

TRANSFORMATIONAL LEADERSHIP AND PROJECT SUCCESS: THE MEDIATING ROLE OF EFFECTIVE COMMUNICATION

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ABSTRACT

The study explores the connection between transformational leadership and successful project outcomes, with effective communication proposed as an intermediary factor. Prior research has established a link between transformational leadership and favorable project results, but the underlying mechanisms behind this association remain largely unexplored. This study looks at the mediating function of effective communication to close this gap. Data was collected from 130 construction project managers based in Islamabad, Rawalpindi, and Gilgit, Pakistan. The analysis revealed a significant direct effect of transformational leadership on project success. Moreover, effective communication was found to mediate this relationship partially, indicating that the positive influence of transformational leaders on project outcomes is partially attributable to their ability to communicate effectively with their teams. These findings hold theoretical significance by enhancing our understanding of how transformational leadership fosters project success. The study underscores the importance of transformational leadership style and effective communication for organizations engaged in project-based work. By investing in management training programs that cultivate these critical skills, organizations can enhance their project management practices and ultimately achieve higher rates of project success.

Keywords: Transformational leadership; Effective communication; Project Success.

1. INTRODUCTION

The success of a project is a crucial consideration for organizations across diverse sectors. Existing research consistently highlights the central role of leadership in driving project success, with scholars emphasizing the importance of leadership in establishing conditions that foster high project performance (Randeree & Ninan, 2011; Stagnaro & Piotrowski, 2013). However, the specific leadership styles most conducive to project success remain a topic of ongoing exploration, as stated by (Aga et al., 2016). Three fundamental leadership styles are described in the most well-known leadership theory (full-range leadership theory) by Bass and Avolio (1997): transactional, transformational, and laissez-faire (Sohmen, 2013). Although all three leadership styles have been studied in project settings, transformational and transactional leadership have attracted particular attention because of their seeming applicability (L.-R. Yang et al., 2011).

Notably, studies show a favorable correlation between transformational leadership and project success, making it the most modern strategy (Aga et al., 2016). Moreover, transformational leaders are skilled in inspiring groups and giving projects a clear sense of direction (Raziq et al., 2018).

Project leadership plays a crucial role across various organizational settings, including information technology (Lee-Kelley & Leong, 2003), construction (Meng, 2012), clinical research (Kangis & Lee-Kelley, 2000) and even higher education institutions (Arsenault, 2007). The higher education institutions, like other organizations, face complex challenges and require effective leadership to navigate them successfully (Arsenault, 2007).

Although the association between transformative leadership and project success has been well-documented, little is known about the underlying mechanisms that underlie this relationship (J. Yang

et al., 2010). Researchers such as Piccolo and Colquitt (2006) have emphasized the need to explore the mediating variables that explain the transformational leadership-project success link. This call for uncovering the mediating process has been reiterated by various scholars such as (Aga et al., 2016; Ding et al., 2017; and L.-R. Yang et al., 2011). Additionally, there are suggestions that the positive influence of transformational leadership may be more pronounced in line management roles compared to project contexts (Keegan & Den Hartog, 2004). As a result, scholars have argued for looking at the relationship between transformational leadership and project success from the perspective of possible moderators and mediators. Similarly, the significance of exploring how transformational leadership style translates into beneficial work behaviors, ultimately leading to project success, has been highlighted Avolio et al. (2004).

Scholars have proposed various mediators and moderators to explain this relationship in response to the calls for further investigation. For instance, Aga et al. (2016) recommend team-building dimensions as potential mediators, while Gundersen et al. (2012) focus on team processes. Interestingly, (Brandt & Uusi-Kakkuri., 2016) identified specific communication styles that affect the efficiency of transformational leaders. Furthermore, (Zuo et al., 2018) emphasize the need to investigate the impact of a project leader's soft skills, which undoubtedly include effective communication on project success. Building on these insights, this research suggests that effective communication acts as a mediator between transformational leadership-project success links.

2. LITERATURE REVIEW AND THEORETICAL BACKGROUND

2.1. Transformational Leadership

Despite being a well-established topic in leadership studies, transformational leadership has not gotten much attention in the context of project management (Ali et al., 2021). Transformational leadership is one of three unique leadership styles within the well-known full-range leadership framework created by Bass and Avolio (1997), along with transactional leadership and laissez-faire leadership (Sohmen, 2013). As noted by Gundersen et al. (2012), transformational leadership is relevant to project-based organizations, which is why this research stresses it.

Managers exhibiting a transformational leadership style are adept at inspiring, motivating, and encouraging their team members to embrace innovation and positive change. This fosters an environment conducive to growth and shapes the organization's future success (White, 2018).

Furthermore, transformational leaders actively promote open communication and collaboration as mechanisms for tackling challenges and problem-solving (Jiang & Chen, 2018).

The transformational leadership model encompasses four key dimensions. The first, individualized consideration, involves supporting, encouraging, and coaching followers. The second, intellectual stimulation, helps reduce complexity and fosters employee creativity and innovation. Inspirational motivation, the third dimension, entails inspiring followers by providing an appealing vision and guiding them towards its achievement. Lastly, idealized influence refers to a leader's charisma and attitude, which motivate employees (Avolio et al., 2004; Lindgren & Packendorff, 2009).

2.2. Project Success

The traditional "iron triangle" of scope, cost, and time has long been a widely accepted metric for evaluating project success (PMI, 2008). However, a more sophisticated understanding has emerged, recognizing that meeting these constraints is a necessary but not sufficient condition for true project success. Additional factors, such as client satisfaction, stakeholder buy-in, and commercialization potential also contribute significantly to a project's overall success (Serrador & Turner, 2015).

The Project Management Institute proposes a multifaceted definition of project success, which includes not only the attainment of predetermined project scope, quality, cost, and schedule objectives but also the effective management of diverse stakeholder concerns and expectations stakeholders (PMI, 2008, p.9). While scholarly perspectives on project success vary, the Iron Triangle, encompassing cost, time, and quality, remains the most widely discussed framework for assessing project success and performance (Atkinson, 1999). Ika (2012) highlights the historical dominance of the Iron Triangle in the early 1980s, where it served as the sole criterion for project success. However, the definition has evolved to incorporate additional success factors. These include client satisfaction,

stakeholder benefits, organizational and project team member advantages, alignment with organizational strategic objectives, and overall business success. Wu et al. (2017) further emphasize the focus on client impact, organizational benefits, and meeting design goals as key success criteria within project-based organizations.

