efficacy of project managers based on the repetitive nature of projects (Blomquist et al., 2016).

Project managers often work through changes or iterations to projects. Because of this repetition, researchers have shown how project uncertainty has caused project managers to view challenges as opportunities and build self-efficacy (Lloyd-Walker et al., 2018). Likewise, project managers can obtain certification in their management style, which may help validate their ability to perform tasks (Farashah et al., 2019). Thus, project managers are likely to believe more in their abilities. One study showed that self-efficacy mediated the relationship between PM leadership and job engagement (Qureshi

et al., 2020). Additionally, self-efficacy was shown to be a mediator in the relationship between emotional intelligence and the cohesiveness of the team (Black et al., 2019). These studies have shown the mediating effect of practical elements in project-related fields.

Biblical Foundations of the Study

This study is grounded in modern psychological theories and concepts. However, God's word does have much to say about these topics. While it does not use current terms, each variable is represented through stories, illustrations, or insight provided by the Bible. Furthermore, the Bible gives a foundation for interpreting modern understanding of scripture. Theology author Wayne Grudem (2009, p. 47) states, "the knowledge of God and creation gained from Scripture must be used to interpret the creation correctly around us." Thus, studying God's word leads to themes to help understand Biblical perspectives on modern-day topics. Modern psychology terms are not used in the Bible, but Biblical ideals and stories can be applied to gain insight into the foundation of modern psychological concepts. This allows Biblical foundations to be integrated into modern psychological concepts through stories, commands, and examples.

Interpretation of Biblical foundations in current topics is grounded in two premises of systematic theology. First, understanding God's word is the highest standard to evaluate, and no higher authority could be appealed (Enns, 2008). However, this does not mean that misrepresentation does not occur. Instead, scripture is interpreted from scripture, meaning that other verses, chapters, or books are used to analyze God's word when the text is unclear or misunderstood. Because the Bible is inerrant, it can be used to

derive insight based on other sections of the Bible. If two parts of the Bible seem incongruent, additional scripture is often utilized to help interpret the passages.

Next, systematic theology seeks to find a thematic grouping of scripture to help derive insight into the topic. Though scripture is interpreted through scripture, theologians and historical commentaries can help understand how God's word provides insight into contemporary issues that may not be directly stated in the Bible (Grudem, 2009). Thus, scripture and Biblical scholarship build upon each other to provide insight into fields, such as psychology, which allow for the representation and illustration of modern theories. This study is not different from the Biblical foundations and provides insight into LMX theory, POS, PS, and SE.

LMX Relationships in the Bible

On the sixth day of creation, God created man and woman stating that it was not good for man to be alone (*New International Version*, 2011, Genesis 1:27, Genesis 2:18). While marriage is one of the most important relationships in the Bible, working relationships are often echoed as Biblical heroes completed God's work. This is seen in 1 Kings 19 when Elijah flees from Jezebel. Fearing for his life, he responds to God's call by saying, "I alone, the only one left, and now they are trying to kill me too" (*New International Version*, 2011, 1 Kings 19:10). This leads to Elijah anointing Elisha as a prophet. While not explicitly stated, we can see the framework of high LMX d between Elijah and Elisha with mutual trust, respect, and obligation toward each other. For example, in 2 Kings 2:2, 4, and 6 (*New International Version*, 2011), Elisha tells Elijah three times, "I will not leave you," Elijah was the leader in the relationship as the more experienced prophet, ultimately leading Elisha to his ministry. However, Elisha's

ministry was based on Elijah's positive influence on him. Elisha eventually asked Elijah for “a double portion of his spirit” (*New International Version*, 2011, 2 Kings 2:9).

Biblical commentators have connected this with an inheritance of Elijah’s ministry, which he would receive shortly after that conversation (Guzik, 2018).

Jesus also illustrated LMX theory as he worked with his disciples. From calling them to working through questions, Jesus continually taught and supported his disciples for their growth. For example, “He [Jesus] did not say anything to them [the crowd] without using a parable. But when he was alone with his disciples, he explained everything” (*New International Version*, 2011, Mark 4:34). Thus, Jesus takes extra time to explain his business to those who follow. It has been estimated that seventy percent of Jesus’ teachings were to the apostles alone (Thornton, 1956).

Both succession planning and leading others to accomplish goals have been related to LMX theory. For example, organizations work to carefully select replacements for leadership roles, often grooming individuals for those roles, which is not uncommon in LMX theory (Dae-seok & Stewart, 2007). Likewise, building up leaders through modeling behavior and giving insight to individuals intending to succession has succeeded in LMX research (Duan et al., 2022). Therefore, it is not a stretch for business leaders to look to God’s word for examples of LMX.

POS in the Bible

“Carry each other’s burdens, and in this way, you will fulfill the law of Christ” (*New International Version*, 2011, Galatians 6:2). This command to the Galatian church echoes Proverb’s callings to be generous to the poor. Supporting those less fortunate has been called a cardinal virtue (Lewis, 1987). Organizations may have employees they can

choose to help. While some build this support in employees, others may focus on profits or customer needs. Thus, how an organization may look at these verses may change its paradigm. But there are many verses based on good and bad masters. Colossians 4 reminds leaders to treat subordinates fairly. Likewise, Ephesians 6:9 tells masters not to threaten their subordinates. James 5 goes on to tell businessmen that withheld wages and fraud are actions of injustice that God hears. Again, while not explicitly talking of POS, these verses align to reveal supporting employees is a concern of God, and managers are held to a standard in their treatment of others.

Psychological Safety in the Bible

PS is a new concept in psychology and is thus still being explored by theologians and psychologists alike. However, God's word does talk of courage. In 1 Chronicles 28:20 (*New International Version*, 2011), David tells Solomon to "Be strong and courageous, and do the work. Do not be afraid or discouraged, for the LORD God, my God, is with you." Philippians 1:28 (*New International Version*, 2011) describes Christians as "without being frightened in any way by those who oppose you. This is a sign to them that they will be destroyed, but that you will be saved by God." While these verses speak to courage more than psychological safety, they encourage people to speak up in difficult times or when the truth must be present. Those high in PS have lower fear of adverse reactions and can speak out on errors and mistakes (Morrison & Milliken, 2003). It appears that the Bible encourages one's PS to be founded in one's identity based on God's word and commands, which may build a person's confidence in oneself.

Self-Efficacy

In the same sense as Bandura's theory, God's word is not explicit about self-efficacy. However, the Bible does express alignment through verbal encouragement. One story that shows the power of verbal encouragement leading to self-efficacy is the story of Gideon in Judges 6. God gave the Israelites over to the Midianites, who continually invaded and looted them. The people asked God to intervene, and God sent an angel to Gideon, who worked in a winepress to hide from the Midianites. The angel says, "The LORD is with you, mighty warrior" (*New International Version*, 2011, Judges 6: 12), thus beginning by confidently identifying him as a warrior. At the same time, Gideon described himself as the weakest and least in his family. (*New International Version*, 2011, Judges 6:15). The angel encouraged him as a mighty warrior and instructed him to act as one. Though Gideon initially questioned the angel's commands, after a few tests, he transforms into a confident warrior who defeats the Midianites with God's help (*New International Version*, 2011, Judges 7). This story shows the power of divine verbal encouragement and the self-efficacy that can result.

Biblical Integration

God's word is not explicit about modern psychology theories. However, we see how some modern ideas may explain how relationships operated and developed in the Bible. Furthermore, God's word provides a foundation for mental and psychological perspectives (Myers et al., 2010). Thus, we can integrate Biblical themes and concepts as examples of LMX, POS, SE, and PS theoretical concepts. However, this does not explain how the variables operate nor provides a framework for the hypothesized relationship between variables. Therefore, we can integrate Biblical support with modern concepts and hypothesize the operational framework.

Summary

LMX has been shown in multiple studies to correlate with POS. However, the research focuses on the elements that contribute to POS and not the concept of POS alone. Researchers continue to call for additional studies to understand how LMX may influence work-related behaviors and attitudes (Maruša et al., 2022). In addition, researchers have utilized PS and SE as mediators in the relationship between LMX and POS (Appelbaum et al., 2021; Bang et al., 2022; Li et al., 2022; Liu et al., 2021). Project management has provided additional information on the practical effects of these variables but not specifically on the relationship between LMX and POS. Thus, the relationship between LMX and POS, as mediated by PS and SE, is unclear. Research on the relationship is positive, but some researchers have introduced other models that offer different paths (Islam & Ahmed, 2018; Woo-Sung et al., 2021). The Bible provides examples and commands regarding LMX, POS, PS, and SE under different terms. Although these concepts are not new to God, his word shows how the concepts have been utilized to enact guidance toward his will.

The next chapter addresses the methods of this study to examine the relationship between variables based on project management as a field. Next, the chapter outlines the design, participation criteria, and details on the instruments and measures for the study. Finally, the limitations and assumptions are addressed to understand the scope of the study.

CHAPTER 3: RESEARCH METHOD

Overview

This study aimed to determine if a relationship between LMX and POS exists and how PS and SE mediate that relationship. This chapter outlines the research methods, including design, population selection and justification for the sample, study procedures, instruments, measures, how variables will be operationalized, the analytical plan, and proposed study limitations.

Research Questions and Hypotheses

Research Questions

RQ1: Is there a relationship between LMX and POS?

RQ2: Is the relationship between LMX and POS mediated by SE?

RQ3: Is the relationship between LMX and POS mediated by PS?

Hypotheses

H₀1: There is no statistically significant relationship between LMX and POS.

H_a1: There is a statistically significant relationship between LMX and POS.

H₀2: The relationship between LMX and POS is not partially mediated by SE.

H_a2: The relationship between LMX and POS is partially mediated by SE.

H₀3: The relationship between LMX and POS is not partially mediated by PS.

H_a3: The relationship between LMX and POS is partially mediated by PS.

Research Design

This research study utilized a quantitative cross-sectional design to explore the relationship between LMX and POS as mediated by PS and SE. Regression methods were used to examine the ability of LMX to predict POS, with the predictive relationship

being mediated by psychological safety and self-efficacy. The analysis controlled for the influence of demographic information. Causal-comparative research methods were used to determine if a hypothesized mediator was significantly affecting the relationship.

Data collection involved a survey to assess participants' opinions regarding LMX and POS in their workplace. Surveys assessing PS and SE was used. The surveys are designed to measure theoretical constructs and ensure the validity of the conclusions drawn based on the responses to the survey (Menold et al., 2018). A survey design is appropriate for this study because it quantifies variables in ways that can be analyzed and measured statistically, resulting in conclusions that can be statistically supported.

Participants

Because project managers fill the roles of both leaders and followers, surveying individuals in these roles provides an opportunity to capture a population with different degrees of quality of LMX. The project management institute has over 650,000 worldwide members (Appleby & Prashara, 2020). Members include those seeking entry into project-related fields as well as experienced project managers at senior levels of their organizations. Project management methods vary by area but have been present in medicine, construction, IT, and any organization with a project-based focus on their work (Project Management, 2017a).

By targeting local chapters of PMI, members were solicited to complete surveys. Specifically, chapter leaders (identified via the PMI website) in multiple states were contacted with a request that they send out the study survey link to their members. Upon accessing the link, participants were able to view appropriate information on the study

before completing the survey. Various state and local PMI chapters were targeted to capture a wide range of participants in the United States.

Population Size

The project management institute reports over 650,000 members worldwide and over 300 chapters in the U.S. (Appleby & Prashara, 2020). This provided a foundational network to recruit participants for this study, with the added advantage that members may be at different points in their careers (thus increasing generalizability of results). In addition, using PMI chapters for recruitment likely increased the opportunity of obtaining a diverse sample. Appropriate permission to recruit participants was obtained by emailing chapter presidents or program directors (Appendix C). Any individual participating in local PMI chapters was eligible to be solicited via an email, which was forwarded by the contact on the PMI chapter's website. Participants indicated whether or not they belong to a local PMI chapter, with a participant who did have membership being excluded from the study. While it is possible for a non-PMI member to be part of email lists and community platforms, this survey excluded such participation. While PMI membership is not required to work in a project-related field, using PMI members as participants limited participants to the target population of project managers.

