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Does Project Teamwork Matter? Investigating the Relationship between Transformational Leadership and Project Success

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Abstract: It is evident from the existing research that transformational leaders play a vital role toward the project success, but little is known about the channels that elaborate this effect. To unveil one of these channels, this study supposed project teamwork as the mediator between transformational leadership and project success. To test the stated empirical relationship, data were obtained from 125 project managers working on various projects of Higher Education Commission (HEC) of Pakistan. The results revealed that project teamwork partially mediates the relationship between project leadership and project success. The study has also discussed valuable implications including theoretical, practical and managerial.

Keywords: Project leadership, project success, project teamwork, transformational leadership, Higher Education Commission.

Introduction

The relationship between transformational leadership (TL) and project success (PS) has been well conceived in contemporary research. In general, the extant literature explained that transformational leaders enhance PS by providing right direction and guidance to complete the given tasks efficiently and effectively (Lindgren & Packendorff, 2009; Anantatmula, 2010; Ayub, 2015). The theme underlying this statement is that TL helps to identify the critical success factors in a project and plays key role to remove the bottlenecks (Besteiro, de Souza Pinto, & Novaski, 2015; Pinto & Slevin, 1988). According to B. Bass and Avolio (1995), emergence of TL improves the performance outcomes of organizations. He presented TL theory that claims that such type of leaders has positive impact individual, group and organizational level. Despite of assumed affirmative effect of TL on PS, still project failure figures are dominating the success ratios in project management (Zwikael & Smyrk, 2012). Moreover, some empirical investigations do not support the hypothesis that TL has direct association with PS (Nixon, Harrington, & Parker, 2012). Furthermore, literature gives evidence that TL does not affect PS directly but develops capabilities that lead to PS (Aga, Noorderhaven, & Vallejo, 2016; Dwivedula, Bredillet, & Müller, 2016). The instructions given by leaders may also been affected by time lag to reach at PS.

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Other possible clarification to this fact is that the core job of leaders is to manage work, motivate team members and provide facilitation when it is needed and not merely restricted to rewarding the project (Keller, 2006; Aga et al., 2016). In this respect, the quoted literature has also given indication that there is “black-box” between TL and PS. First, Keegan and Den Hartog (2004) established a weak correlation between TL and PS as compared to line managers. Additionally, they suggested finding out mediating and moderating variables that may have TL as antecedent and PS as outcome. Second, Piccolo and Colquitt (2006) highlighted that research is silent about the processes that TL used to enhance the chances of success in projects. Finally, Avolio, Zhu, Koh, and Bhatia (2004) argued that better work behaviors can be achieved with transformational leaders if resultant processes and boundary conditions become efficient. In order to fulfill this gap, various studies have been conducted and find out intervening variables between TL and PS; i.e., psychological empowerment (Avolio et al., 2004), trust (Braun, Peus, Weisweiler, & Frey, 2013), cognitive trust and collective efficacy (Chou, Lin, Chang, & Chuang, 2013) employee perceived job characteristics and job motivation (Fernet, Trépanier, Austin, Gagné, & Forest, 2015) and learning orientation (Zagoršek, Dimovski, & Škerlavaj, 2009; Imran, Ilyas, & Aslam, 2016). Furthermore, Gundersen, Hellesøy, and Raeder (2012) set direction for further research to unveil the role TL in project teams by introducing efficient teamwork mechanisms. Recently, Banks, McCauley, Gardner, and Guler (2016); Kozlowski and Ilgen (2006) conducted meta-analysis in the fields of TL and teamwork and call for further empirical researches to enhance the success rate of projects. Moreover, contemporary literature also suggests investigating the project teamwork as an indicator to increase success rate of projects (Scott-Young & Samson, 2007; Turner, Huemann, & Keegan, 2008). In this connection, Yang, Huang, and Wu (2011) pointed out that TL is one of the antecedents of project teamwork.

To address the aforementioned calls, this research introduces project teamwork as mediating variable and builds the hypothesis that TL has indirect effect on PS via project teamwork. Apart from the call for research, there are other reasons for this focus. First, extant literature explained the vital role of TL and project teamwork (Yang et al., 2011; Aga et al., 2016). Second, a good amount of research also proved link between teamwork and PS (Scott-Young & Samson, 2007; Lindsjörn, Sjøberg, Dingsøy, Bergersen, & Dybå, 2016; Unger-Aviram, Zwikael, & Restubog, 2013). Finally, to date, scant research is available addressing PS through TL with the intervention of project teamwork. To test the exposition, a survey has been conducted by 125 project managers working on various higher education commission projects in Pakistan.