Projects differ in setting, size, and multifaceted nature with the progression of time. (Mir & Pinnington, 2014) argued that success criteria for measuring project success vary, and generally project success is an approach to evaluate the progress of the project (Westerveld, 2003). Many projects may succeed or fail, but what matters the most is how they reach their goals and how they manage to finish their project activities (Martinsuo & Lehtonen, 2007).

2.3. Effective Communication

Effective communication is recognized as a critical part of influencing project outcomes, with poor communication practices contributing significantly to project failure (Iqbal et al., 2019). Established project communication procedures not only enhance the success rate of projects but also foster confidence among stakeholders, which itself plays a crucial role in project completion (Wu et al., 2017).

The significance of communication in project performance has been well-documented in prior research (Yap et al., 2017). However, effective communication is multifaceted and can manifest in various forms within a project context (Kamalirad & Kermanshachi, 2018). Different communication aspects can exert either positive or negative influences on project outcomes (McKinney et al., 1997). While Tonchia (2018), emphasizes the role of excellent communication in building trust, ultimately leading to successful project execution, Ning (2017) and Silla et al. (2020) suggest that trust only is not satisfactory to guaranteeing project success.

Within project management, communication serves as the critical mechanism for transferring information efficiently between project stakeholders. This exchange fosters the development and maintenance of positive interdependencies between functional units, as identified by (Dutton & Walton, 2008). Effective communication establishes a process by which workers from diverse functional areas can share vital information, ultimately contributing to successful project execution. Project management literature acknowledges various

communication channels, including internal communication (information exchange within the project team) and external communication (information exchange with stakeholders) (P. Turner, 2019). Furthermore, communication can be categorized based on its formality: written communication encompasses emails, memos, and reports, while oral communication includes face-to-face interactions and meetings. Finally, communication can be formal or informal, with the former adhering to established organizational protocols and the latter occurring spontaneously outside of these structures.

3. CONCEPTUAL MODEL AND HYPOTHESIS DEVELOPMENT

3.1. Transformational Leadership and Project Success

Project performance is significantly influenced by the leadership style used in project management, with transformational leadership showing a well-established positive correlation (Scott-Young & Samson, 2008; Zwikael & Unger-Aviram, 2010; Vaccaro et al., 2011). Previous studies have demonstrated that transformational leaders foster a variety of positive outcomes, including higher employee commitment, productivity, and adaptability (Wang et al., 2017; Ding et al., 2017), improved team creativity, innovative behavior (Dong et al., 2017; Xenikou, 2017), and employee retention (Collier, 2017). Furthermore, the development of positive and encouraging work environments as well as a decrease in employee burnout have been associated with transformative leadership (Hildenbrand et al., 2018; Thibault et al., 2019). In particular, Iqbal et al. (2019) emphasized a link between project outcomes and the four aspects of transformative leadership.

One key mechanism underlying this positive influence is intellectual stimulation. Transformational leaders encourage the generation of new knowledge, concepts, and new ideas, fostering a tradition of novelty and creativity within teams (Ghasabeh et al., 2015). Limsila & Ogunlana (2008) study in Thailand's construction industry provides empirical support for this notion, demonstrating a constructive connection between transformational leaders' behaviors and project success among 52 project managers. By promoting open communication and shared understanding, transformational leaders cultivate an environment

where team members engage in constructive dialogue and persistent effort toward project goals (Burke et al., 2006). Based on this evidence, we propose our first hypothesis:

Hypothesis 1. Transformational leadership is positively associated with project success.

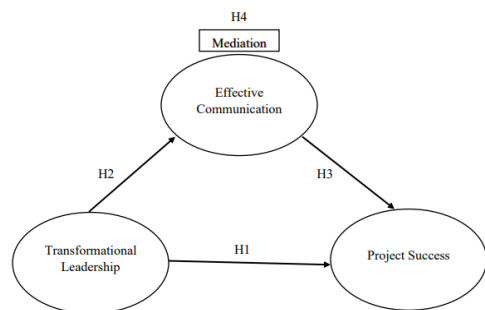


Figure 1. Conceptual Framework of the study

3.2. Transformational Leadership and Effective Communication

The field of communication is inextricably linked to leadership (Ruben & Gigliotti, 2016). This inherent connection is evident in research reconnoitering the link between TFL styles and specific communication behaviors (Brandt & Uusi-Kakkuri, 2016). Their study of 216 Finnish CEOs found a link between TFL and communication styles characterized by emotional intelligence, transparency, and control. Furthermore, Jensen et al. (2018) investigated the connection between TFL and various communication behaviors. The results of the study suggest that leaders, possessing transformational leadership styles, who utilize face-to-face communication effectively transmit the organization's objectives and motivate the workforce.

However, (Jensen et al., 2018) also, acknowledge the limitations of face-to-face communication, particularly its time demands. In large organizations, engaging with each employee through this method can be impractical. They emphasize communication as a distinct behavior with demonstrably positive impacts on transformational leadership effectiveness. Similarly, (Raziq et al., 2018) highlighted the role of communication skills in a leader's effectiveness. Effective leaders demonstrate strong discourse, idea exchange, reading comprehension, writing proficiency, and active

listening skills. These combined abilities contribute significantly to successful leadership performance.

Hypothesis 2. Transformational leadership is positively influencing effective communication.

3.3. Effective Communication and Project Success

Project success measurement has evolved to encompass a more comprehensive view. In modern times, along with the classic iron triangle, there is also an emphasis on ensuring stakeholder contentment (Schwalbe, 2015), team development (Atkinson, 1999), and the successful delivery of artefact, organizational, and business benefits (Globerson & Zwikael, 2002).

The inherent risk associated with projects, arising from their singular and time-bound nature, necessitates proactive management strategies (Engelbrecht et al., 2019). Success rates often lag behind failure rates because of the dynamic and competitive landscape of today's business setting, necessitating constant innovation and rapid project development (Yeh et al., 2020). Effective project team relationships become crucial in navigating these complexities (Guo & Ling, 2020). Research by Tahir (2019) suggests that collaboration and communication play key role in the success of a project. Kyriazis et al. (2017) further strengthens this link, demonstrating communication's positive influence on team collaboration and new product development success. Alvarenga et al. (2019) noticed a confirmed correlation between project leader's competencies like effective communication, commitment, and leadership, and project success. Bigbee and Stevenson (2019) reiterate the vital role of communication in project achievement. Effective communication ensures clear understanding between sender and receiver, facilitating timely and appropriate responses (Harris & Sherblom, 2018). As project team performance improves, communication flows more effectively, and knowledge sharing becomes more frequent, all contributing to a higher likelihood of project success (Pollack & Matous, 2019).