Sample Size

A hierarchical multiple regression analysis was conducted to assess the relationship of interest to this study. G* Power version 3.1.9 was used to calculate the minimum sample size for multiple regression, fixed model, and R^2 deviation from zero based on a priori power analysis (Faul et al., 2009). A large effect size of 0.35 was used, an alpha error probability of 0.05, and a power of 0.80. Eight predictors were input as

parameters to determine the sample size. The effect size highlights the practical significance of an effect, with a large effect size meaning it has practical significance, while a small effect size would indicate limited application (Cohen, 1988). A large effect size for the a priori test was defined by Cohen (1988) as 0.35. The eight predictors are the five demographic variables, the independent variable, and the two mediating variables. As calculated by G*Power, the minimum sample size needed is 52 (Appendix F).

Study Procedures

This study collected data through an online survey from the Survey Monkey website. Survey links were emailed to the point of contact found on the PMI website, or to member lists that were included with the permission letters received from chapter leaders. Chapters range in membership numbers based on location and popularity but vary in the publication of membership numbers. Thus, some chapters had more potential participants than others, highlighting the need to send the survey to multiple chapters. The email to prospective participants included survey instructions and a link to the surveymonkey.com form, including a general cover letter to PMI members with instructions and timelines for the survey. Surveys were open for thirty-one days. A follow-up email was sent no more than one week after the initial email to encourage additional participation, as researchers have suggested (Koitsalu et al., 2018). If the number of participants was still under the needed sample size, a second email iteration was sent out and the survey was open for another thirty-one days.

Upon clicking the link in the email, participants were brought to surveymonkey.com with the informed consent form, which included information on the voluntary nature of the study and informed the participants that no sensitive data was

collected. Next, participants were asked to provide demographic information based on sex, age, race, workplace tenure, and education level. After the demographic questions, participants were sent to a page with the four survey instruments intended to measure the variables of interest to this study (Appendix B). Upon completion, participants were directed to a final page thanking them for their participation. Finally, data were exported from SurveyMonkey.com, and SPSS was used for data analysis.

Instrumentation and Measurement

This study used four measures: the Perceived Organizational Support Measure (Cheng et al., 2013b), the Multidimensional Measure of Leader-Member-Exchange (Liden & Maslyn, 1998a), the Job Self-Efficacy Scale (Wilk & Moynihan, 2005b), and the Team Psychology Safety portion from the Team Psychological Safety and Learning Behavior Survey, as adapted by later researchers (Edmondson, 1999b; Edmondson, 2019). A dedicated demographic section was used to collect additional data. Additionally, two screening questions were utilized at the beginning of the survey to ensure participants were over 18 years old and part of a local PMI chapter. Appendix B contains an example of the survey with all related pages.

Participant Process and Screening

Consent to participate in the study was requested on the first page of the survey and included two close-ended screening questions. Answering 'no' to either question prevented the participant from continuing the survey.

1. Are you 18 years of age or older?
2. Are you a member of PMI?

Respondents younger than 18 and non-PMI members were thanked for their interest and directed back to the consent page (Appendix A). All other respondents were allowed to complete the demographics portion of the survey, followed by the four measures. Each part of the survey included instructions. Participants were not allowed to move on to the next portion without providing a response to each item. Upon completing all items, participants were guided to a final page thanking them for their participation.

Demographic Information

Status has been accepted as a variable that affects the perceptions people have about others (Lianidou et al., 2022). Demographic status, such as work tenure, age, gender, race, and education level, can affect employees differently (Cortis et al., 2022; Koseoglu et al., 2020; Lianidou et al., 2022). Demographic variables may provide relevant information about LMX, PS, SE, and POS trends. Thus, this study used demographic information as control variables.

The demographic section of the survey included five close-ended questions designed by this researcher to capture the participants' age, race, seniority, gender, and education level. Multiple choice responses were offered with standard answers for gender (male and female). Race could be selected based on available U. S. Census Bureau (2020) options. Finally, participants selected "I prefer not to say" for those who do not wish to declare race or gender. Next, participants were asked to type in their age. Then, participants were asked to select an education level category with choices of high school, some college, undergraduate, graduate, and post-graduate/doctoral. Finally, tenure was assessed by having participants mark the number of years in their field of work.

Multidimensional Measure of Leader-Member Exchange

The Multidimensional Measure of the Leader-Member Exchange instrument captures four attributes of LMX: affect, loyalty, contribution, and professional respect (Duncan & Herrera, 2014). The twelve-item scale uses Likert response options ranging from 1= *Strongly Disagree* to 7 =*Strongly Agree*. This assessment was developed to focus on a multidimensional approach for participants who could simultaneously fill different roles, such as leader and employee, rather than an individual status from previous instruments (Liden & Maslyn, 1998b). They specifically worked to develop the multidimensional approach that would draw from role theory in which leaders and followers are individuals capable of multiple roles and exchanges (Liden & Maslyn, 1998b).

Researchers have found internal consistency reliability for the scale ranging from a Cronbach's alpha of 0.6 up to 0.9, indicating adequate to high reliability (Duncan & Herrera, 2014; Liden & Maslyn, 1998b). More recent research has also computed alpha values above 0.9 (Chen et al., 2021; Sasaki et al., 2020). Likewise, validity was supported using exploratory and confirmatory factor analyses to support the theorized factor structure. The results provided valid evidence but highlighted the potential susceptibility of the survey items to response bias (Chen et al., 2021).

LMX surveys have been criticized for having multiple definitions for LMX, and thus survey results tend to vary (Gottfredson et al., 2020). High-quality exchanges refer to interactions that foster a professional relationship; low-quality exchanges deteriorate the relationship (Ashkanasy & O'Connor, 1997). For this reason, multiple instruments have been developed to measure different aspects of LMX, such as the managerial or

individual level. This study takes a more general approach using multidimensional measures to ensure all elements of LMX are assessed.

Perceived Organizational Support Measure

Originally developed to assess the ability of POS to function as a mediator in the relationship between job satisfaction and turnover intent, the Perceived Organizational Support Measure is designed to measure the job-related responses of employees toward POS (Cheng et al., 2013a). This six-item inventory focuses on participants' current work conditions and uses a 7-point Likert scales, ranging from *Does not describe at all* to *Describes exactly* (Cheng et al., 2013a). In addition, the calculated alpha coefficient of this scale was .92, and convergent validity evidence was provided based on factor loadings from a CFA (Cheng et al., 2013a).

The POS measure is reported to have minimal limitations that must be considered before use. Response bias is highlighted as a potential limitation in the researchers' original study (Cheng et al., 2013a). Additionally, demographic factors such as gender, age, and experience were highlighted as potential confounds, and future studies were recommended to investigate how demographics may influence POS (Cheng et al., 2013a). More recent research echoed the need to collect data on gender and education levels to help increase the validity of this measure and others (Safa & Von Solms, 2016). Lastly, the measure is not exhaustive of all aspects of the POS. Instead, the general POS of participants' current employment position is measured but cannot be broken down into the sub-constructs that comprise POS.

Job Self-Efficacy Scale

Based on Jones's (1986) scales, Wilk and Moynihan (2005a) looked to adapt self-efficacy measures based on workplace and job factors, eventually developing the Job Self-Efficacy Scale (JSES). This measure consists of three Likert-scaled questions, with response options ranging from 1=*Strongly Disagree* to 5=*Strongly Agree*. Wilk and Moynihan (2005a) initial research with the scale found Cronbach's alpha value of .89 based on 429 responses. This assessment was selected for this study based on the high internal reliability and the focus on Job Self-Efficacy compared to the general concept of self-efficacy.

The validity of the JSES is not discussed in the literature. However, researchers continue to use it to measure workplace self-efficacy (Che et al., 2019; Lim et al., 2021). Because researchers use this instrument to continually check an individual's self-efficacy based on their job or workplace, it could be argued that it meets the definition of content validity (Menold et al., 2018; Somekh & Lewin, 2005).

The Team Psychological Safety and Learning Behavior Survey

The psychological safety measure used in this study consists of a group of questions contained within the Team Psychology Safety and Learning Behavior Survey, which initially was intended to show how team learning behaviors, such as knowledge sharing, mediated the relationship between psychological safety and team performance (Edmondson, 1999a). While different sections of this survey have been utilized in other contexts, the psychological safety portion has been used as an independent assessment by the original author (Edmondson, 2019). This was possible based on the researchers' ability to collect internal validity evidence for each part of the initial survey. The team

psychological safety subscale had an alpha of .82 in the original study (Edmondson, 1999a).

Operationalization of Variables

Leader-Member Exchange

This variable is represented by the total score on the Multidimensional Measure of Leader-Member Exchange questionnaire, calculated by the sum of responses to all twelve items on the scale (Liden & Maslyn, 1998a). It is operationally defined as the quality of social transactions between a supervisor and subordinate based on trust, respect, and reciprocal influence (Liden & Maslyn, 1998b).

Psychological Safety

This variable is represented by the sum of responses to the five psychological safety items from the Team Psychological Safety and Learning Behavior Survey (Edmondson, 1999b). It is operationally defined as a common belief in a group that interpersonal risk-taking is safe for any individual (Edmondson, 1999a).

Self-Efficacy

This variable represents the sum of the three items on the Job Self-Efficacy Scale (Wilk & Moynihan, 2005b). It is operationally defined as one's belief in their ability to control their behaviors to accomplish workplace goals or tasks (Bandura, 1997; Wilk & Moynihan, 2005a)

Perceived Organizational Support

POS is represented by the sum of responses to the six items from the Perceived Organizational Support Measure (Cheng et al., 2013b). It is operationally defined as

employees' belief about the extent to which the organization values their contribution and cares about their welfare (Eisenberger et al., 2001).

Demographic Variables

Gender

Gender is a nominal variable consisting of two options: male and female.

Participants will select the category in which they identify or can choose not to identify their gender. Responses will be converted to numerical identifiers for analysis so that 0=female/1=male.

Age

The researcher will measure age as a scale variable. The demographic questionnaire will ask participants to type their current age or select the option not to respond.

Race

The researcher will measure race as a nominal variable. Based on the 2020 US Census Bureau, categories include Hispanic, White- non-Hispanic, Black or African American, American or Alaska Native, Asian, Pacific Islander, and Other Races. Participants will also have an option not to respond.

Tenure

Tenure is a nominal variable indicating how long participants have been at their current job. Participants tenure is measured by entering the number of years in their current workplace.

Education Level

Education is a nominal variable. This question will allow participants to choose less than high school, high school or equivalent, some college but no degree, associate's degree, bachelor's degree, and advanced degree (master, professional, or doctoral degree).

Data Analysis

Once data was collected, it was compiled into a single data set. Data for this study consisted of nominal data for demographic information and continuous variables. The finalized dataset was stored in a locked computer. The internal consistency of the measures was assessed using Cronbach's alpha. Descriptive statistics were used to compute all variables' means and standard deviations. Pearson's r was used to compute the correlations among variables.

For regression analysis, statistical assumptions include that the data is normally distributed and has homoscedasticity, lacks multicollinearity among variables, and errors are independent. The normal distribution assumption specifies that the residuals in the model are random, and the differences between the modeled and observed relationship are close to zero. Histograms and normal probability plots were used to test the normal distribution assumption. Next, the homoscedasticity assumption states that the variance of the residuals of each level of each predictor should be the same. Partial plots were used to test the homoscedasticity assumption. Next, the multicollinearity assumption indicates that predictor variables are not correlated. Finally, the independent error assumption says residuals should not be correlated.