Theoretical Framework & Hypotheses

Talent Management

The concept of leadership has been appropriately comprehended in the extant literature and its link with various organizational domains was also established (Turner et al. 2008). Within different leadership concepts, TL has been consider as vital towards project

(Geoghegan & Dulewicz, 2008). The charismatic characteristics of TL become the influencing factor to align this concept with PS (Imran et al., 2016). Morgan (2012) call for new avenue namely “project leadership” in leadership literature that particularly emphasize on PS factors. The key criteria of PS quality, cost and time as defined by Muller, Gerald, and Turner (2012); Scott-Young and Samson (2007) should be fulfilled to reach at PS. In earlier literature, researchers explored the concept of leadership in relation to various aspects of project (Morgan, 2012; Shenhar & Dvir, 2007).

The TL theory posits that leaders can increase the chances of success by promoting commitment and efficacy. In this regard, the link between dimensions of TL as defined by Posner and Kouzes (1988) and PS has been tested by Sumner, Bock, and Giamartino (2006). They found that TL characteristics are positively corrected PS factors. Afterward, these results were validated by Keller (2006); Strang (2007); Walker (2011) in different context and industries i.e., R & D projects, construction projects. Furthermore, Carless, Wearing, and Mann (2000) emphasized of context and cultural differences of projects and mixed nature impacts of TL on such projects. Therefore, based on above discussion, the following hypotheses have been postulated:

H₁: There is positive, significant and direct relationship between TL behaviors of project managers and PS factors.

It has been witnessed from contemporary literature that leadership and developing teams are closely associated (Sohmen, 2013). Yang, Wu, and Huang (2013) defined the project team as the combination of collaboration, communication and cohesiveness. Project leaders positively contribute to the development of better project teams. Anyhow, the researchers have reported that the role of a team leader had been neglected in the team related studies (Salas, Cooke, & Rosen, 2008; Unger-Aviram et al., 2013). Despite few studies, the scholars have accepted that transformational leaders can positively influence their followers for their professional development and performance (Dvir, Eden, Avolio, & Shamir, 2002; X.-H. F. Wang & Howell, 2012). To get the fruits from TL behaviors and their contributions toward PS and project teamwork, it is needed to conduct the empirical studies so that it can capture the attention of project leaders to adopt different leadership style to complete the projects with success with their teams (Yang et al., 2011). Similarly, Gundersen et al. (2012) indicated in a study of complex international project settings that transformational leaders have significant and positive impact on the performance of project teams.

It is important here to discuss the concept of project teamwork, in particular for the study. Thus, different terms have been found in literature to discuss project teamwork. Such as, few researchers have considered team communication and cohesion as ‘teamwork processes’ and argued that although there may be several other relevant factors that can be included in teamwork processes (Dionne, Yammarino, Atwater, & Spangler, 2004). Moreover, Yang et al. (2013) taken into account the project team’s communication, their cohesiveness and collaboration as ‘project teamwork’. However, the current study has introduced the project teamwork as a four-dimensional construct, i.e. project team communication, cohesiveness, collaboration and technical skills. In addition, Kendra and

Taplin (2004); Braun et al. (2013) claimed that rare studies have been found investigating the effect of project leadership behaviours on project team performance, and out of these studies majority of researchers have concluded that TL is significantly and positively associated with project teamwork in terms of their communication, cohesiveness, collaboration and technical skills (B. M. Bass, 2000; Marks, Mathieu, & Zaccaro, 2001; E. Wang, Chou, & Jiang, 2005). Therefore, based on above discussions following hypotheses have been developed to know their significance in higher education projects of Pakistan:

H₂: There is positive, significant and direct relationship between PMTL behaviours and project teamwork.

In addition to effective leadership behaviours, project team also positively contributes towards success of any project. According to Salas et al. (2008), PS is significantly correlated with team performance. However, there is scant evidences are available on such empirical relationship (Yang et al., 2011). Anyhow, careful selection of project manager and project teams are guaranteed factors for improving the project efficiency and effectiveness (Slevin, 1987; Pinto & Prescott, 1988).