The detrimental effects of communication breakdowns are well-documented. Bastien (1987) and Malmelin (2007) highlighted adverse results such as increased pressure, job dissatisfaction, low trust, absence, and declining organizational commitment. Cervone (2014) and (Hodgkinson, 2009) further, emphasized the critical role of

effective communication in success and failure of a project. While communication might be deprioritized during smooth project execution, proactive, ongoing, and effective communication becomes vital when challenges arise (Greenberger, 2016). Zulch (2014) adds that effective communication facilitates conflict resolution, issue mitigation, and goal achievement by keeping stakeholders informed and engaged. Therefore, we proposed that.

H3. There is a relationship between effective communication and project success.

3.4. Transformational Leadership (TFL), Effective Communication (EC), and Project Success (PS)

Leaders, having TFL behaviors, foster an environment conducive to establishing formal communication channels and procedures that promote two-way information exchange among employees (Piccolo & Colquitt, 2006). This emphasis on open communication aligns with the growing recognition of effective communication as a mediator between transformational leadership and project success. Research by Zuo et al. (2018) highlighted a noteworthy positive connection between leadership and the project leader's soft skills on project outcome, which undoubtedly includes effective communication. Zulch (2014) further emphasized the critical contribution of robust communication skills to project accomplishment, underscoring the importance of leadership development programs that hone these essential skills. Similarly, Novo et al. (2017) demonstrated that project manager's leadership skills significantly impact project outcomes.

While leadership is a thoroughly researched field within the setting of organizations, project-based organizations have received less research attention (Söderlund, 2011; J. R. Turner & Müller, 2005). (Keegan & Den Hartog, 2004) claimed that the effects of transformational leadership may differ between project-based and permanent organizational structures. This highlights the necessity for additional exploration of the precise ways in which TFL impacts the projects outcomes, particularly within the domain of project management.

Hypothesis 4: *Transformational leadership has an indirect impact on project success through effective communication.*

4. METHODOLOGY

4.1. Research Setting and Participants

This research paper focuses on the categorization of projects, with a particular emphasis on infrastructure projects. Infrastructure projects are essential for a society or corporation's effective and efficient functioning. The data for this study was collected from project managers who had recently participated in infrastructure projects situated in Islamabad/Rawalpindi and Gilgit, Pakistan.

The data collection process involved three key stages. The initial stage entailed identifying the primary variable influencing the success of infrastructure projects. A pilot study was then carried out to enhance the survey's comprehension and comprehensiveness. Finally, a questionnaire-based survey was administered to assess the respondents' perspectives on the impact of transformational leadership on project success. This study explored the relationship between transformational leadership and project success, with effective communication acting as a mediating factor.

4.2. Sample Size and Data Collection

Construction companies that carry out infrastructure projects with a focus on improving the infrastructure of Pakistan were the target institutions of research. Data was gathered from project managers involved in building projects in Islamabad, Rawalpindi, and Gilgit. Data were collected through self-administered questionnaires and emails. A total of 200 project managers who were involved in public construction were chosen at random to complete the survey. A total of 150 project managers responded and the response rate was 75%. Twenty-six questionnaires contained incomplete information. For the final data analysis, a total of 130 completed surveys were selected. The method of convenience sampling was used to gather data (Etikan, 2016). The respondents were mostly holding master's degrees and have enough experience to understand the importance of the study.

Table 1

Demographic		N = 130	
Variables	Details	Frequency	Percentage
Gender	Male	110	85%
	Female	20	15%
Education Level	Bachelors	45	34%
	Masters	75	58%
	PhD	5	4%
	Other	5	4%
Experience	Less than ten years	93	71%
	Ten years or more	37	29%

4.3. Measures

4.3.1. Transformational Leadership

To gauge transformational leadership, we deployed a well-validated ten-item assessment tool adapted from the construct utilized by Aga et al. (2016), which in turn builds upon the foundational work of Bass and Avolio (1996). This instrument encapsulates all four facets of the transformational leadership style. Respondents' answers were captured on a Five-Point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

4.3.2. Effective Communication

Six-item scale was used to evaluate effective communication developed by Dozier et al. (2013). Five-point Likert scale was used to capture survey participant's answers. Allowing survey participants to rate each statement on a scale from 1 to 5 to indicate their level of agreement.

4.3.3. Project Success

Project success remains a contested construct within project management literature, lacking a universally accepted method for quantification (Joslin & Müller, 2015; Ngacho & Das, 2014). Some researchers address this challenge by employing composite measures encompassing various success criteria (Kissi et al., 2013; J. Yang et al., 2010). The success of the project was evaluated using a commonly used metric developed by Aga et al. (2016). Once more, participants assessed each item on a Likert scale that went from 1 (strongly disagree) to 5 (strongly agree).

4.3.4. Covariates

The study participants were practitioners working in the construction sector of Pakistan. To improve the accuracy of the results and ensure the study's internal

validity, control variables were implemented to minimize any irrelevant effects. These control variables pertain to the demographics of project managers and include gender, academic qualifications, and experience. Gender was measured on a scale of 1 to 2 (1 representing male and 2 representing female). Academic standing was expressed on a 4-point scale, where 1 denoted a bachelor's degree, 2 a master's degree, 3 a doctorate, and 4 other qualifications. Experience in infrastructure projects was measured on a scale of 1 to 2, with 1 representing experience less than 10 years, and 2 representing experience equal to and more than 10 years of experience.

4.4 Data Analysis

Prior to hypothesis testing, data screening procedures were implemented to ensure data quality. This included verification for missing values, accuracy, and the presence of outliers. SPSS v26 was employed for all subsequent data analysis. Two primary analytical approaches were utilized in this study. To look into the fundamental structure of the important constructs, preliminary factor analyses, both exploratory and confirmatory, were conducted. Regression analysis was then employed to test the suggested theories regarding the connections between these variables. In order to explore the possible connection between transformational leadership and project performance through effective communication, we utilized a four-step procedure first described by Baron and Kenny (1986) and then further developed by Hayes (2013). First, we looked at how the independent and dependent variables were related. Secondly, we evaluated the relationship that existed between the mediator and the independent variable. Third, we assessed the mediator's direct influence on the outcome of the project. Lastly, after

taking the mediator's influence into consideration, we reevaluated how strongly the independent and dependent variables were connected. In the regression analysis, these latter two steps were normally carried out simultaneously.