Hypothesis Testing

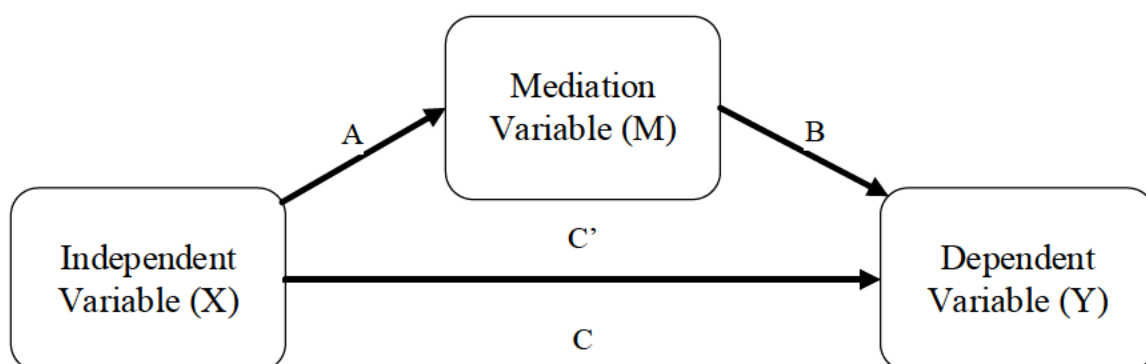
SPSS version 29 was used to conduct analyses. Baron and Kenny's (1986) mediation analysis was utilized to assess the mediating effects of PS and SE on the relationship between LMX and POS. Partial mediation is tested through three regressions and full mediation is tested in a fourth step, which is assessed using the third regression if the effect of the independent variable on the dependent variable, controlling for the mediator, is zero. First, the independent variable of LMX was used to predict the dependent variable (POS) with no other variables in the model. (Relationship C in Figure 4). Next, the independent variable (LMX) was used to predict the mediators PS and SE (Relationship A in Figure 4). Finally, each mediator was used to predict POS, controlling for LMX (Relationship B in Figure 4). Full mediation is present when the independent variable no longer affects the dependent variable after the mediator has been controlled, represented by C' in Figure 4. Partial mediation occurs when the path from the independent variable to the dependent variable is reduced but is still different from zero when the mediator is introduced (Baron & Kenny, 1986). The fourth step is to establish full mediation if the effect of LMX on POS, controlling for the mediator, is zero. If this condition is not met, partial mediation is indicated (Baron & Kenny, 1986).

For mediation to be supported, LMX must be shown to be a statistically significant predictor of POS (H_{a1} ; this is the first regression analysis described in the previous paragraph) as represented by relationship C. Additionally, each mediator must be significantly predicted by LMX in the second regression equation and is represented as relationship A. For the final regression, each mediator must statistically significantly predict POS above and beyond the predictive ability of LMX in the third regression. This is represented as relationship B. Lastly, the results of the third regression will show the

indirect effect (represented by C'), controlling for the indirect effect which is relationship A multiplied by relationship B.

Figure 4

Relationship Testing Among Variables



The different relationships between variables represent the different effects being measured. The total effect (C) is the effect of exposure on the dependent variable, absent the mediator. The indirect effect ($A*B$) is the effect of exposure on the dependent variable with the mediator. The direct effect (C') is the effect of exposure on the dependent variable controlling for the mediator. This is represented by the total effect equation:

$$C = C' + (AB)$$

The indirect effect is the primary focus of this analysis as it represents the mediating effect and is tested by the joint significance test and the Sobel test, discussed later.

Mediation cannot be supported if these regression conditions are unmet. If support for mediation exists, two outcomes are possible. First, complete mediation would be indicated if LMX no longer predicted POS after the mediators' PS and SE were entered

into their respective models. The second possible conclusion is partial mediation, which would be evidenced if LMX's ability to predict POS was reduced after the mediator was entered into the model but did not disappear completely. This is assessed by the third regression described in this section, in which the mediators were used to predict POS while controlling for LMX. Thus, the evaluation can work to assess complete mediation but will be stated in terms of zero and nonzero coefficients as small coefficients can be statistically significant with larger sample sizes, and very large coefficients can be nonsignificant with smaller sample sizes (Kenny et al., 1998). Using significance testing alone may suggest complete mediation in cases of partial or no mediation when assessing for full or partial mediation (Baron & Kenny, 1986).

H_{a1}: There is a statistically significant relationship between LMX and POS.

Baron and Kenny's (1986) mediation analysis confirms or denies the hypothesis in the first step through a regression analysis testing whether LMX is a significant predictor of POS.

H_{a2}: The relationship between LMX and POS is partially mediated by SE. The second regression in Barron and Kenny's (1986) mediation model tests whether the predictor variable significantly predicts the mediator. A third regression analysis is used to test whether SE is a significant predictor of POS when controlling for LMX. These three regressions will allow a conclusion to accept or reject the null hypothesis. Last, the mediating variable should be evaluated for full or partial mediation. To establish full mediation, the effects of LMX on POS when controlling for SE should be zero. This will be seen in the third regression analysis as the direct effect (C') will be zero when controlling for the mediator.

Ha3: The relationship between LMX and POS is partially mediated by PS. Like Ha2, Barron and Kenny's (1986) mediation analysis will be used to analyze if LMX is a predictor of POS and if mediation by PS is present. After the same tests as Ha2, Ha3 will replace the mediator SE for PS. The first step will regress POS on LMX. The second step will regress PS on LMX. Next, a regression of POS on PS, controlling for LMX, will allow me to confirm or deny mediation. The fourth step will assess full or partial mediation.

Joint Test of Significance

If the second and third steps of mediation analysis are met, then the indirect effect is likely nonzero and assessed via the joint significance test (Fritz et al., 2012). The joint test of significance simply means that path A and path B are both zero (that is, statistically non-significant). However, one issue with the joint significance test is that it assumes the regression coefficients for paths A and B are uncorrelated, which is unlikely to be the case. As a result, researchers also recommend using additional significance tests to test the indirect effect and confirm that mediation is present (Fritz et al., 2012). While many options are available, the Sobel test was chosen for this study.

Sobel Test

The statistic used in the Sobel test is represented by the following equation:

$$Z = \frac{(AB)}{\sqrt{B^2s_a^2 + A^2s_b^2}}$$

where A is the coefficient for path A (regressing the mediator on LMX), B is the coefficient for path B (regressing POS on the mediator), s_a is the standard error of the path A coefficient, and s_b is the standard error of the path B coefficient. The resulting value can be assessed for statistical significance as if it were a z-test with a threshold of

+/- 1.96 to accept or reject the null hypothesis (Sobel, 1982). The Sobel test is conservative with relative power (MacKinnon et al., 1995). This means that a significant result may not be found even if one is present. However, other methods, such as bootstrapping, require larger samples or special software. I used the joint significance test and the Sobel test for this study to test the indirect effects. If mediation is supported using the regression analyses, the Joint Test of Significance, and the Sobel test, I will consider consistent mediation as being supported.

Assumptions and Limitations

Research Assumptions

This study focuses on project-based organizations. It is possible that individuals who participate do not use project-based techniques or work for organizations that utilize these practices. It is assumed that participants will utilize these methods as members of PMI. Likewise, some organizations and individuals utilize project-based management without membership in PMI. While membership does not guarantee the use of the methodology, it is assumed that individual responders can perceive their work as project-based.

Limitations of the Research Design

The sampling methods employed here to limit the scope of this study to members of PMI in the United States. As a result, this study can only be generalized to American cultural workplaces. However, the survey for this study will be distributed nationally to increase generalizability, as previous studies have recommended (Catalano et al., 2021; Hans & Gupta, 2018). In addition, LMX, PS, SE, and POS all have different foundational elements not being assessed in this study. Because prior research tends to focus on these

elements, this study takes a more general approach to these variables. This limits this research by not going into the specifics of which element may be a stronger mediator but allows general concepts to be assessed and evaluated. As such, this study can serve as a good foundation for future research.

Because it was assumed that the sample size would be small for this study, the analyses selected were more basic than might be recommended for a robust mediation analysis of the relationships of interest. Future studies are recommended using different techniques.

Summary

This research seeks to contribute to the industrial-organizational psychology and project management literature by understanding the relationship between LMX and POS as mediated by PS and SE. The project management field was selected due to its extensive research into applicable psychological concepts. This research aims to answer researchers' call for further studies examining the relationship between LMX and POS in Western societies and build toward a larger, more diverse body of literature.

This regression study uses non-experimental measures. Exploratory analysis, and mediation analysis were used to confirm how the variables relate to one another. However, this study does not seek to expand into an exploration of the elements that make up the variables or to gauge specific outcomes of workplace attitudes.

Chapter 4: Results

Introduction

The present study sought to examine the relationship between Leader-Member Exchange (LMX) and Perceived Organizational Support (POS). Prior literature highlighted a link between multiple variables associated with POS, but no study has directly linked LMX and POS. Psychological Safety (PS) and Self-Efficacy (SE) variables were also investigated for a potential mediating effect in the relationship between LMX and POS. The intent is to understand how PS and SE impact the relationship between LMX and POS, so organizations are better equipped to foster an ideal working environment.

Based on the current literature related to LMX and its impact on multiple variables that make up POS, as well as the literature pertaining to the potential mediating effect of PS and SE, the following research questions and hypotheses were established:

Research Questions

RQ1: Is there a relationship between LMX and POS?

RQ2: Is the relationship between LMX and POS mediated by SE?

RQ3: Is the relationship between LMX and POS mediated by PS?

Hypotheses

H₀1: There is no statistically significant relationship between LMX and POS.

H_a1: There is a statistically significant relationship between LMX and POS.

H₀2: The relationship between LMX and POS is not mediated by SE.

H_a2: The relationship between LMX and POS as mediated by SE.

H₀3: The relationship between LMX and POS is not mediated by PS.

H_{a3}: The relationship between LMX and POS as mediated by PS.

Chapter 4 presents the results of the study. To start, data collection steps will be discussed with findings presented. Demographic data will then be presented including sex, age, race, tenure, and education levels of participants. After demographics, the internal consistency of each measure will be discussed using Cronbach's alpha. Finally, mediation analysis and hypothesis testing will be described followed by a summary of chapter 4.

Data Collection

Data were collected from respondents through SurveyMonkey online survey platform. A total of 133 local project management institute chapters were sent requests to participate in the data collection. Participants were given 31 days to complete the survey. A total of 125 responses were collected with 79 participants fully completing the survey. Data were exported to Statistical Package for Social Sciences (SPSS, Version 29 software) for data cleaning. The power analysis indicated that a minimum of 52 participants was necessary to achieve acceptable statistical power. Additionally, the MedPower (Kenny, 2017) software indicated that a minimum of 74 participants is necessary to detect the indirect effect in the mediation analysis. A large effect size of 0.35, an alpha error probability of 0.05, and a power of 0.80 were used in both MedPower and G*Power software.

Demographics

Members of PMI chapters across the United States participated in this survey and demographic data was collected from each respondent. Sex, age, race, tenure, and education levels were collected with 79 completed responses. Respondents were 68.4%

male, 26.6% female, and 5.1% not reporting sex (See Table 1). The U.S. Bureau of Labor Statistics indicated that females make up 42% of the project management population in the US (Statistics, 2023). However, third-party career data managers reported males at 68% and females at 31% based on project management profiles in the U.S. (Zippia, 2022).

Likewise, race was evaluated with 53% of responders being white non-Hispanic and 25% Hispanic, 9% Black or African American, and 6% Asian or Native American. Third-party statisticians gauge the U.S. Population as 65% white with 13% Hispanic, 9% Asian, and 8% Black or African American (Zippia, 2022). While slight differences are seen in the sample racial demographics when compared to the US population, it is still likely sufficiently representative of the population as a whole.