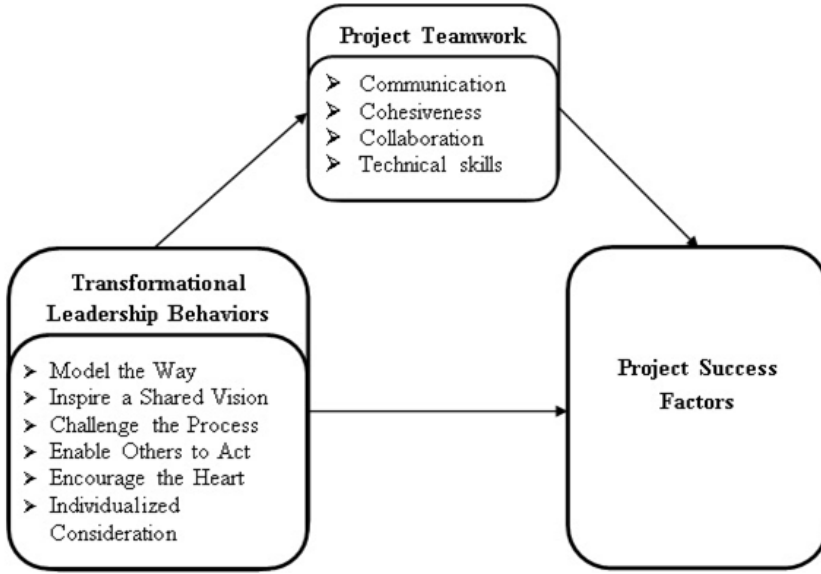
Accordingly, Unger-Aviram et al. (2013) specified that team performance guaranteed project efficiency. Further, Sohmen (2013) indicated that team performance is the function of effective communication. Similarly, a good amount of research has concluded that team communication was found to be strongly associated with team performance (Dionne et al., 2004). Additionally, team cohesiveness is the other key factor that contribute to PS, better the performance of the project (Keller, 2006; Martens, Machado, Martens, de Oliveira e Silva, & de Freitas, 2018). Team cohesiveness can be measured through the degree to belongingness and commitment of the team members to remain in team or not (E. Wang et al., 2005). Therefore, existence of cohesiveness among teams cannot be ignored in relation to PS. On the basis of extant literature, following hypotheses have been formulated:

H₃: There is positive, significant and direct relationship between project teamwork and PS factors.

However, the project teamwork has been found to be positively and significantly correlated with project leadership and at the same time with PS. These justifications gave confidence to the researcher to investigate the effect of project teamwork as potential mediator, individually and collectively between PMTL behaviors and PS factors. To analyze the mediating effect of project teamwork, following hypotheses have been postulated:

H₄: Project managers' TL behaviors get the PS factors with and through project teamwork.

Figure 1
Theoretical Framework of the Study



Research Methodology

Research Settings and Participant

This research has been conducted in contrived settings of various HEC-Projects in Pakistan. The study keens to investigate the TL behaviors among project managers and their impact on PS factors with respect to HEC projects. On several requests, the HEC only provided the limited information regarding the said projects. These project managers may belong to academic, administration and engineering wings, depending upon the nature of project and responsibilities of the concerned managers. The address contained the information about title of the selected project and was disseminated to the planning and development department of the concerned university. Planning and development departments were requested through a cover letter to send the questionnaires to the concerned project managers who are/were directly responsible for the smooth execution of the said project.

Sample Selection

The study employed systematic probability sampling as list of total existing population was known. In addition, the study overcomes the issue of generalizability because it targets the projects of higher education started from 2002 to 2011 (HEC, 2013) from entire

higher education institutions of Pakistan. HEC at that time was dealing with 788 projects (HEC, 2010-11). Following table describes the sample selection using systematic sampling technique.

As the study employs systematic sampling and in which every k th element is included in the sample randomly. The k is calculated as dividing total population with desired sample size, i.e. $k = (788/201) = 4.0$. Therefore, total sample of the study consisted of 198 project managers. There may be some chances of errors while selecting the sample, as [Zikmund, Babin, Carr, and Griffin \(2013\)](#) argued that it is very difficult to compile an error-free sampling list from population.

Table 1
Detail of Total HEC Projects

| Sr # | Provinces/ Territories/ Institutions | Total projects (A) | Project managers sample (A/k), k=4 | Percentage of total selected projects |
|--------------|-----------------------------------------|--------------------|---------------------------------------|------------------------------------------|
| 1 | Federal | 122 | 31 | 16% |
| 2 | HEC | 115 | 29 | 15% |
| 3 | Punjab | 227 | 57 | 29% |
| 4 | Sindh | 151 | 38 | 19% |
| 5 | Khyber Pakhtun khuwa | 101 | 25 | 13% |
| 6 | Baluchistan | 44 | 11 | 5% |
| 7 | Gilgit Baltistan | 7 | 2 | 1% |
| 8 | Azad Jammu & Kashmir | 21 | 5 | 2% |
| Total | | 788 | 198 | 100% |