In order to determine statistical significance beyond the mediation analysis, the indirect influence of the independent variable on the dependent variable was evaluated using the methods described by Hayes and Preacher (2014).

5. RESULTS.

The results of the investigation are shown according to the order in which the analytical techniques were used. It assesses the validity and reliability of the used scales first. It then presents the regression analysis's findings, emphasizing the critical roles that transformational leadership and good communication have in project success. Lastly, it reports the findings from the four-stage mediation analysis, which investigates the potential mediating role of effective communication.

5.1 Validity and Reliability Analyses

The convergent validity of a study refers to the degree to which various elements of a specific idea or concept are in agreement with one another. Researchers frequently use composite reliability (CR) statistics to assess internal consistency, and the suggested minimum value for CR is 0.70 (Bagozzi & Yi, 1988). The internal consistency of TFL, EC, and PS was found to be strong with CR values of 0.766, 0.768, and 0.819, respectively, see Table 2. Additionally, all factor loadings were higher than 0.50. Furthermore, two items from TFL and one item from EC were dropped as they were cross-loaded.

Each construct in the model is evaluated for distinctiveness from the others using discriminant validity. We utilized the average variance extracted (AVE), which should be at least 0.50 (Fornell & Larcker, 1981), to assess the constructs' discriminant validity. With TFL at 0.788, EC at 0.783, and PS at 0.817, the results show that each concept had a sufficient AVE value, indicating that each construct was internally consistent. All evaluations satisfied the suggested thresholds for discriminant and convergent validity based on test results.

Investigations into the links between the variables revealed that all three of them had positive and substantial correlations, as shown in Table 3. More specifically, there was a significant positive

correlation ($r = 0.447, p < 0.01$) between transformational leadership and project success. Furthermore, there was a noteworthy association between project success and transformational leadership ($r = 0.542, p < 0.01$) as well as good communication ($r = 0.556, p < 0.01$).

Table 2
Reliability Statistic

Variables	Cronbach's a	N of items
TFL	.766	10
PS	.819	8
EC	.768	6

Table 3
Correlation, Mean, SD

Variables	Mean	SD	TFL	PS	EC
TFL	4.2600	.44454	1		
PS	4.2096	.56488	.447**	1	
EC	4.0603	.65527	.542**	.556**	1

** . Correlation is Significant at the 0.01 level (2 tailed).

5.2 Hypothesis Testing

The PROCESS SPSS plug-in, created by (Hayes, 2013), was used to investigate the theories. Hayes promoted this strategy as being preferable to the conventional way for determining mediating effects. As control factors, gender, education, and experience were taken into consideration. Figure 2 shows the coefficients of the path. The findings indicate that there is a partial mediating role for good communication in the transformational leadership-project success relationship.

Hypothesis 1 proposes that TFL style positively correlates with success of a project. The results supported the hypothesis 1 ($b= 0.52, p<0.000$). Furthermore, the R-squared value is 0.294, indicating that this model accounts for a substantial 29.4% of the variation. The F-statistic, which evaluates the model's overall fit, is 53.220, suggesting a favorable model fit. Additionally, the t-value exceeds 1.96, which is noteworthy. Therefore, the first hypothesis is supported. The study also investigated the importance of hypothesis 2. The results demonstrate a substantial correlation between TFL and effective communication ($b= 0.556, p<0.000$). Moreover, the R-squared value is .310, implying 31% of the variance, and the F-value, which evaluates the fitness of a model, is also favorable. The t-value is also remarkable. Consequently, hypothesis 2 is also supported. The

analysis also found a significant connection in effective communication-project success link ($b=0.447, p < 0.000$). Specifically, the regression model showed a 20% variance explained, with a significant F-value (31.949) and t-value (5.565), indicating that effective communication is a significant predictor of project success. This provides support for Hypothesis 3.

We used the method developed by (Baron & Kenny, 1986) to examine Hypothesis 4 and determine whether or not effective communication mediated the association between transformational leadership and project performance.

This involved conducting a series of regression analyses. There appears to be a correlation between these two variables since the initial model showed that transformational leadership had a significant positive effect on project performance ($\beta = .521, P < .001$). The mediation analysis's first stage was satisfied by this. The results of the study showed a strong positive correlation ($\beta = .560, P < .001$) between transformational leadership and effective communication, meeting the criteria for the second stage of the mediation analysis. This indicates that

these two variables were indeed associated with each other.

Mediation analysis was conducted by simultaneously executing steps 3 and 4. The objective of step 3 was to assess whether the mediator variable exhibited a substantial correlation with the dependent variable. The findings demonstrated a meaningful positive liaison between effective communication and project success ($\beta = .341, P < .001$).

To investigate the impact of the mediator variable on the relationship between the independent and dependent variables, the analysis included it in the regression model. The findings demonstrated a 53.9% decline in the impact of transformative leadership on project success, from $\beta = .567$ to $\beta = .261$. This implies that the relationship between transformative leadership and project success is mediated by effective communication. Table 4 shows that both the direct and indirect effects are statistically significant. Thus, the relationship between transformative leadership and project performance is partially mediated by effective communication.

Table 4. Mediation Analysis Summary

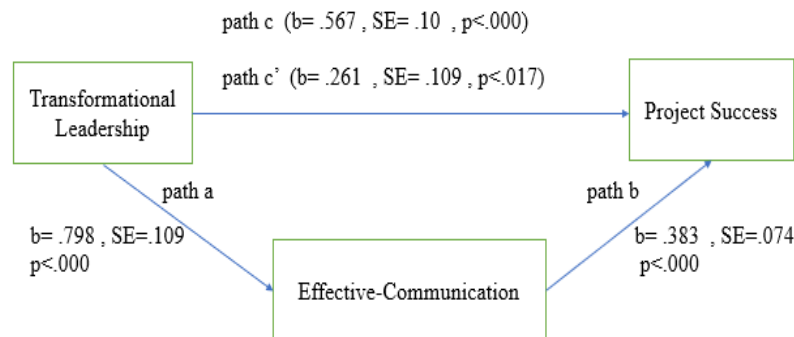
Relationship	Total Effect	Direct Effect	Indirect Effect	Confidence Interval		Conclusion
				Lower Bound	Upper Bound	
TFL -> EC -> PS	.5679 (0.000)	.2616 (0.0179)	.3063	.1383	.4729	Partial Mediation

The results of the mediation analysis are summarized in Figure 2. For the direct (c) and indirect (a, b, c') pathways, the unstandardized regression coefficients and standard errors are shown in the figure. These were used to evaluate the mediating role of team building in the relationship between transformational leadership and project success.