For education, 43% of participants held bachelor's degrees and 25% held advanced degrees. The Bureau of Labor Statistics (BLS) indicates that entry-level jobs generally require a bachelor's degree (Statistics, 2023). Third-party statisticians agree, showing that 82% of project managers hold either a bachelor's or advanced degree. The difference between BLS and the current study indicates a larger sample of individuals with associate's degrees or only some college courses completed. This can be explained as PMI offers student discounts for aspiring project managers and is likely to pull in those with lower levels of education than the industry at large.

Table 1*Sample Demographics*

Demographic	Demographic	N	%
Sex	Male	54	68.4
	Female	21	26.6
	I prefer to not select Sex	4	5.1
	Total	79	100.0
Race	White non-Hispanic	42	53.2
	Hispanic or Latino	20	25.3
	Black or African American	7	8.9
	Asian	3	3.8
	Native or Alaska Native	2	2.5
	Pacific Islander	0	0.0
	I prefer to not select a race	5	6.3
	Total	79	100.0
Education	Less than high school	0	0.0
	High School or equivalent	3	3.8
	Some College but no degree	7	8.9
	Associate's degree	15	19.0
	Bachelor's degree	34	43.0
	Advanced degree (Masters, professional, or doctoral degree)	20	25.3
	Total	79	100.0

Table 2 reflects the age bands of participants. Over 80% of participants were under 45 years old at the time of the survey. While this is different from the average age of 43, as indicated in the BLS statistics for project managers, it can be accounted for as PMI chapters have participants that are students or are beginning their project management careers (Appleby & Prashara, 2020).

Table 2

<i>Age Groups</i>		
	N	%
Under 25	18	22.8
26-35	33	41.8
36-45	17	21.5
46-55	6	7.6
56 and Older	5	6.3

Tenure was also collected as the number of years in the participants' current organization. Over 65% of participants had been in their organization for less than ten years. Table 3 depicts the tenure data by bands. While no PMI and third-party statisticians have not reported on tenure, it could be hypothesized that increased tenure is a reflection of higher LMX and POS in an organization and thus may be an influence in the study.

Table 3

<i>Tenure</i>		
	N	%
Under 5 years	37	46.8
5-10 Years	17	21.5
10-15 Years	7	8.9
15-20 Years	5	6.3
Over 20 Years	13	16.5

Table 4 presents the descriptive statistics of LMX, POS, PS, and SE along with the demographic data. The mean age of participants was 34 years old. Sex had the options of male (1), female (2), and an option not to respond (3). Thus, the mean of sex represents a majority of participants as male. The mean tenure in an organization was 9

years. The mean education level was 4.77, which indicated that many participants had obtained at least a bachelor's degree.

Table 4

Descriptive Statistics of Predictor Variables

Item	N	Mean	SD	Min	Max
Age	79	34.25	10.83	18	60
Sex	79	1.37	0.58	1	3
Tenure	79	9.11	8.65	0	32
Race	79	2.03	1.62	1	7
Education	79	4.77	1.05	1	6
LMX	79	5.42	1.49	1	7
POS	79	5.09	1.58	1	7
PS	79	4.78	1.38	1	7
SE	79	5.76	1.17	1	7

Table 4 shows the mean and standard deviation of LMX, POS, PS, and SE. The mean Leader-Member exchange is 5.42 and a standard deviation of 1.49, which translates to the average score a participant rated their immediate manager on a Likert scale from Strongly Disagree (1) to Strongly Agree (7). All measures used a 7-point Likert scale in data collection. Perceived organizational support had a mean of 5.09 with a standard deviation of 1.58. Psychological safety had a mean score of 4.78 with a standard deviation of 1.38. Finally, self-efficacy had a mean of 5.76 and a standard deviation of 1.17.

Table 5 shows Cronbach's α for each scale and the number of items. The LMX scale has 12 items, $\alpha=.98$. The POS scale has 6 items, $\alpha = .96$. The SE scale has 6 items, $\alpha= .88$. The SE scale has 3 items, $\alpha=.92$. All scales had high internal consistency reliability, which aligns with previous research on the individual scales (Chen et al., 2001; Cheng et al., 2013a; Edmondson, 1999b; Wilk & Moynihan, 2005a).

Table 5*Cronbach's Alpha for the LMX, POS, PS, and SE scales*

Subscale	N	Cronbach's α
Leader-Member Exchange	12	0.98
Perceived Organizational Support	6	0.96
Psychological Safety	6	0.88
Self-Efficacy	3	0.92

Table 6 shows the correlation matrix among variables in the study: Leader-Member Exchange (LMX), Perceived Organizational Support (POS), Psychological Safety (PS), and Self-Efficacy (SE). Statistically significant correlations existed among many variables, including Leader-Member Exchange and Perceived Organizational Support, Psychological Safety, and Self-Efficacy.

Table 6*Summary of the Correlations Between the Variables Measured in the Study**Summary of the Correlations Between the Variables Measured in the Study*

Measure	Sex	Age	Race	Tenure	Education	LMX	POS	PS	SE
Sex	1.00	0.08	0.00	0.05	0.06	-0.08	-0.12	-0.11	-0.03
Age	0.08	1.00	0.15	0.67**	0.33**	0.20	0.34**	0.19	0.37**
Race	0.00	0.15	1.00	0.05	0.31**	-0.15	-0.04	-0.01	0.11
Tenure	0.05	0.67**	0.05	1.00	0.30**	0.20	0.20	0.05	0.36**
Education	0.06	0.33**	0.31**	0.30**	1.00	0.04	0.11	-0.10	0.28*
LMX	-0.08	0.20	-0.15	0.20	0.04	1.00	0.80**	0.76**	0.24*
POS	-0.12	0.34**	-0.04	0.20	0.11	0.80**	1.00	0.73**	0.36**
PS	-0.11	0.19	-0.01	0.05	-0.10	0.75**	0.73**	1.00	0.35**
SE	-0.03	0.37**	0.11	0.36**	0.28*	0.24*	0.36**	0.35**	1.00

Note. *P<.05. **P<.01.

Mediation Analysis and Hypothesis Testing

Baron and Kenny's (1986) mediation analysis employs four steps to establish a mediating relationship among variables. The first step is to establish the independent

variable as a significant predictor or the dependent variable. The first research question can be evaluated in this analysis, and the hypothesis is accepted or rejected. Baron and Kenny's (1986) second step regresses the hypothesized mediation variable onto the independent variable to establish the independent variable as a significant predictor of the mediating variable. Next, a regression of the dependent variable on the mediating variables establishes the mediator as a significant predictor of the dependent variable when controlling the independent variable.

The hypothesis testing in this study is based on each research question. The following section will display the results for each research question. The first step in Baron and Kenny's (1986) analysis is the basis for research question one, and steps 2 and 3 are needed for the following two research questions.

Research Question 1:

Is there a relationship between LMX and POS?

H₀1: There is no statistically significant relationship between LMX and POS.

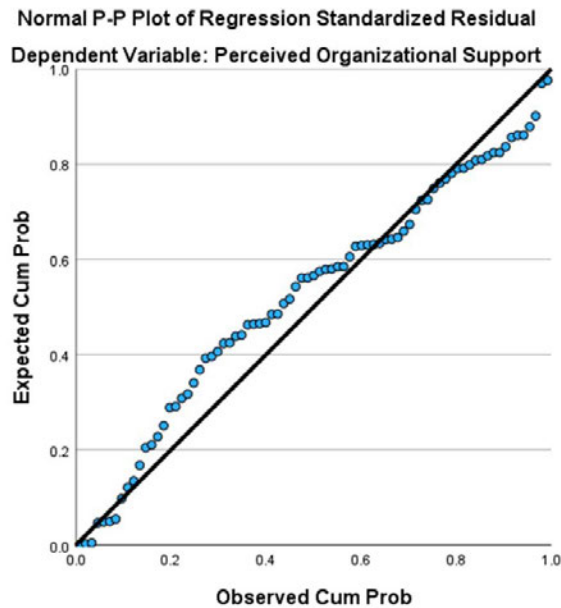
H_a1: There is a statistically significant relationship between LMX and POS.

Regression has a set of assumptions that must be met before the analysis can proceed. The assumptions of regression are that the errors are normally distributed and homoscedastic, there is a lack of multicollinearity among variables, and errors are independent. The normal distribution assumption requires that the residuals in the model be normally distributed with a conditional mean of zero. To test this assumption, I employed a P-Plot of the residuals. In these plots, if the points fall mainly on the diagonal line, it is possible to conclude that the normal distribution assumption has been met. As

seen in Figure 5, although there is a slight curvilinear trend in the P-Plot, the points are close enough to the diagonal line to consider this assumption as having been met.

Figure 5

P-Plot of Perceived Organizational Support and Leader-Member Exchange

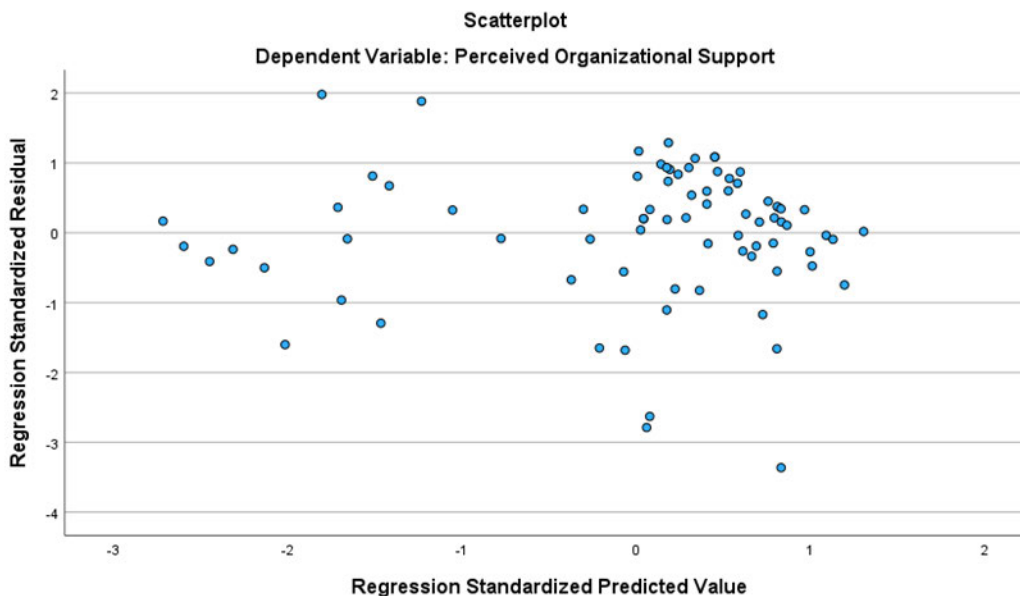


Next, the homoscedasticity assumption states that the variance of the residuals of each level of each predictor should be the same. Partial plots were used to test the homoscedasticity assumption, as shown in Figure 6. Though not ideal, I considered the distribution of residuals in this plot to sufficiently indicate homoscedasticity.

Additionally, multicollinearity among predictors was not a concern, as seen in Figure 6.

Figure 6

Scatterplot of the regression standardized residual



While there is a strong correlation between LMX and POS ($r=.804$; see Table 6), additional analysis was needed to assess the predictive relationship of LMX. Baron and Kenny's (1986) first step is to regress POS on LMX. Table 7 presents the model statistics. The variables of sex, age, race, tenure, and education were added to control for them, followed by LMX in the second step of the regression. As seen in Table 7, the addition of LMX to the model was statistically and practically significant, $F_{change}(1, 72)=131.92$ ($p<.001$), $R^2_{change}=0.55$, $b=0.41$ ($p=0.001$).