Instrument Selection

This study utilized survey research method and was indulged with primary data only. The questionnaire survey is a common technique used for data collection in entrepreneurship and management research ([Tehseen, Ramayah, & Sajilan, 2017](#)). Data were collected using self-administered survey questionnaire form project managers working on various projects. A well-structured questionnaire was used in the study to measure the PMTL behaviors through combination of two TL inventories, i.e. LPI and MLQ. To measure the dependent variable and one sub-dimension of mediating variable, (such as, project team technical skills) tool is mainly taken from a questionnaire developed by [Pinto and Slevin \(1988\)](#). In addition, to measure the project team communication and collaboration, the items are sourced from [Tjosvold \(1988\)](#); [Campion, Medsker, and Higgs \(1993\)](#) and project team cohesiveness in mainly taken from ([E. Wang et al., 2005](#); [Henry, Arrow, & Carini, 1999](#)). The part-B of the designed tool has been divided into 6 sections measuring the PMTL behaviors toward project teamwork and PS. First five section contains six statements based on a rating scale ranging from almost never to almost always and sixth dimension contains 3 behavioral statements covering the vector from strongly disagree to strongly agree. The variation in scale of independent variables is because of their originality. The inventors of these tools have developed these items according to their psychometric properties. Interestingly, the issue of multi-scale is efficiently handled through PLS-SEM.

Control Variables

To test the empirical model, key triggers that have potential to impact PS remained controlled i.e., experience, gender, qualifications, position held, training, professional certification, and nature of their concerned projects.

Results

The study results are elaborated in the way the analysis was done. First and foremost, we represent the sample description, correlation, validity and reliability and then main hypotheses testing.

Sample Description

In cumulative, 198 structured questionnaires were dispatched project-wise, to the concerned project managers through their respective P & D Departments. Returned number of questionnaires was 129 out of them 125 questionnaires were considered complete in all respects, yielding a response rate of 63%. The study descriptive revealed that both males and females were working on projects comprising a total of 83 males and 42 females. Maximum project managers possess less than 15 years of experience. The details of these respondents with respect to their projects comprised on: Information Technology (IT) projects (28%), Construction (16.80%), Human Resource Development (13.60%), Infrastructure Development (8.80%), Lab Research and Equipment (7.20%), Facilities for Students and Faculties (7.20%), Library (3.20%), R & D (9.60%), Basic Sciences (2.40%), Residential Projects (0.80%), Medical Sciences (1.60%), and Others (0.80%). Interestingly, it came to know that almost all participants hold university education degree but less than 50% hold professional certification.

Table 2
Correlation Matrix among Control Variables and Dependent Variable of the Study

| Correlation Matrix among Control Variables and Dependent Variable of the Study | | | | | | | | | |
|--------------------------------------------------------------------------------|------------|---------|-----------|--------------|---------------|----------|----------|--------------------|--------------|
| | PS Factors | Gender | Total.Exp | Total.Exp_PM | Qualification | Position | Training | Prof.Certification | Project.Type |
| PS Factors | 1 | | | | | | | | |
| Gender | 0.072 | 1 | | | | | | | |
| Total.Exp | 0.071 | 0.046 | 1 | | | | | | |
| Total.Exp_PM | -0.023 | 0.121 | 0.650** | 1 | | | | | |
| Qualification | 0.161 | 0.173 | 0.154 | 0.137 | 1 | | | | |
| Position | -0.060 | -0.017 | -0.185* | -0.345** | -0.225* | 1 | | | |
| Training | 0.118 | 0.097 | -0.011 | 0.049 | 0.007 | -.293** | 1 | | |
| Prof.Certification | 0.066 | -0.097 | 0.082 | 0.012 | -0.192* | 0.221* | -0.133 | 1 | |
| Project.Type | -0.096 | 0.280** | 0.158 | 0.069 | 0.069 | -0.049 | -0.031 | -0.044 | 1 |

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

* . Correlation is significant at the 0.05 level (2-tailed).

Total.Exp = Total Job Experience, Total.Exp.PM = Total Experience as Project Manager, Prof.Certification = Professional Certification

Testing the Measurement Model

Before testing the correlation and regression analysis, various covenants have been tested to reach at reliable results. In this respect, first of all reliability of the reflective constructs

was ensured. All items fall under the minimum acceptable criteria of 0.4 or greater factor loading and have been included in the questionnaire as per the guidelines provided by (Byrne, 2016; Henseler, Ringle, & Sarstedt, 2012). Further, six items were not meet the acceptable standards of Average Variance Explained (AVE) and deleted from the questionnaire i.e., PPQ1, PPQ2, PMG5, CAQ3, CAQ5 and CCQ4. Further, values of α are above 0.7 for all scales and comonality values are above 0.5 which ensures the validity and reliability of the instrument (Hair, Anderson, Babin, & Black, 2010).