The Sobel test was used to confirm the importance of transformational leadership's indirect influence on project performance through effective communication. For the paths leading from

transformational leadership to effective communication (path a) and from effective communication to project success (path b), this analysis made use of the original regression coefficients and standard errors. The test's findings demonstrated that the indirect effect was statistically significant (Sobel's test statistic = 3.93, SE = 0.049, $P < 0.001$), adding more empirical support to the theory that transformative leadership and project success are mediated in part by effective communication.

Figure 2.



6. DISCUSSION

This study investigated the influences of transformational leadership on project outcomes, with the hypothesis that effective communication acts as an intermediary mechanism. Data was collected from 130 project managers situated in Islamabad, Rawalpindi, and Gilgit, Pakistan. The direct relationships proposed in H1, H2, and H3 were considered using simple linear regression.

The project's success was positively correlated with the project manager's transformational leadership strategy, according to the findings. This is consistent with earlier research by Iqbal et al. (2019), which found a strong relationship between project success and every aspect of transformative leadership. This research implies that a project manager's leadership style plays a critical role in the success of the project. Furthermore, transformational leadership styles are likely to inspire and motivate team members while also cultivating critical and innovative thinking.

Additionally, an important connection was discovered between successful project completion and effective communication ($\beta = 0.552$), suggesting that effective communication strongly influences the successful completion of a project. This is consistent with the findings of Zulch (2014) and Tahir (2019). A significant and positive correlation was also identified between effective communication and transformational leadership ($\beta = 0.538$). This backs up (Ruben & Gigliotti, 2016) claim about the inseparable relationship between communication and leadership research.

Most importantly, this study shows effective communication mediates the connection between

transformational leadership and project success. As far as we know, it is the first-time effective communication is introduced as a mediator in this context. This contributes to our understanding of how transformational leadership impacts project success by revealing the mechanisms involved. Prior studies, such as (Piccolo & Colquitt, 2006) have emphasized the importance of investigating the underlying processes that mediate this relationship. Our results indicate that project leaders who demonstrate transformational qualities effectively communicate with their subordinates in the project environment, resulting in project success.

Both the direct effect (0.266) and the indirect effect (0.306) were statistically significant, indicating partial mediation by effective communication. This suggests the presence of other potential influencing variables that warrant further investigation. As research into these factors progresses, a more comprehensive understanding of the underlying mechanisms will emerge. Ultimately, such knowledge can inform organizational efforts to equip project managers with the necessary training to enhance their transformational leadership style and effective communication skills, leading to improved project success rates.

6.1 Theoretical Implications and Practical Implications

6.1.1. Theoretical Implications

This study makes a substantial contribution to the body of knowledge already available in the field of project management. It clarifies the relationship between transformational leadership, good

communication, and project success, which increases our understanding of the factors that influence project performance. The results show that transformational leaders have a beneficial impact on project success, and that this link is mediated by effective communication among project managers. However, it is likely that other factors also impact this dynamic, therefore more research is required to fully explore these underlying mechanisms.

6.1.2 Practical Implications

The implications of this study in practical terms are significant, offering valuable advice for project managers in their daily responsibilities. According to our results, project-based companies should prioritize the improvement of transformational leadership abilities among project managers, as it is strongly linked to project success. In addition, organizations that encourage transformational leadership are also likely to excel in communicating effectively. This study validates that effective communication significantly influences project success. Therefore, project-based companies can improve performance by investing in training programs that cultivate transformational leadership and effective communication skills in their project managers.

These findings have the potential to greatly benefit the construction and development industries. These fields are heavily reliant on project-based work. By encouraging and embracing transformational leadership characteristics among project leaders, professionals can efficiently accomplish project objectives. Our research aims to inspire professionals in the construction and development industries to offer training in transformational leadership to project leaders, which will ultimately lead to higher project success rates.

6.3 Limitations of the Study and Future Research

This study investigated how project outcomes in Pakistan's construction industry are impacted by transformational leadership and effective communication. The findings suggest that project managers with a transformational leadership style improve project performance considerably, both directly and via the mediating role of good communication. These results highlight how crucial it is to develop project managers' transformational leadership and communication abilities within organizational settings.

However, limitations exist that warrant exploration in future research endeavors. A cross-sectional design was used for data collection, which limited the ability to establish the causative connection. Future studies would benefit from longitudinal designs, enabling the examination of how transformational leadership influences project success over time. Longitudinal designs are preferred due to their ability to minimize bias and provide a clearer understanding of the causal direction between variables. Second, the study utilized a convenience sampling technique, which introduces potential bias. Future research should implement probability sampling techniques to make sure that the sample accurately represents the target population. Third, the sample size employed in this research was relatively small. Future research efforts should strive to utilize larger sample sizes to generate more robust results. A larger sample size would facilitate a deeper consideration of the influence between the two variables and provide more nuanced insights into the relationship.

Future research opportunities include investigating the influence of other independent variables (different leadership styles). Also using different mediator variables, like collaboration and the soft skills of the project manager, may provide insight into the ways in which transformational leadership influences the performance of a project.

The current study's focus was on the construction industry within Pakistan. Future research endeavors could investigate the generalizability of the proposed model to other sectors, such as government, private, IT, and agricultural industries. This would provide valuable insights into the transferability of the findings across diverse industries and contexts.

Finally, future research could examine the potential differences between urban and rural transformational leadership styles to better understand the factors influencing project failure rates in distinct geographical areas. Given the higher project failure rate often observed in rural areas compared to urban areas, exploring these leadership style variations could help identify specific factors contributing to project failure and apprise the development of active tactics to address them.

7. CONCLUSION

The impact of transformational leadership and efficient communication on project success was explored in this research. The results indicate that both elements significantly contribute to achieving

successful project outcomes. Project managers who display transformational leadership behaviors are likely to persuade and inspire subordinates, creating more engaged and constructive work conditions. Effective communication engages team members and stakeholders informed about project progress, promoting collaboration, and averting potential issues. Additionally, the study suggests that effective communication partly mediates the connection between transformational leadership and project success, implying the existence of other influential variables. In light of these findings, organizations with project-based structures are advised to prioritize the cultivation of transformational leadership skills among project managers. Cultivating a culture of effective communication within project teams is also crucial. Leadership improvement programs and focused training sessions can be implemented to accomplish these goals. By investing in these approaches, organizations can improve their project management capabilities, eventually leading to heightened project success rates and increased organizational effectiveness.