Table 7

<i>Predictors of Perceived Organizational Support</i>					
	<i>b</i>	<i>t</i> -value (<i>p</i>)	<i>sr</i> ²	<i>F</i> -value (<i>p</i>)	<i>R</i> ² change
Step 1					
Intercept	21.94	3.77 (<.001)		2.55 (0.035)	0.15
Gender	-2.35	-1.33 (0.19)	0.02		
Age	0.35	2.65 (0.01)	0.09		
Race	-0.66	-0.99 (0.33)	0.01		
Tenure	-0.07	-0.45 (0.65)	0.00		
Education	0.40	0.37 (0.71)	0.00		
Step 2					
Intercept	-3.20	-0.78 (0.44)		131.92 (<.001)	0.55

Gender	-1.07	-1 (0.32)	0.00
Age	0.24	3.07 (<.001)	0.04
Race	0.19	0.45 (0.65)	0.00
Tenure	-0.16	-1.68 (0.1)	0.01
Education	0.26	0.41 (0.69)	0.00
LMX	0.41	11.49 (<.001)	0.52

Research Question 2:

Is the relationship between LMX and POS mediated by SE?

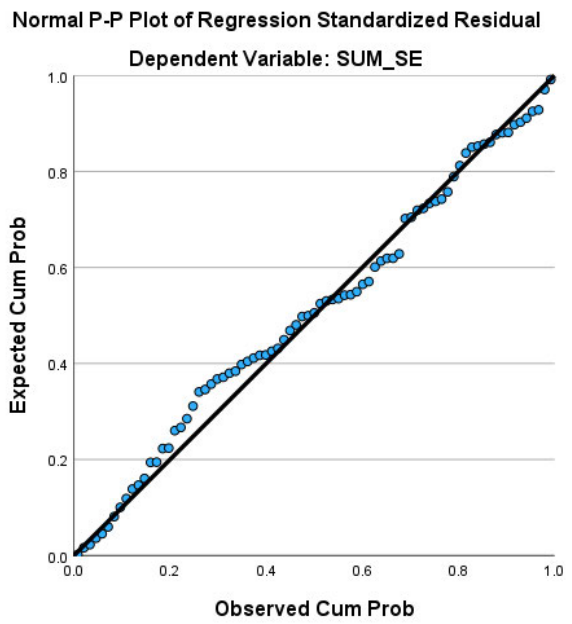
H₀2: The relationship between LMX and POS is not partially mediated by SE.

H_a2: The relationship between LMX and POS as partially mediated by SE.

Starting with the set of assumptions for regressions, the normal distribution assumption was assessed with a P-Plot. As seen in Figure 7, although there is a slight curvilinear trend in the P-Plot, the points are close enough to the diagonal line to consider this assumption as having been met.

Figure 7

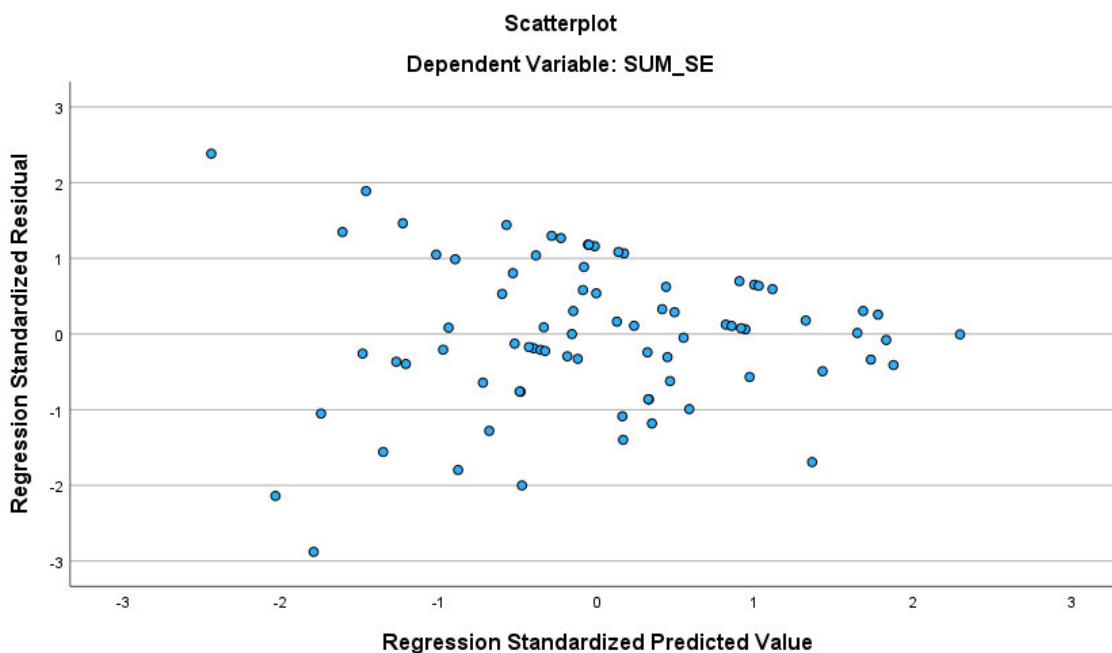
P-Plot of Self-Efficacy and Leader-Member Exchange



Next, the homoscedasticity assumption states that the variance of the residuals of each level of each predictor should be the same. Partial plots were used to test the homoscedasticity assumption, as shown in Figure 8. Though not ideal, I considered the distribution of residuals in this plot to sufficiently indicate homoscedasticity. Finally, multicollinearity among predictors was not a concern, as seen in Figure 8.

Figure 8

Scatterplot of the regression standardized residual on SE



The first of Baron and Kenny's (1986) mediation analysis answers research question one as described above and establishes an effect on POS that may be mediated. The second step is to regress the mediator (SE, for this research question) on the independent variable. The result of this analysis using SE as the outcome was not statistically or practically significant $F_{change}(1, 72)=2.61$ ($p=0.11$), $R^2_{change}=0.03$, $b=0.04$ ($p=0.11$). Less than 3% of the variance above and beyond what was explained by the demographic variables was explained by the model with LMX (see Table 8 for details). The null hypothesis cannot be rejected because the second step was not statistically significant. Thus, although the first regression showed a relationship between LMX and POS, I concluded that SE does not mediate in that relationship.

Table 8

Predictors of Self-Efficacy

	<i>b</i>	<i>t</i> -value (<i>p</i>)	<i>sr</i> ²	<i>F</i> -value (<i>p</i>)	<i>R</i> ² change
Step 1					
Intercept	12.25	5.79 (<.001)		3.37(0.01)	0.19

Gender	-0.37	-0.5 (0.56)	0.00		
Age	0.06	1.33 (0.18)	0.02		
Race	0.06	0.23 (0.81)	0.00		
Tenure	0.07	1.23 (0.21)	0.02		
Education	0.54	1.35 (0.17)	0.02		
Step 2				2.61 (0.11)	0.03
Intercept	10.13	4.1 (<.001)			
Gender	-0.26	-0.4 (0.68)	0.00		
Age	0.06	1.15 (0.25)	0.01		
Race	0.13	0.52 (0.60)	0.00		
Tenure	0.07	1.11 (0.26)	0.01		
Education	0.52	1.34 (0.18)	0.02		
LMX	0.04	1.61 (0.11)	0.03		

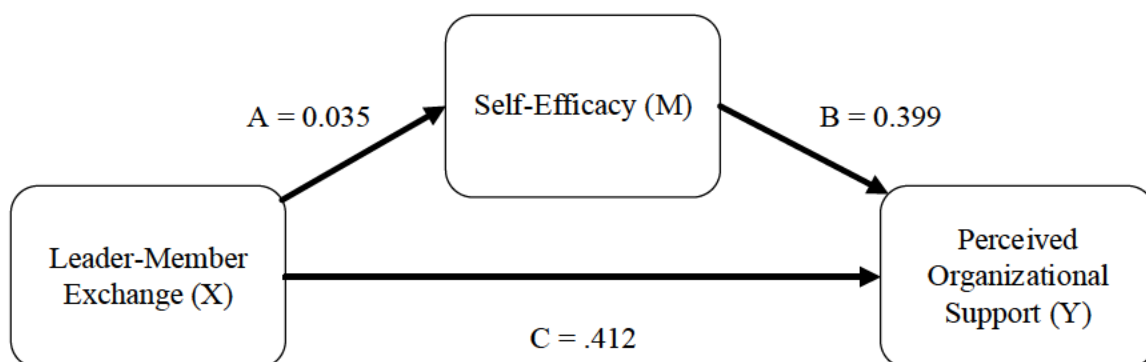
As a reminder, this study employed two additional tests of the significance of the mediating relationship. First, the joint significance tests simply state that if both path A and path B are not statistically significantly different from zero, then mediation is not supported. Because the LMX regression coefficient in the second regression described above was not statistically significant, the joint significance test suggests that SE does not mediate the relationship between LMX and POS. If step 2 (the test of path A) and step 3 (the test of path B) are met, it follows that the indirect effect is likely nonzero. Thus, one way to test the null hypothesis that $ab=0$ is to test that both paths A and B are zero (Steps 2 and 3). The total effect model is represented in Figure 9. The model does not reflect mediation, though a relationship between variables is present.

Additionally, this study employed the Sobel test as a third test of the mediating ability of SE. As a reminder, the Sobel test statistic is assessed like a z -test; if the test statistic is greater than or equal to ± 1.96 , the test may be considered statistically significant and indicate that mediation is present. The results of the Sobel test were non-significant ($z=1.57$, $p=0.12$; see Table 9).

Table 9*Sobel Test Results*

<i>Test Statistic</i>	<i>Std. Error</i>	<i>P-Value</i>
1.57	0.001	0.12

Thus, all tests of the ability of SE to act as a mediator in the relationship between LMX and POS were non-significant, indicating that the null hypothesis cannot be rejected. For reference, the path diagram representing the total effect of this model is represented in Figure 9.

Figure 9*Mediation Model of LMX on POS as mediated by SE***Research Question 3:****Is the relationship between LMX and POS mediated by PS?**

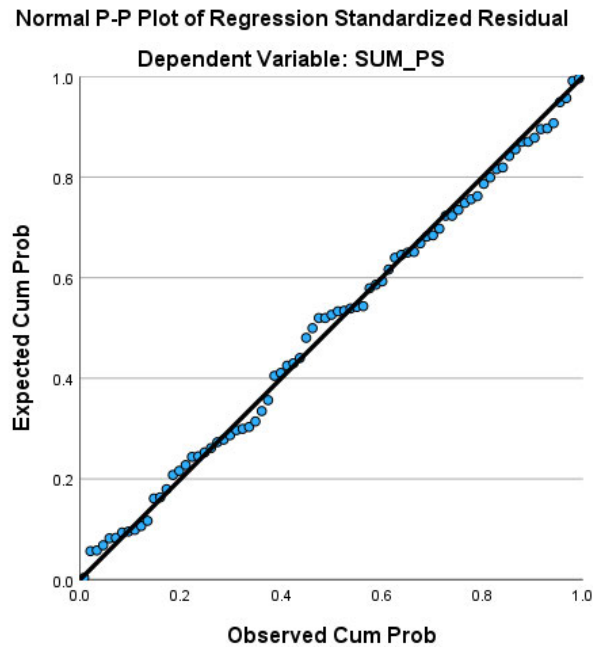
H₀₃: The relationship between LMX and POS is not partially mediated by PS.

H_{a3}: The relationship between LMX and POS is? Partially mediated by PS.

Starting with the set of assumptions for regressions, the normal distribution assumption was assessed with a P-Plot. As seen in Figure 10, the points fall quite linearly on the diagonal line; thus, I considered this assumption as having been met.