The entire inter-correlation results have been incorporated in Table 3 which shows correlation among dependent and control variables which remains insignificant and Table 4 which shows the correlation among all the study variables, values of which are significant at maximum 95% level of confidence. Most of the study variables significantly and positively correlated among each other at ($p < 0.01$). Unsurprisingly, the overall data disclosed that the entire constructs are substantially supporting the research objectives and research questions of the study.

Table 3
Correlations among all Study Variables

| | PS | MW | ISV | CP | EOA | EH | IC | TL | PTTS | PTCom | PTCol | PTCoh |
|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| PS Factors (PS) | 1 | | | | | | | | | | | |
| Model the Way (MW) | .570** | 1 | | | | | | | | | | |
| Inspire a Share Vision (ISV) | .573** | .422** | 1 | | | | | | | | | |
| Challenge the Process (CP) | .697** | .410** | .429** | 1 | | | | | | | | |
| Enable Others to Act (EOA) | .408** | .202* | .204* | .264** | 1 | | | | | | | |
| Encourage the Heart (EH) | .360** | 0.174 | .175 | .133 | .261** | 1 | | | | | | |
| Individual Consideration (IC) | .529** | .349** | .243** | .441** | .304** | .143 | 1 | | | | | |
| TL (TL) | .832** | .674** | .679** | .744** | .560** | .536** | .542** | 1 | | | | |
| Project Team Technical Skills (PTTS) | .599** | .401** | .325** | .465** | .124 | .071 | .298** | .451** | 1 | | | |
| Project Team Communication (PTCom) | .711** | .344** | .512** | .558** | .395** | .355** | .426** | .689** | .406** | 1 | | |
| Project Team Collaboration (PTCol) | .742** | .517** | .465** | .630** | .275** | .306** | .547** | .716** | .548** | .616** | 1 | |
| Project Team Cohesiveness (PTCoh) | .739** | .446** | .443** | .563** | .285** | .213* | .405** | .626** | .558** | .568** | .656** | 1 |

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

*. Correlation is significant at the 0.05 level (2-tailed).

Hypotheses Testing

The structural model was executed through Smart PLS 3.0 and results indicated in two formats: first, the overall impact and second with inner facets of the PMTL. The first hypothesis states that project managers practicing a TL behavior can significantly enhance the PS factors. The results supported the hypothesis 1 and explain that project manager's TL caused 69% variation ($R^2=0.693$, $p<0.001$) in PS. Further, the validity of this structural model is evident as value of Q^2 (0.69) is indicating the desired health of the model. Facet-wise analysis reflected a significant impact of leadership dimensions on PS, evident from Table 4. Moreover, 'challenge the process' is TL behavior which reserves highest regression coefficient with PS factors and 'enable others to act' is having the least but significant impact at $p<0.05$. In addition, the validity of this structural model is also evident as Q^2 value (0.653) is far greater than zero. From the study findings, it is obvious that all the individual dimensions of project managers' leadership are sufficiently predicting the endogenous construct in HEC projects in Pakistan. In addition, value of R^2 indicated that these constructs altogether, explain variance more than seventy two percent in PS factors

observing the robust statistical power in the estimation of parameter (Hair et al., 2010).

Table 4
Regression between project leadership and PS

| Proposed Relationships | β | T | R^2 | Q^2 |
|------------------------------------|---------|--------|-------|-------|
| H1: Project Leadership Behavior PS | 0.832** | 29.127 | 0.693 | 0.69 |
| Model the Way PS | 0.201** | 3.458 | | |
| Inspired a shared vision PS | 0.224** | 3.166 | | |
| Challenge the Process PS | 0.388** | 5.887 | | |
| Enable others to Act PS | 0.121* | 2.040 | | |
| Encourage the Heart PS | 0.179** | 2.693 | | |
| Individualized Consideration PS | 0.171** | 2.722 | | |
| PS Factors | | | 0.717 | 0.653 |

Note: * and ** represent $p < 0.05$ and 0.01 confidence interval, respectively.

The second hypothesis was formed to examine the direct effect of PMTL behaviors on project teamwork (in terms of communication, cohesiveness, collaboration and technical skills). These relationships have been statistically narrated in Table 6, based on the hypothesis (H_2) of the study. The results showed that the TL behavior of project managers not only has a positive but also significant impact on project teamwork, evident from the p-value ($p < 0.01$). In addition, value of Q^2 (0.557) provides the evidence of the predictive relevance of this path model.