8. REFERENCES

- Aga, D. A., Noorderhaven, N., & Vallejo, B. (2016). Transformational leadership and project success: The mediating role of team-building. *International Journal of Project Management*, 34(5), 806–818. <https://doi.org/10.1016/j.ijproman.2016.02.012>
- Ali, H., Chuanmin, S., Ahmed, M., Mahmood, A., Khayyam, M., & Tikhomirova, A. (2021). Transformational Leadership and Project Success: Serial Mediation of Team-Building and Teamwork. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.689311>
- Alvarenga, J. C., Branco, R. R., Guedes, A. L. A., Soares, C. A. P., & Silva, W. da S. e. (2019). The project manager core competencies to project success. *International Journal of Managing Projects in Business*, 13(2), 277–292. <https://doi.org/10.1108/IJMPB-12-2018-0274>
- Arsenault, P. M. (2007). A Case Study of a University Leadership Seminar. *Journal of Leadership Education*, 6(1), 14–27. <https://doi.org/10.12806/V6/I1/TF2>
- Atkinson, R. (1999). Project management: Cost, time and quality, two best guesses and a phenomenon, its time to accept other success criteria. *International Journal of Project Management*, 17(6), 337–342. [https://doi.org/10.1016/S0263-7863\(98\)00069-6](https://doi.org/10.1016/S0263-7863(98)00069-6)
- Avolio, B. J., Gardner, W. L., Walumbwa, F. O., Luthans, F., & May, D. R. (2004). Unlocking the mask: A look at the process by which authentic leaders impact follower attitudes and behaviors. *The Leadership Quarterly*, 15(6), 801–823. <https://doi.org/10.1016/j.leaqua.2004.09.003>
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74–94. <https://doi.org/10.1007/BF02723327>
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
- Bastien, D. T. (1987). Common Patterns of Behavior and Communication in Corporate Mergers and Acquisitions. *Human Resource Management*, 26(1), 17–33. <https://doi.org/10.1002/hrm.3930260103>
- Bigbee, J. A. S., & Stevenson, D. H. (2019). IT Project Communication: An Investigation of Its Dimensions and Relationship to Project Success. *International Journal of Information Technology Project Management (IJITPM)*, 10(3), 56–72. <https://doi.org/10.4018/IJITPM.2019070104>
- Brandt, T., & Uusi-Kakkuri, P. (2016). Transformational Leadership and Communication Style of Finnish CEOs. *Communication Research Reports*, 33(2), 119–127. <https://doi.org/10.1080/08824096.2016.1155045>
- Burke, C. S., Stagl, K. C., Klein, C., Goodwin, G. F., Salas, E., & Halpin, S. M. (2006). What type of leadership behaviors are functional in teams? A meta-analysis. *The Leadership Quarterly*, 17(3), 288–307. <https://doi.org/10.1016/j.leaqua.2006.02.007>
- Collier, P. (2017). Why peer mentoring is an effective approach for promoting college student success. *Metropolitan Universities*, 28(3), Article 3. <https://doi.org/10.18060/21539>
- Ding, X., Li, Q., Zhang, H., Sheng, Z., & Wang, Z. (2017). Linking transformational leadership and work outcomes in temporary organizations: A social identity approach. *International Journal of Project Management*, 35(4), 543–556. <https://doi.org/10.1016/j.ijproman.2017.02.005>
- Dong, Y., Bartol, K. M., Zhang, Z.-X., & Li, C. (2017). Enhancing employee creativity via individual skill development and team knowledge sharing: Influences of dual-focused transformational leadership. *Journal of Organizational Behavior*, 38(3), 439–458. <https://doi.org/10.1002/job.2134>
- Dozier, D. M., Grunig, L. A., & Grunig, J. E. (2013). *Manager's Guide to Excellence in Public Relations and Communication Management*. Routledge. <https://doi.org/10.4324/9780203811818>