Figure 10

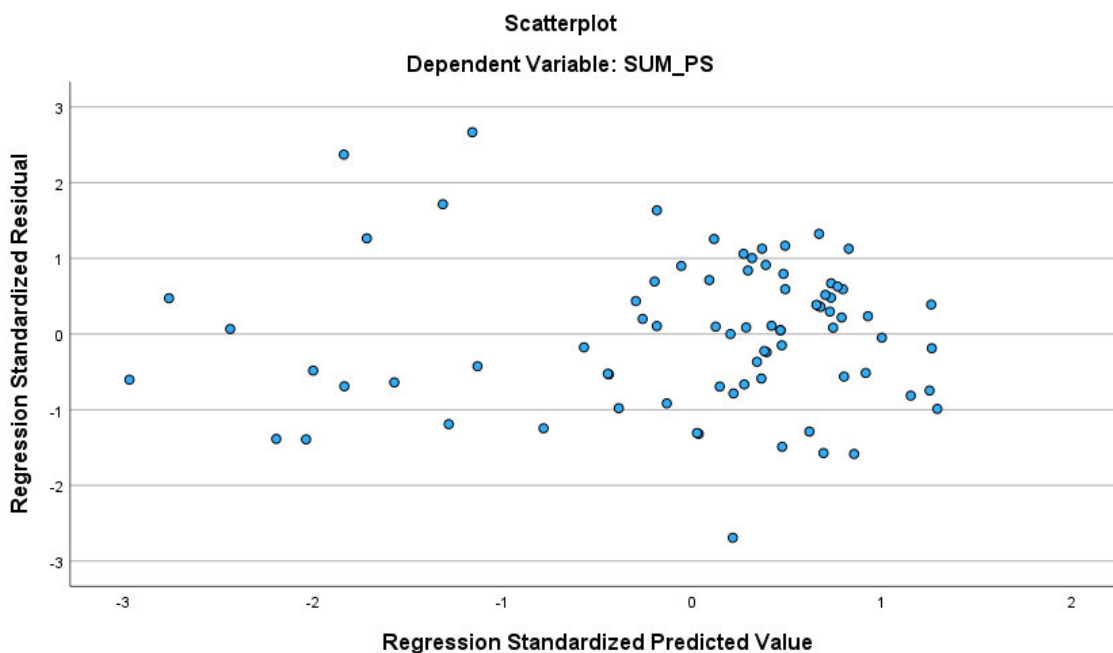
P-Plot of Psychological Safety and Leader-Member Exchange



Next, the homoscedasticity assumption states that the variance of the residuals of each level of each predictor should be the same. Partial plots were used to test the homoscedasticity assumption, as shown in Figure 11. Though not ideal, I considered the distribution of residuals in this plot to sufficiently indicate homoscedasticity. As with the previous regressions, multicollinearity among predictors was not a concern, as seen in Figure 11.

Figure 11

Scatterplot of the regression standardized residual on PS



As with the analyses for SE, Baron and Kenny's (1986) mediation analysis was used to assess the potential for Psychological Safety (PS) to act as a mediator in the relationship between LMX and POS. The results for step one (testing the relationship between LMX and POS) were taken from research question 1. The second step is to regress the mediation variable, PS, on the independent variable, LMX, to test whether LMX predicts PS. The result was statistically significant $F_{change}(1, 72)=105.57$ ($p<.001$), $R^2_{change}=0.54$, $b=0.36$ ($p<.001$). 54% of the variance is explained by the LMX over and above the variance explained by the demographic variables, as shown in Table 10.

Table 10

Predictors of Psychological Safety

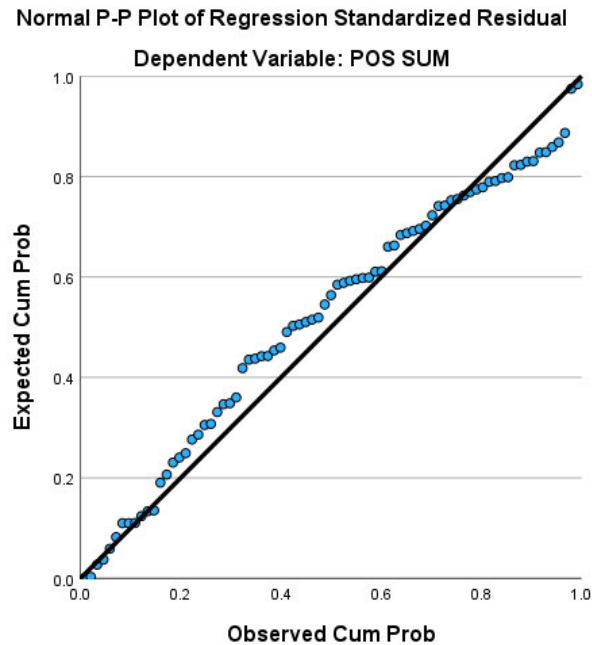
	<i>b</i>	<i>t</i> -value (<i>p</i>)	<i>sr</i> ²	<i>F</i> -value (<i>p</i>)	<i>R</i> ² change
Step 1					
Intercept	29.67	11.8 (<.001)		1.47 (0.21)	0.09
Gender	-1.76	0.59 (0.55)	0.00		
Age	0.26	-0.4 (0.66)	0.00		

Race	0.01	-0.3 (0.75)	0.00		
Tenure	-0.13	1.745 (0.08)	0.04		
Education	-1.36	2.284 (0.02)	0.07		
Step 2				105.57 (<.001)	0.54
Intercept	7.87	9.45 (<.001)			
Gender	-0.65	0.71 (0.48)	0.01		
Age	0.17	-0.56 (0.57)	0.00		
Race	0.75	-0.11 (0.91)	0.00		
Tenure	-0.20	1.65 (0.10)	0.04		
Education	-1.48	2.26 (0.02)	0.07		
LMX	0.36	10.27 (<.001)	0.02		

The third step is to regress the dependent variable, POS, on the mediation variable, PS, to test whether PS predicts POS when controlling for the independent variable (LMX). The assumptions must be addressed again since this is a separate regression analysis. As seen in Figure 12, although there is a slight curvilinear trend in the P-Plot, the points are close enough to the diagonal line to consider this assumption as having been met.

Figure 12

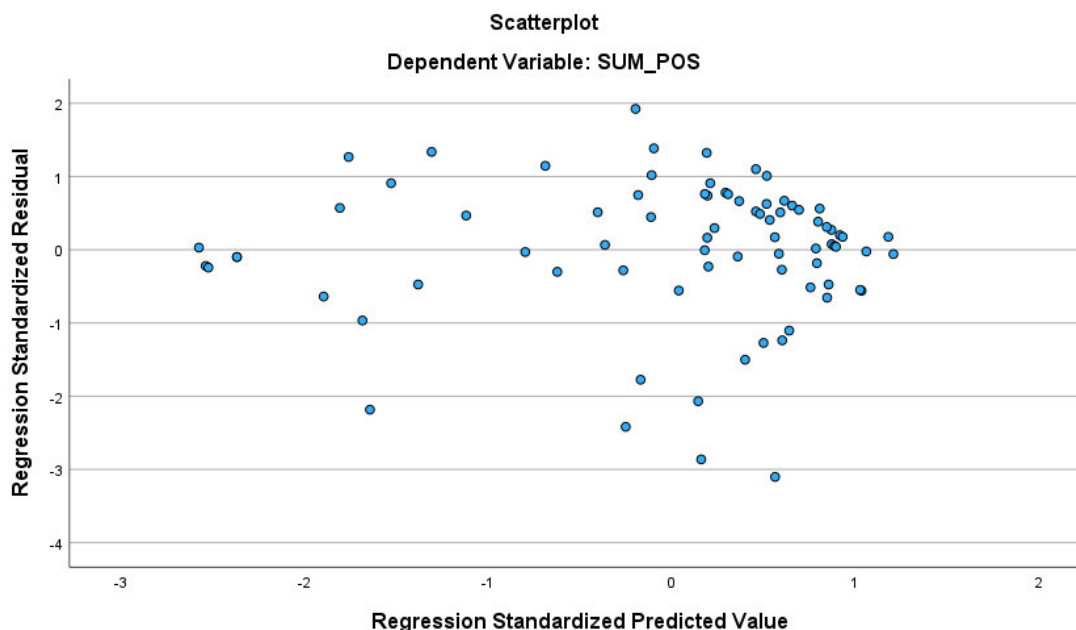
P-Plot of POS and LMX as Mediated by PS



Likewise, the homoscedasticity assumption states that the variance of the residuals of each level of each predictor should be the same. Partial plots were used to test the homoscedasticity assumption, as shown in Figure 13. Though not ideal, I considered the distribution of residuals in this plot to sufficiently indicate homoscedasticity. Multicollinearity among predictors was not a concern, as seen in Figure 13.

Figure 13

Scatterplot of POS and LMX as Mediated by PS



The result of the regression was statistically significant, $F_{change}(1, 72)=6.64$ ($p=.01$), $R^2_{change}=0.03$, $b=0.30$ ($p=.01$). However, with only 3% of the variability being explained by PS over and above the variance explained by LMX, the practical significance of this result is somewhat tenuous. Regardless, the third null hypothesis was rejected. See Table 11 for details.

Table 11

Predictors of POS as Mediated by PS

	<i>b</i>	<i>t</i> -value (<i>p</i>)	<i>sr</i> ²	<i>F</i> -value (<i>p</i>)	<i>R</i> ² change
Step 1					
Intercept	-3.201	-0.78 (0.44)		27.92 (<.001)	0.70
Gender	-1.066	-1 (0.32)	0.01		
Age	0.243	3.07 (<.001)	0.12		
Race	0.185	0.45 (0.65)	0.00		
Tenure	-0.164	-1.68 (0.1)	0.04		
Education	0.26	0.41 (0.69)	0.00		
LMX	0.42	0.41 (0.69)	0.65		
Step 2				6.64 (0.01)	0.03

Intercept	-5.58	-1.37 (0.18)	
Gender	-0.87	-0.85 (0.4)	0.01
Age	0.19	2.42 (0.02)	0.08
Race	-0.04	-0.1 (0.92)	0.00
Tenure	-0.10	-1.05 (0.3)	0.02
Education	0.71	1.09 (0.28)	0.02
LMX	0.30	5.61 (<.001)	0.31
PS	0.30	2.58 (0.01)	0.09

As a reminder, the Joint Significance Test simply state that if both path A and path B are not statistically significantly different from zero, then mediation is not supported. Because the regression coefficients in the first and second regression analyses described above were statistically significant, the Joint Significance Test suggests that SE does mediate the relationship between LMX and POS.

The Sobel test (Sobel, 1982) was also used to assess the statistical significance of the mediating ability of PS. The test indicated a statistically significant mediating relationship ($z=2.502$, $p=0.012$; see Table 12).

Table 12

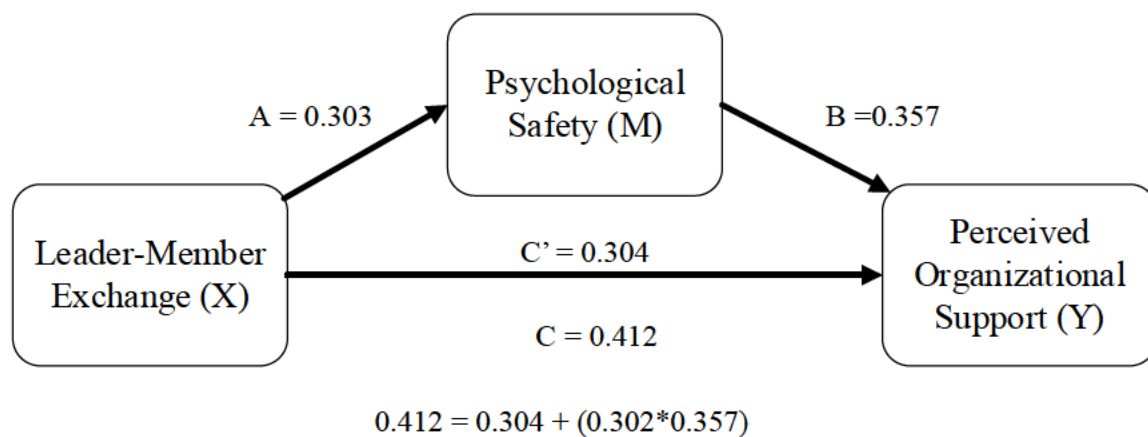
<i>PS Sobel Test Results</i>		
<i>Test Statistic</i>	<i>Std. Error</i>	<i>P-Value</i>
2.502	0.043	0.012

Thus, results regarding the ability of PS to act as a mediator in the relationship between LMX and POS were somewhat mixed. The third regression in Barron and Kenny's mediation analysis indicated statistical significance, but not practical significance. However, the Sobel test was not statistically significant. As a result, I decided to cautiously conclude that PS can be said to act as a mediator in the LMX-POS

relationship. For reference, the path diagram representing the total effect of this model is represented in Figure 14.