Table 5
Regression between project leadership and project teamwork

| Relationships | β | T | R^2 | Q^2 |
|---------------|---------|--------|-------|-------|
| H2 : PLB PTW | 0.75** | 16.287 | 0.558 | 0.557 |
| PLB PT Com | 0.69** | 13.27 | 0.47 | 0.467 |
| PLB PT Coh | 0.63** | 13.22 | 0.39 | 0.388 |
| PLB PT Col | 0.72** | 9.781 | 0.51 | 0.513 |
| PLB PT TS | 0.45** | 4.755 | 0.20 | 0.185 |

Note: ** represents 1% level of significance.

PLB = Project Leadership Behaviors, PTW=Project Team Work, PT Com =Project Team, Communication, PT Coh = Project Team Cohesiveness, PT Col = Project Team Collaboration, PT TS = Project Team Technical Skills

Furthermore, facet-wise structural paths were empirically reflected in Table 6, that established that PMTL has positive impact on all teamwork dimensions at $p < 0.01$. In addition, the overall statistical values were also evident that validity of model was ensured as Q^2 values (0.467, 0.388, 0.513 and 0.185) of project team communication, cohesiveness, collaboration and their technical skills, respectively are greater than zero (see Table 6).

The third hypothesis is postulated to investigate whether there is positive, significant and direct relationship between project teamwork and PS factors in HEC projects? The results are elaborated in Table 7 and this path model is designed carefully to analyze the effects of project teamwork with the PS factors as a single construct. The results affirmed the direct, significant and positive effect of project teamwork on PS factors with 72% variation. Moreover, the overall structural model was validated through Q^2 with a value of 0.715 (see table 6).

Table 6
Regression between project leadership and project

| Relationships | β | T | R^2 | Q^2 |
|---------------|---------|-------|-------|-------|
| H3 : PTW PS | 0.85** | 31.01 | 0.72 | 0.71 |
| PTCom PS | 0.31** | 4.23 | | |
| PTCoh PS | 0.30** | 3.16 | | |
| PTCol PS | 0.27** | 2.86 | | |
| PTTS PS | 0.16** | 2.85 | | |
| PS Factors | | | 0.74 | 0.696 |

Note: ** represents 1% level of significance.

The detailed analysis shows that individual dimensions of project teamwork are significantly and positively correlated with PS in which team communication has strongest effect. The model was reliable having R^2 value as 0.74 and Q^2 value as 0.696.

The final hypothesis investigates the mediating effect of project teamwork on the relationship between PMTL and PS. The results found that PMTL has significant positive impact on project teams, subsequently a strong and significant relationship was found between project teamwork and PS. The indirect effect of PMTL is also positive and significant (0.38, $p < 0.01$), see Table 8. At the same time, after introducing the project teamwork in the path model, the direct relationship between PMTL and PS was reduced but remained significant ($\beta = 0.45$, $p < 0.01$), with a Δ of 0.38, when project teamwork was asserted in the relationship (see Figure 4.5, $\beta = 0.83$). Moreover, in PLS-SEM, Variance Accounted For (VAF) is used to validate a mediating relationship among the study variables. In this particular case, VAF came up with a value 46% (see Table 8) validating partial but stronger mediation of project teamwork between the relationship of PMTL on PS factors (Hair et al., 2010) in HEC projects in Pakistan.

Table 7
Indirect effect Project Leadership on PS through Project Teamwork

| Relationships | β | T | R^2 | Q^2 |
|---------------------------------------|-------------------------------|--------|-------|-------|
| H4: PLB PTW PS | | | 0.81 | 0.809 |
| PLB PTW | 0.75** | 14.716 | 0.56 | 0.505 |
| PTW PS | 0.51** | 7.85 | | |
| PLB PS | 0.45** | 7.639 | 0.81 | 0.809 |
| Indirect Effect (a) | $= 0.75 * 0.51 = 0.38^{***}$ | | | |
| Direct Effect (b) | $= 0.45^{***}$ | | | |
| Total Effect (a+b) = c | $= 0.38 + 0.45 = 0.832^{***}$ | | | |
| VAF = a/c | FALSE | | | |
| Direct Effect PLB PS (see Figure 4.5) | $= 0.83^{***}$ | | | |

Note: ** represents 1% level of significance.

PLB =Project Leadership Behaviors, PTW=Project Teamwork, PS= PS Factors.