- Dutton, J., & Walton, R. (2008). Interdepartmental Conflict and Cooperation: Two Contrasting Studies. *Human Organization*, 25(3), 207–220. <https://doi.org/10.17730/humo.25.3.n044386091127v88>
- Engelbrecht, A., Gerlach, J. P., Benlian, A., & Buxmann, P. (2019). How employees gain meta-knowledge using enterprise social networks: A validation and extension of communication visibility theory. *The Journal of Strategic Information Systems*, 28(3), 292–309. <https://doi.org/10.1016/j.jsis.2019.04.001>
- Etikan, I. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1. <https://doi.org/10.11648/j.ajtas.20160501.11>
- Fornell, C., & Larcker, D. F. (1981). Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. *Journal of Marketing Research*, 18(3), 382–388. <https://doi.org/10.1177/002224378101800313>
- Frank Cervone, H. (2014). Effective communication for project success. *OCLC Systems and Services: International Digital Library Perspectives*, 30(2), 74–77. <https://doi.org/10.1108/OCLC-02-2014-0014>
- Ghasabeh, M. S., Soosay, C., & Reaiche, C. (2015). The emerging role of transformational leadership. *The Journal of Developing Areas*, 49(6), 459–467.
- Globerson, S., & Zwikael, O. (2002). The Impact of the Project Manager on Project Management Planning Processes. *Project Management Journal*, 33(3), 58–64. <https://doi.org/10.1177/875697280203300308>
- Greenberger, L. S. (2016). Effective Communications for Project Success. *Remediation Journal*, 26(2), 121–128. <https://doi.org/10.1002/rem.21463>
- Gundersen, G., Hellesøy, B. T., & Raeder, S. (2012). Leading International Project Teams: The Effectiveness of Transformational Leadership in Dynamic Work Environments. *Journal of Leadership & Organizational Studies*, 19(1), 46–57. <https://doi.org/10.1177/1548051811429573>
- Guo, Y., & Ling, B. (2020). Effects of Leader Motivating Language on Employee Task and Contextual Performance: The Mediating Role of Feedback Quality. *Psychological Reports*, 123(6), 2501–2518. <https://doi.org/10.1177/0033294119862989>
- Harris, T. E., & Sherblom, J. C. (2018). *Small Group and Team Communication: Fifth Edition*. Waveland Press.
- Hayes, A. F. (2013). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. *Journal of Educational Measurement*, 51(3), 335.
- Hayes, A. F., & Preacher, K. J. (2014). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, 67(3), 451–470. <https://doi.org/10.1111/bmsp.12028>
- Hildenbrand, K., Sacramento, C. A., & Binnewies, C. (2018). Transformational leadership and burnout: The role of thriving and followers' openness to experience. *Journal of Occupational Health Psychology*, 23(1), 31–43. <https://doi.org/10.1037/ocp0000051>
- Hodgkinson, J. (2009). Communications is the key to project success. *Published at Www. Asapm. Org*, 3.
- Ika, L. A. (2012). Project Management for Development in Africa: Why Projects Are Failing and What Can Be Done About It. *Project Management Journal*, 43(4), 27–41. <https://doi.org/10.1002/pmj.21281>
- Iqbal, S. M. J., Zaman, U., Siddiqui, S. H., & Imran, M. K. (2019). Influence of transformational leadership factors on project success. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, 13(1), 231–256.
- Jensen, U. T., Moynihan, D. P., & Salomonsen, H. H. (2018). Communicating the Vision: How Face-to-Face Dialogue Facilitates Transformational Leadership. *Public Administration Review*, 78(3), 350–361. <https://doi.org/10.1111/puar.12922>
- Jiang, Y., & Chen, C. C. (2018). Integrating Knowledge Activities for Team Innovation: Effects of Transformational Leadership. *Journal of Management*, 44(5), 1819–1847. <https://doi.org/10.1177/0149206316628641>
- Joslin, R., & Müller, R. (2015). Relationships between a project management methodology and project success in different project governance contexts. *International Journal of Project Management*, 33(6), 1377–1392. <https://doi.org/10.1016/j.ijproman.2015.03.005>
- Kamalirad, S., & Kermanshachi, S. (2018). *Development of Project Communication Network: A New Approach to Information Flow Modeling*. 428–438. <https://doi.org/10.1061/9780784481271.042>
- Kangis, P., & Lee-Kelley, L. (2000). Project Leadership in Clinical Research Organizations. *International Journal of Project Management - INT J PROJ MANAG*, 18, 393–401. [https://doi.org/10.1016/S0263-7863\(00\)00018-1](https://doi.org/10.1016/S0263-7863(00)00018-1)
- Keegan, A. E., & Den Hartog, D. N. (2004). Transformational leadership in a project-based environment: A comparative study of the leadership styles of project managers and line managers. *International Journal of Project Management*, 22(8), 609–617. <https://doi.org/10.1016/j.ijproman.2004.05.005>
- Kissi, J., Dainty, A., & Tuuli, M. (2013). Examining the role of transformational leadership of portfolio

- managers in project performance. *International Journal of Project Management*, 31(4), 485–497. <https://doi.org/10.1016/j.ijproman.2012.09.004>
- Kyriazis, E., Massey, G., Couchman, P., & Johnson, L. (2017). Friend or foe? The effects of managerial politics on NPD team communication, collaboration and project success. *R&D Management*, 47(1), 61–74. <https://doi.org/10.1111/radm.12150>
- Lee-Kelley, L., & Leong, L., Kin. (2003). Turner's five-functions of project-based management and situational leadership in IT services projects. *International Journal of Project Management*, 21(8), 583–591. [https://doi.org/10.1016/S0263-7863\(02\)00100-X](https://doi.org/10.1016/S0263-7863(02)00100-X)
- Limsila, K., & Ogunlana, S. O. (2008). Performance and leadership outcome correlates of leadership styles and subordinate commitment. *Engineering, Construction and Architectural Management*, 15(2), 164–184. <https://doi.org/10.1108/09699980810852682>
- Lindgren, M., & Packendorff, J. (2009). Social constructionism and entrepreneurship: Basic assumptions and consequences for theory and research. *International Journal of Entrepreneurial Behavior & Research*, 15(1), 25–47. <https://doi.org/10.1108/13552550910934440>
- Malmelin, N. (2007). Communication capital: Modelling corporate communications as an organizational asset. *Corporate Communications: An International Journal*, 12(3), 298–310. <https://doi.org/10.1108/13563280710776888>
- Martinsuo, M., & Lehtonen, P. (2007). Role of single-project management in achieving portfolio management efficiency. *International Journal of Project Management*, 25(1), 56–65. <https://doi.org/10.1016/j.ijproman.2006.04.002>
- McKinney, B. C., Kelly, L., & Duran, R. L. (1997). The relationship between conflict message styles and dimensions of communication competence. *Communication Reports*, 10(2), 185–196. <https://doi.org/10.1080/08934219709367674>
- Meng, X. (2012). The effect of relationship management on project performance in construction. *International Journal of Project Management*, 30(2), 188–198. <https://doi.org/10.1016/j.ijproman.2011.04.002>
- Mir, F. A., & Pinnington, A. H. (2014). Exploring the value of project management: Linking Project Management Performance and Project Success. *International Journal of Project Management*, 32(2), 202–217. <https://doi.org/10.1016/j.ijproman.2013.05.012>
- Ngacho, C., & Das, D. (2014). A performance evaluation framework of development projects: An empirical study of Constituency Development Fund (CDF) construction projects in Kenya. *International Journal of Project Management*, 32(3), 492–507. <https://doi.org/10.1016/j.ijproman.2013.07.005>
- Ning, Y. (2017). Combining formal controls and trust to improve dwelling fit-out project performance: A configurational analysis. *International Journal of Project Management*, 35(7), 1238–1252. <https://doi.org/10.1016/j.ijproman.2017.06.002>
- Novo, B., Landis, E. A., & Haley, M. L. (2017). Leadership and Its Role in the Success of Project Management. *Journal of Leadership, Accountability and Ethics*, 14(1), Article 1. <https://articlearchives.co/index.php/JLAE/article/view/3722>
- Piccolo, R. F., & Colquitt, J. A. (2006). Transformational Leadership and Job Behaviors: The Mediating Role of Core Job Characteristics. *Academy of Management Journal*, 49(2), 327–340. <https://doi.org/10.5465/amj.2006.20786079>
- Pmi, A. (2008). Guide to the Project Management Body of Knowledge. *Project Management Institute*, 130.
- Pollack, J., & Matous, P. (2019). Testing the impact of targeted team building on project team communication using social network analysis. *International Journal of Project Management*, 37(3), 473–484. <https://doi.org/10.1016/j.ijproman.2019.02.005>
- Randeree, K., & Ninan, M. (2011). Leadership and teams in business: A study of IT projects in the United Arab Emirates. *International Journal of Managing Projects in Business*, 4(1), 28–48. <https://doi.org/10.1108/17538371111096872>
- Raziq, M. M., Borini, F. M., Malik, O. F., Ahmad, M., & Shabaz, M. (2018). Leadership styles, goal clarity, and project success: Evidence from project-based organizations in Pakistan. *Leadership & Organization Development Journal*, 39(2), 309–323. <https://doi.org/10.1108/LODJ-07-2017-0212>
- Ruben, B. D., & Gigliotti, R. A. (2016). Leadership as Social Influence: An Expanded View of Leadership Communication Theory and Practice. *Journal of Leadership & Organizational Studies*, 23(4), 467–479. <https://doi.org/10.1177/1548051816641876>
- Schwalbe, K. (2015). *An introduction to project management* (Fifth edition). Schwalbe Publishing.
- Scott-Young, C., & Samson, D. (2008). Project success and project team management: Evidence from capital projects in the process industries. *Journal of Operations Management*, 26(6), 749–766. <https://doi.org/10.1016/j.jom.2007.10.006>
- Serrador, P., & Turner, R. (2015). The Relationship Between Project Success and Project Efficiency. *Project Management Journal*, 46(1), 30–39. <https://doi.org/10.1002/pmj.21468>