Figure 14

Mediation Model of LMX on POS as mediated by PS.



Summary

Chapter 4 focused on the analytical findings of this study, which sought to determine whether SE and PS could serve as mediating variables in the relationship between LMX and POS. Additionally, the internal consistency of each measure was assessed, and correlations between variables and demographics were evaluated for significance.

The key findings in this study include support for LMX as a predictor of POS, as per research question 1. Additionally, the ability of PS to mediate the relationship between LMX and POS was supported, though with slightly mixed results, as hypothesized by research question 3. However, LMX did not predict SE; thus, the ability of SE to act as a mediator in the LMX/POS relationship was not supported, as hypothesized by research question 2.

The next chapter begins with a summary of the findings of Chapter 4, followed by a discussion of the implications for researchers and project managers. This is followed by a discussion of the findings' impact on supporting the Biblical foundation from Chapter 2. Lastly, the chapter will discuss limitations and recommend future research on LMX, POS, PS, and SE.

Chapter 5: Discussion

This study aimed to identify whether there is a relationship between leader-member exchange and perceived organizational support. Additionally, the study investigated this relationship as mediated by psychological safety and self-efficacy. Although there is nothing in the academic literature regarding the direct relationship between LMX and POS, research on these constructs provided a strong foundation for this study. Psychological safety and self-efficacy have been shown to be mediators in the relationships between multiple related psychological constructs. This research worked to understand how these potential mediators may impact the relationship between LMX and POS and aimed to empower project managers to understand how to develop POS by discovering influential factors that may be impacting the relationship between LMX and POS.

This quantitative study examined whether there is a relationship between the independent variable of LMX and the dependent variable of POS, partially mediated by the variables of PS and SE. The study focused on the population of project managers based on the wealth of previous psychological research on all variables in this study. The sampling consisted of individuals involved in Project Management Institute chapters in the United States. A survey link was sent to collect data using the Multidimensional Measure of Leader-Member Exchange (Liden & Maslyn, 1998a), the Perceived Organizational Support Measure (Cheng et al., 2013b), the psychological safety portion of the Team Psychological Safety and Learning Behavior Survey (Edmondson, 1999b), and the Job Self-Efficacy Scale (Wilk & Moynihan, 2005b). Demographic data of age, gender, race, tenure, and education were collected to serve as control variables, given

their potentially influential impact on the study. This data was compared to the Bureau of Labor Statistics and a third-party statistics organization that worked with the Bureau of Labor Statistics data for additional insight.

This chapter begins by summarizing the findings of the study and is followed by a discussion of the results' contribution to research. A discussion on the impact of the Biblical foundations from Chapter 2 will be presented. Finally, this chapter will discuss the limitations of the study and recommend future research.

Summary of Findings

Before this research study, no published research was available on the relationship between LMX and POS. While many of the attributes of POS have been correlated with LMX, a correlation between the two variables had not been reported in the literature. This quantitative study aimed to assess the predictive relationship between LMX and POS and test the potential mediating effects of PS and SE. There were three research questions and corresponding hypotheses that guided this research:

RQ1: Is there a relationship between LMX and POS?

The independent variable of LMX did statistically and practically predict the dependent variable of POS. This bridges the gap in research by demonstrating a direct relationship with POS versus one of the many attributes of POS. When controlling for the demographic variables, the correlation between the two LMX and POS was strong ($R=0.804$) and an R^2 change of $=0.55$. The first null hypothesis was rejected, and the alternative was accepted. This finding is consistent with prior research on the attributes that make up POS and their relationship with LMX (Ali et al., 2019; Han & Bai, 2020; Stinglhamber & Caesens, 2021).

RQ2: Is the relationship between LMX and POS mediated by SE?

Once the ability of LMX to predict POS was established, the second research question was whether SE mediated that relationship. As per Barron and Kenny (1986), this was assessed using the independent variable to predict the mediation variable. This relationship was not statistically significant ($F_{change}(1, 72) = 2.61$ ($p = 0.11$), $R^2_{change} = 0.03$, $b = 0.04$ ($p = 0.11$)). Thus, the null hypothesis could not be rejected based on the data.

While a statistically significant relationship between the two was not found in this study, prior researchers have found links between SE and creativity (Park et al., 2021) and SE and knowledge sharing (Yoon et al., 2018), two constructs related to LMX. More research is needed to determine whether there is a relationship between SE and LMX.

RQ3: Is the relationship between LMX and POS mediated by PS?

The third research question focused on the relationship between LMX and POS as mediated by PS. The predictive ability of the independent variable decreased when PS was added to the model (LMX on POS without PS $sr^2 = 0.65$, and $sr^2 = 0.31$ when PS was added to the model). However, although the slope for PS was statistically significant, only 3% of the variance in POS was explained by PS above and beyond LMX, which is relatively small, and thus the practical significance of this result is questionable.

Nevertheless, because the Sobel test also indicated a statistically significant result, the null hypothesis was rejected, and the alternative hypothesis was accepted. This aligns with prior research, as PS has been shown to be a mediator between LMX and variables such as work engagement (Mao & Tian, 2022) and student well-being, both of which have been associated with POS (Appelbaum et al., 2021).

In summary, this research bridged the gap between prior research to current research by directly relating LMX to POS rather than individual components of POS.

Interpretation of the Findings

Until this point, research has demonstrated how LMX relates to various constructs which make up POS. However, prior to this study, research examining a direct connection between LMX and POS was unavailable. The current study expanded on prior literature by examining the potential mediating effects of PS and SE in the LMX-POS relationship. Previous research has shown how these two variables have impacted the relationship between LMX and multiple variables that have been found to be related to POS (Appelbaum et al., 2021; Li et al., 2020; Stinglhamber & Caesens, 2021

The results of the first regression analysis revealed a statistically and practically significant relationship between LMX and POS, with 55% of the variance in POS being explained by LMX above and beyond the demographic characteristics of respondents. This implies that meaningful exchanges between supervisors and employees strongly influence employees' perceptions of the organization. Additionally, these findings suggest that leaders could develop an employee's POS by increasing the frequency or quality of the exchanges. These results provide a meaningful contribution to the literature since no prior research on the relationship between LMX and POS is available.

The second research question looked at the potential mediating effect of self-efficacy in the LMX-POS relationship. While SE has been found to mediate different relationships between variables associated with LMX and/or POS, no statistically significant impact was found in this study. This implies that one's perception of their own abilities does not impact the relationship between their level of LMX and their perception

of support by an organization. Thus, while this study did not find SE to be a mediator in the relationship between LMX and POS, further research is needed to uncover additional, potentially related, variables that may be affecting the relationship.

However, while the results were somewhat mixed, the relationship between LMX and POS was found to be partially mediated by PS. This implies that while the LMX and POS relationship is strong, the strength of the relationship may be due in part to the perception of other employees in the organization and an individual employee's ability to bring up issues and concerns. Thus, the supervisor to employee relationship is not the only one available to evaluate when considering POS. Employers should be mindful that the exchanges between supervisors and employees' POS may be affected by the PS of the employee group (Lan et al., 2020).

Limitations of the Study

There were multiple limitations in this study. The first limitation was the restricted access to the population. While appropriate sample sizes were able to be obtained, data are likely highly focused on specific geographical areas or sub-populations. This is due in part to direct communication with specific project management groups. Regardless, additional samples and larger sample sizes are always useful to provide additional support (or lack thereof) for the mediating relationships investigated in this study (Hayes, 2022).

A second limitation was a lack of access to bootstrapping and Monte Carlo analyses and structural equation modeling (SEM) methods. The methods of investigating the indirect effect are two of the recommended methods best to assess a mediating relationship (Hayes, 2022). However, SPSS's most recent update has only recently

allowed for bootstrapping and Monte Carlo methodology to be available, and SEM still requires specialized software. At the time of analysis, these methods were not available in SPSS. These analyses are recommended to validate the results of this mediation analysis (Hayes, 2022; Kenny, 2017).

Lastly, while PS was found to mediate the relationship between LMX and POS in a statistical significance sense, only 3% of the variance in POS was explained by PS above and beyond what was explained by LMX. Thus, practical significance is questionable. Future research should seek to duplicate these results to discover if the low practical significance is isolated to this study or if it remains constant.

Recommendations

Future research should consider this study's technical and practical attributes. First, while LMX and POS are correlated and potentially mediated by PS, investigating the quality and frequency of LMX would provide additional insight into the LMX-POS relationship, and allow managers to learn more about the appropriate levels of exchanges. Much of LMX research focuses on the quality of exchanges, but that aspect was absent from this research. Thus, future studies may want to control the quality of exchanges to deepen the understanding of how this relationship functions.

Future research should also use more sophisticated analytical methods, as described above with bootstrapping and Monte Carlo analyses. Additionally, structural equation modeling allows for a more complex mediation model and is the typically recommended way of assessing a potential mediating relationship (Hayes, 2022).

Implications

Due to the results of the study, recommendations for managers and researchers can be made to help facilitate the POS in a team or organization, through the adjustment of exchanges between leaders and members. Managers should also be aware that the relationship between LMX and POS is mediated by PS. The implications here focus on practical actions and how researchers and managers may adjust their actions for a more advantageous working environment and culture. Thus, the interpretations of the findings will slightly vary in the implications from reader to reader, but some direction can be put forth in how to apply the findings of this study in different scenarios.

Implications for Researchers

The fact that PS serves as a mediator in the relationship between LMX and POS suggests that, when seeking to understand the factors that impact POS, researchers should consider LMX and PS separately. However, they should also consider the way in which LMX and PS themselves are related, and how. The frequency and quality of LMX may impact both POS and PS, and this impact may “go through” PS as well as other variables.

Finally, the strong relationship between LMX and POS in this study contributes meaningfully to the literature as it provides further insight into the literature regarding the multiple variables that make up POS, such as knowledge sharing or the ability to speak up. This opens the door to further research based on the quality and frequency of LMX as related directly to POS and not to specific variables which contribute to POS.

Practical Implications for Managers

For managers, this research shows that LMX and POS are directly related, but a portion of that relationship is based on the PS of the group. This means that managers should consider how their exchanges with individual employee’s impact employees’

perceived support, and how the psychological safety of the group further impacts an individual's perception of support. While frequency and quality of exchanges may still affect employees' POS, managers are able to focus further on their exchanges to craft an appropriate work environment for employees. Managers should tailor their exchanges to employee frequency and quality needs, which may depend on employee or organizational needs. It is the manager's responsibility to develop both their exchanges with employees and their employees' feelings of PS to positively impact employees' POS. This research indicates that LMX relationships and PS are both critical for employees to develop their POS.

Practical applications for managers focus on an awareness that the exchanges between managers and employees are critical in perceptions of support. Additionally, this relationship is mediated by PS. Managers can foster quality exchanges and PS to impact further how employees perceive support. Thus, if employees communicate a lack of support, changes to the quality or frequency of exchanges may be a way to reverse this trend. However, if managers work to change the quality or frequency of exchanges, they should not ignore the impact of the groups' PS as this will impact the manager's ability to influence POS. Efforts toward a stronger POS may have stronger effects if managers focus on the LMX and PS, rather than just one variable.

Biblical Integration

Because the Bible is used to interpret the world rather than the other way around, the results of this study do not impact Biblical truths. However, it is possible to see Biblical concepts represented in the fact that Psychological Safety impacts the relationship between Leader-Member Exchange and Perceived Organizational Support.