The detailed facet wise analysis also showed that all facet of project teamwork mediates the relationship between PMTL and PS i.e., project teamwork communication (0.180, $p < 0.001$), project teamwork cohesiveness (0.224, $p < 0.001$), project teamwork collaboration (0.215, $p < 0.001$) and project teamwork communication (0.127, $p < 0.001$).

Table 7
Facet-wise Mediation Effect

| Constructs | Direct Effect | Indirect Effect | VIF | Q2 |
|------------|---------------|-----------------|-----|-------|
| PLBPTComPS | 0.83 | 0.180 | 22% | 0.715 |
| PLBPTCohPS | 0.83 | 0.224 | 27% | 0.756 |
| PLBPTColPS | 0.83 | 0.215 | 26% | 0.717 |
| PLBPTTSPS | 0.83 | 0.127 | 15% | 0.752 |

Discussion

The aim of the study was to explore the mediating effect of project teamwork between PMTL and PS. The study examines display that TL is not only positively associated with project teamwork, but also it may improve their individual skills. The study findings also indicated a significant relationship between project teamwork and PS factors. These consequent relationships of project teamwork gave confidence to the researcher to analyze the teamwork as a potential mediator in the study.

There are six key points can be extracted from this research. First, PMTL have direct positive effect on PS. This relationship was tested by taking the average of 6 leadership behaviors by combining two well-known TL models discussed above. The combination was selected in order to improve existing models of TL, resulting in the affirmation. The obtained results were found not different from prior studies conducted in developed countries (Dulewicz & Higgs, 2005; Geoghegan & Dulewicz, 2008; Clarke, 2010). However, the study is different from others because it proved statistically that a project manager can practice more than one TL model during their projects. This is not only beneficial for the PS but also for project teams and professional growth of project managers themselves. Second, “challenge the process” among other PMTL styles is the most significant behavior. Third, project managers alone are not sufficient to accomplish a PS fully unless they get the support of a team (Sheard & Kakabadse, 2002; Huemann, 2010; Verburg, Bosch-Sijtsema, & Vartiainen, 2013). Fourth, there is direct effect of project teamwork, individually and collectively on PS factors. The study results are also in line with the previous studies discussing the relationship between project teamwork and PS (Pinto & Prescott, 1988; Nixon et al., 2012; Dong, Bartol, Zhang, & Li, 2017). Hence, findings are equally good to increase success chances of projects in Pakistan as to respond cultural differences. Fifth, project teamwork has mediating effect on the relationship of PMTL behaviors and PS factors. The study discussed project teamwork through the lens of mediation as a four-dimensional construct, for the first time in higher education projects of Pakistan. Moreover, with respect to mediation, the study results are also found in line with Yang et al. (2013) that project teamwork can induce a stronger relationship between project leadership and PS. Finally, the researchers asserted detailed discussion, recommending several theoretical, practical and managerial implications related to the study.

Theoretical and Practical Implications of the Study

The study covers several aspects by recognizing the potential interests pertaining to the TL, project teamwork, and PS factors. The present study is significant by getting the

support of two distinct theories; the TL theory, and then to analyze the efficacy of TL under the open-systems theory. This increased understanding of TL behaviors, can help to create a ripple effect not only in higher educational institutions of Pakistan but also in other public and private sector organizations of the country.

In a nutshell, the conceptual framework offered in this study represents a sustainable model for the success of higher education projects. Although, literature has flourished the importance of TL and project teamwork in connection to PS, yet ignoring the impact of these of studies in non-western countries (Prabhakar, 2005; Takahashi, Ishikawa, & Kanai, 2012). Though, the current study is extending the prior literature in major three ways. First, the study offered the mediation effect of project teamwork with four dimensions between TL and PS, for the first time in higher education projects of Pakistan. Second, the study extended the quadruple constraint success model of Pinto and Slevin (1988) by adding the impact of PS on organizational success. Third, the study has discussed TL with combination of two well-known models, (B. Bass & Avolio, 1995). Thus, the current study has extended the scope of project leadership by incorporating higher education sector of Pakistan. The present research also witnesses that it is not only PMTL that brings positive change in PS, but also the project teams equally contribute towards achievement of the desired project goals under the ideologies of open-systems theory. Further, the study offers empirical evidence that transformational project managers can explain well that how PS rates can be enhanced directly and indirectly through project teamwork in a developing economy (Pakistan). The projects and the organizations can benefit from these intangible assets in the shape of having efficient and effective project leaders and team members. This research may not only be useful for public and private sector organizations of the country, but also for similar developing countries suffering from high project failure rates.