- Silla, I., Gracia, F. J., & Peiró, J. M. (2020). Upward Voice: Participative Decision Making, Trust in Leadership and Safety Climate Matter. *Sustainability*, 12(9), Article 9. <https://doi.org/10.3390/su12093672>
- Söderlund, J. (2011). Pluralism in Project Management: Navigating the Crossroads of Specialization and Fragmentation. *International Journal of Management Reviews*, 13(2), 153–176. <https://doi.org/10.1111/j.1468-2370.2010.00290.x>
- Sohmen, V. (2013). Leadership and teamwork: Two sides of the same coin. *Journal of IT and Economic Development*, 4, 1–18.
- Stagnaro, C., & Piotrowski, C. (2013). Shared Leadership In IT Project Management: A Practice Survey. *International Journal of Management & Information Systems (IJMIS)*, 17(4), 223. <https://doi.org/10.19030/ijmis.v17i4.8098>
- Tahir, M. (2019). THE EFFECT OF PROJECT MANAGER'S SOFT SKILLS ON SUCCESS OF PROJECT IN THE CONSTRUCTION INDUSTRY. *International Journal of Applied Research in Social Sciences*, 1(5), Article 5. <https://doi.org/10.51594/ijarss.v1i5.44>
- Thibault, T., Gulseren, D. B., & Kelloway, E. K. (2019). The benefits of transformational leadership and transformational leadership training on health and safety outcomes. In R. J. Burke & A. M. Richardsen (Eds.), *Increasing Occupational Health and Safety in Workplaces*. Edward Elgar Publishing. <https://doi.org/10.4337/9781788118095.00027>
- Tonchia, S. (2018). Product Design. In S. Tonchia (Ed.), *Industrial Project Management: International Standards and Best Practices for Engineering and Construction Contracting* (pp. 49–61). Springer. https://doi.org/10.1007/978-3-662-56328-1_5
- Turner, J. R., & Müller, R. (2005). The Project Manager's Leadership Style as a Success Factor on Projects: A Literature Review. *Project Management Journal*, 36(2), 49–61. <https://doi.org/10.1177/875697280503600206>
- Turner, P. (2019). The voice of communication in comprehensive internationalization. *Communication Research and Practice*, 5, 1–16. <https://doi.org/10.1080/22041451.2019.1561395>
- Westerveld, E. (2003). The Project Excellence Model@: Linking success criteria and critical success factors. *International Journal of Project Management*, 21(6), 411–418. [https://doi.org/10.1016/S0263-7863\(02\)00112-6](https://doi.org/10.1016/S0263-7863(02)00112-6)
- White, S. K. (2018). What is transformational leadership? A model for motivating innovation. *CIO United States*.
- Wu, G., Liu, C., Zhao, X., & Zuo, J. (2017). Investigating the relationship between communication-conflict interaction and project success among construction project teams. *International Journal of Project Management*, 35(8), 1466–1482. <https://doi.org/10.1016/j.ijproman.2017.08.006>
- Yang, J., Zhang, Z.-X., & Tsui, A. S. (2010). Middle Manager Leadership and Frontline Employee Performance: Bypass, Cascading, and Moderating Effects. *Journal of Management Studies*, 47(4), 654–678. <https://doi.org/10.1111/j.1467-6486.2009.00902.x>
- Yang, L.-R., Huang, C.-F., & Wu, K.-S. (2011). The association among project manager's leadership style, teamwork and project success. *International Journal of Project Management*, 29(3), 258–267. <https://doi.org/10.1016/j.ijproman.2010.03.006>
- Yap, J. B. H., Abdul-Rahman, H., & Chen, W. (2017). Collaborative model: Managing design changes with reusable project experiences through project learning and effective communication. *International Journal of Project Management*, 35(7), 1253–1271. <https://doi.org/10.1016/j.ijproman.2017.04.010>
- Yeh, W.-C., Tseng, M.-H., Lee, C.-C., & Yu, C. (2020). The Impact of Relationship Trust, Environmental Protection Awareness, and Regenerative Innovation on Environmental Performance: A Case Study of the Industrial Waste Industry. *Sustainability*, 12(7), Article 7. <https://doi.org/10.3390/su12072818>
- Zulch, B. (2014). Leadership Communication in Project Management. *Procedia - Social and Behavioral Sciences*, 119, 172–181. <https://doi.org/10.1016/j.sbspro.2014.03.021>
- Zuo, J., Zhao, X., Nguyen, Q. B. M., Ma, T., & Gao, S. (2018). Soft skills of construction project management professionals and project success factors: A structural equation model. *Engineering, Construction and Architectural Management*, 25(3), 425–442. <https://doi.org/10.1108/ECAM-01-2016-0016>
- Zwikael, O., & Unger-Aviram, E. (2010). HRM in project groups: The effect of project duration on team development effectiveness. *International Journal of Project Management*, 28(5), 413–421. <https://doi.org/10.1016/j.ijproman.2009.09.005>