As Christians put their trust in God for protection and grace, this allows them to feel supported by the Christian faith. In 1 Chronicles 28:20 (*New International Version*, 2011), David tells Solomon to “be strong and courageous, and do the work. Do not be afraid or discouraged, for the LORD God, my God, is with you.” This study could be seen as a modern psychological illustration of this verse, as being strong and courageous could only be possible if a person feels safe. Likewise, God’s presence with believers could be likened to a LMX transaction.

While Self-Efficacy did not have statistical support as a mediator, it does find practical application from the Bible. Judges 7 can be used as an example of Self-Efficacy in God’s word. While this is still true, the story of Gideon may have more to do with psychological safety than self-efficacy. This does not minimize the value of self-efficacy but does highlight that our interpretation of God’s word may focus on the wrong concepts and can be adapted once a clearer perspective can be found.

Conclusion

This study aimed to establish a relationship between LMX and POS and discover whether PS and SE can serve as mediators in that relationship. A significant relationship between LMX and POS was found, with mediation by PS but not SE. These findings have made a meaningful contribution to the literature surrounding these constructs and provide important insight for managers. Specifically, managers should consider that their exchanges with their employees may not only affect employees’ perceived organizational support directly but may also impact employees’ sense of psychological safety, which is related to POS. While more research is needed to expand on these concepts, this research

concludes with a greater understanding of how leader-member exchanges and psychological safety impact employees' perceived organizational support.

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APPENDIX A: CONSENT

Title of the Project: Leader-member exchange, perceived organizational support, psychological safety, and self-efficacy in project-based organizations.

Principal Investigator: Bradley J Gauvin, Doctoral Candidate, Psychology Department
Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. In order to participate, you must be 18 years of age or older and be associated with a chapter of the Project Management Institute. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research project.

What is the study about, and why is it being done?

The purpose of the study is to explore the how leader-member social exchanges effect one's perception of organizational support. Additionally, the research works to find how psychological safety and self-efficacy effect that relationship.

What will happen if you take part in this study?

The expected risks from participating in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

How could you or others benefit from this study?

Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society may include increased knowledge and understanding of how exchanges between supervisors and subordinates can be affected by team psychological safety and individuals self-efficacy when looking at organizational support.

What risks might you experience from being in this study?

The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

How will personal information be protected?

Personal information is not to be collected; all responses will be anonymous. The records of this study will be kept private with a final dataset, cleaned of any person information, and destroyed after 3 years.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any questions or withdraw at any time prior to

submitting the survey without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please close the exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Bradley Gauvin. You may ask any questions you have now. If you have questions later, you are encouraged to contact him at [REDACTED] or [REDACTED]. You may also contact the researcher's faculty sponsor, Dr. Gilbert Franco, at [REDACTED].

Whom do you contact if you have questions about your rights as a research

participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu

Your Consent

Before agreeing to be part of the research, please be sure that you understand what the study is about. You can print a copy of the document for your records. If you have any questions about the study later, you can contact the researcher using the information provided above.

I have read and understand the above information. I have asked questions and have received answers. I consent to participate in the study.

APPENDIX B: MEASURE

Demographic Information

Sex

- a. Male
- b. Female
- c. I prefer to not select a Sex

Age

Age at the time of Survey:

Race

- a. White non-Hispanic
- b. Hispanic or Latino
- c. Black or African American
- d. Native or Alaska Native
- e. Asian
- f. Pacific Islander
- g. I prefer to not select a Race

Tenure

- a. Number of years in your Workplace:

Education

- a. Less than high school
- b. High school, or equivalent
- c. Some college but no degree
- d. Associate's degree
- e. Bachelor's degree
- f. Advanced degree held (master, professional, or doctoral degree).

APPENDIX C: OPERATIONAL VARIABLES

Multidimensional Measure of Leader-Member Exchange

Instructions: *In the following set of questions, think of your immediate manager (or team leader).* Select the number that honestly reflects frequently your experienced. 1=Strongly Disagree 2=Disagree, 3=Somewhat Disagree 4=Neither Agree nor Disagree 5=Somewhat Agree, 6= Agree, 7 = Strongly Agree

- ___ 1. I respect my manager's knowledge of and competence on the job.
- ___ 2. My manager would defend me to others in the organization if I made an honest mistake.
- ___ 3. My manager is the kind of person one would like to have as a friend.
- ___ 4. I do not mind working my hardest for my manager.
- ___ 5. My manager would come to my defense if I were "attacked" by others.
- ___ 6. I like my manager very much as a person.
- ___ 7. I do work for my manager that goes beyond what is specified in my job description.
- ___ 8. I admire my manager's professional skills.
- ___ 9. My manager defends (would defend) my work actions to a superior, even without complete knowledge of the issue in question.
- ___ 10. My manager is a lot of fun to work with.
- ___ 11. I am willing to apply extra efforts, beyond those normally required, to meet my manager's work goals.
- ___ 12. I am impressed with my manager's knowledge of his/her job.

Source: Liden, R. C., & Maslyn, J. M. (1998a). Multidimensional measure of leader-member exchange [PsycTESTSRecord]. <https://doi.org/10.1037/t04899-000>

Perceived Organizational Support Measure

Instructions: *The organization in which you work:* Select the number that honestly reflects your experience. 1=Strongly Disagree 2=Disagree, 3=Somewhat Disagree 4=Neither

Agree nor Disagree 5=Somewhat Agree, 6= Agree, 7 = Strongly Agree

- __ 1. It would help me if I needed a special favor.
- __ 2. It takes pride in my accomplishments.
- __ 3. It shows little concern for me (reverse code).
- __ 4. It really cares about my well-being.
- __ 5. Values my contribution to its well-being.
- __ 6. It strongly considers my goals and values.

Source: Cheng, P.-Y., Yang, J.-T., Wan, C.-S., & Chu, M.-C. (2013b). Perceived organizational support measure [PsycTESTSRecord].

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Team psychological safety

Instructions: *The organization in which you work:* Select the number that honestly reflects your experience. 1=Strongly Disagree 2=Disagree, 3=Somewhat Disagree 4=Neither

Agree nor Disagree 5=Somewhat Agree, 6= Agree, 7 = Strongly Agree

- __1. If you make a mistake on this team, it is often held against you.
- __2. Members of this team are able to bring up problems and tough issues.
- __3. People on this team sometimes reject others for being different.
- __4. It is safe to take a risk on this team.
- __5. It is difficult to ask other members of this team for help.
- __6. No one on this team would deliberately act in a way that undermines my efforts.

Source: Edmondson, A. (1999b). Team psychological safety and learning behavior survey [PsycTESTSRecord]. <https://doi.org/10.1037/t52628-000>

Job Self-Efficacy Scale

Instructions: *The organization in which you work:* Select the number that honestly reflects your experience. 1=Strongly Disagree 2=Disagree, 3=Somewhat Disagree 4=Neither

Agree nor Disagree 5=Somewhat Agree, 6= Agree, 7 = Strongly Agree

- __1. I am certain that I can meet the performance standards of this job.
- __2. I am confident that I am able to successfully perform my current job.
- __3. I feel I have the skills and knowledge necessary to complete my job effectively.

Source: Wilk, S. L., & Moynihan, L. M. (2005b). Job self-efficacy scale

[PsycTESTSRecord]. <https://doi.org/10.1037/t09306-000>

APPENDIX D: RECRUITMENT LETTER

Dear Local PMI Chapter:

As a doctoral student in the Department of Psychology at Liberty University, I am conducting research as part of the requirements for a doctoral degree. The purpose of my research is to explore how leader-member social exchanges affect one's perception of organizational support. Additionally, the research works to find how psychological safety and self-efficacy affect that relationship, and I am writing to invite eligible participants to join my study.

Participants must be 18 years of age or older and have membership in a PMI organization. Participants, if willing, will be asked to complete a survey consisting of 35 questions and demographic information. It should take approximately seven minutes to complete the survey. Participation will be completely anonymous, and no personal, identifying information will be collected.

To participate, please click here <https://www.surveymonkey.com/r/lmxpos>. The link begins with selection criteria, followed by the demographic questionnaire and the survey broken up into four pages for each assessment.

A consent document is provided on the first page of the survey. The consent document contains additional information about my research. Because participation is anonymous,

you do not need to sign and return the consent document unless you would prefer to do so.

Please communicate to your members this request for participation and share the link for participation.

Sincerely,

Bradley J Gauvin

PhD Candidate



APPENDIX E: FOLLOW-UP LETTER

Dear Local PMI Chapter:

Last week I emailed you asking for your members to participate in a survey as part of the requirements for my doctoral degree. Additional participants are required to meet the requirements to analyze this information statistically.

Would you please communicate with your members a second time to help boost participation in this survey?

Link to participate: <https://www.surveymonkey.com/r/lmxpos>

Sincerely,

Bradley J Gauvin

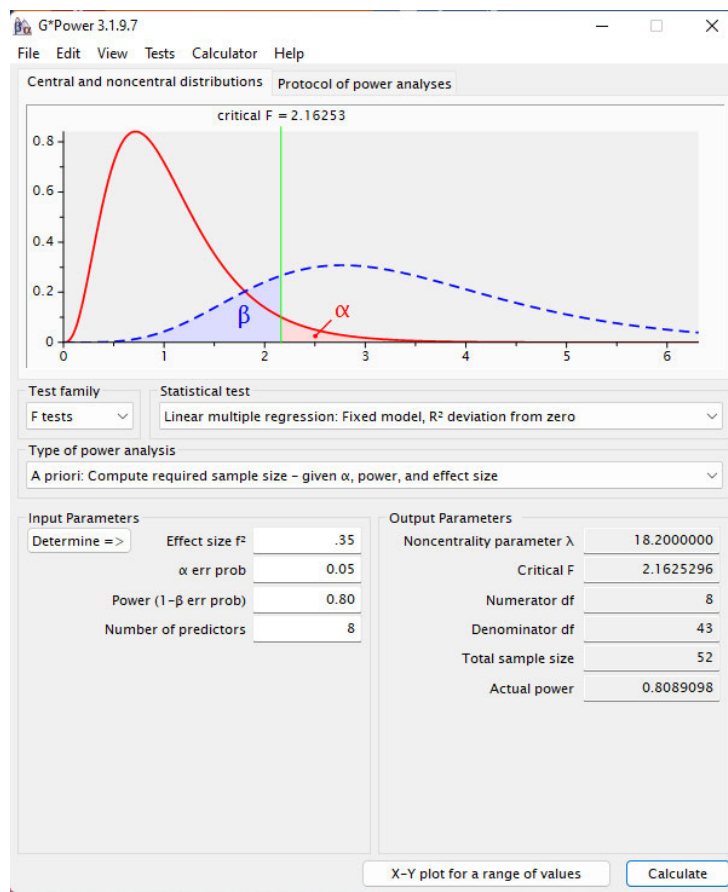
PhD Candidate



APPENDIX F: THANK YOU MESSAGE

Thank you for your interest in participating in this study. Unfortunately, the answers provided in the screening question indicate that you do not meet the necessary criteria of either being at least 18 years of age or not having membership in the project management institute.

APPENDIX G: POWER ANALYSIS



Power and N Computations for Mediation

Compute Now!

Please [CLICK HERE](#) to make a small donation of \$2.50 to offset some of the costs of maintaining MedPower. I thank the more than 50 users who have already donated! Your turn to donate now.

Determine:

Power given Sample Size

Sample size given desired level of power

Desired Power

Effect Size Measure

Beta partial r

Effect of X on M (path a)

Effect of M on Y (path b)

Effect of X on Y (path c')

Alpha

Make sure review the assumptions of mediation analysis given in Details and Assumptions tab above.

Effect	Beta	Partial r	Power	N
c (total)	.472	.472	.811	32
a	.350	.350	.811	61
b	.350	.372	.811	54
c' (direct)	.350	.372	.802	54
ab (indirect)	.122		.804	74

Alpha for all power calculations set to .050. Effects (a, b, and c') are Betas.