Managerial Implications of the Study

The study unveils several managerial implications to the higher educational institutions and their policymakers. First, organizations have to initiate steps to introduce project leadership concepts to increase the chances of PS. Second, the policy-makers and upper management should take necessary steps to deploy the right person at the right time for the right projects to avoid and minimize the chances of project failures. In addition, policy-makers of HEC should also spare some resources for conducting training and development sessions for the project personnel of HEC itself, and the said public and private higher educational employees. Moreover, these higher educational institutions themselves can arrange training and development sessions for their project managers and project team members. In addition, there also needs to spread the awareness of successful projects among entire functional departments of the organizations. Third, the organizations should develop a culture that can foster the effectiveness and importance of project teamwork. There should be a culture of mutual trust and respect for each other. These employees may be considered as the source of intangible yet valuable assets, not only for the projects but also for organizational success. Furthermore, the organizations may also collaborate with professional institutions like PMI and IPMA to offer the latest tools and

techniques through regular training and development sessions to their project staffs. To close, the study indicates that project leadership and project teamwork can be one of the key factors in promoting the gradual rise in PS rates which can ultimately contribute to the national economy. The study believes that organizations and practitioners can benefit by focusing on the suggestions offered in this section. Thus, these suggested managerial implications in public and private higher educational institutions may prove as an effective source not only for higher educational institutions but also for other business oriented organizations of the country.

Limitations and Future Research

Despite the significance of the study, the research also keeps some limitations. First of all, the study has limitation in terms of geographical boundary. The empirical settings of the study were limited only to Pakistani higher education institutions. While there may be an issue of generalizability of research findings to other countries on the globe, especially the developed ones. The current study collected the data over one specified period of time, i.e. cross-sectional. The study research design and limitations discussed above also open up several future research directions. First, it was hard to obtain data from public sector organizations. It seems that respondents were less keen to provide the relevant information through mail questionnaire. Thus, future studies can use different methods to improve the response rate such as, personal distribution of questionnaire and selecting a particular region where the majority of population can be accessed with reasonable time and cost.

Leadership is a universal phenomenon, therefore; its effects cannot be limited only to one specific field, sector or a country. For the reason, future studies can be conducted in dissimilar organizations across the geographical boundaries to fill this research gap by highlighting the importance of TL, particularly in Asian developing countries. Moreover, the current study is cross-sectional in nature and future research can be conducted with longitudinal settings provided that project managers and team members get and practice the required skills so that the results can be further tabulated and compared with previous ones. The results are specifying, that future studies can gain maximum benefits by discussing TL models in a specialized manner. Moreover, project leadership was ignored in general, particularly in literature of developing countries. Therefore, the future studies can bridge this theoretical and empirical research gap and may strengthen the concepts offered in the study. Most importantly, the results revealed that project teams have capability to play a significant role as dependent, independent and mediating variables. Therefore, future studies can consider project teamwork as a separate independent variable in different organizations. Future researches can also introduce different potential mediators or moderators to investigate the hidden benefits that can be explored in the field of project management to offer fresh insights.

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.
- Anantatmula, V. S. (2010). Project manager leadership role in improving project performance. *Engineering Management Journal*, 22(1), 13–22.
- Avolio, B. J., Zhu, W., Koh, W., & Bhatia, P. (2004). Transformational leadership and organizational commitment: Mediating role of psychological empowerment and moderating role of structural distance. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 25(8), 951–968.
- Ayub, A. (2015). Impact of project leadership facets on project outcome. *Acta Universitatis Danubius. Œconomica*, 11(4), 13–22.
- Banks, G. C., McCauley, K. D., Gardner, W. L., & Guler, C. E. (2016). A meta-analytic review of authentic and transformational leadership: A test for redundancy. *The Leadership Quarterly*, 27(4), 634–652.
- Bass, B., & Avolio, B. (1995). *MLQ multifactor leadership questionnaire*. CA: Mind Garden Redwood City.
- Bass, B. M. (2000). The future of leadership in learning organizations. *Journal of Leadership Studies*, 7(3), 18–40.
- Besteiro, É. N. C., de Souza Pinto, J., & Novaski, O. (2015). Success factors in project management. *Business Management Dynamics*, 4(9), 19–34.
- Braun, S., Peus, C., Weisweiler, S., & Frey, D. (2013). Transformational leadership, job satisfaction, and team performance: A multilevel mediation model of trust. *The Leadership Quarterly*, 24(1), 270–283.
- Byrne, B. M. (2016). *Structural equation modeling with amos: Basic concepts, applications, and programming*. UK: Routledge.
- Campion, M. A., Medsker, G. J., & Higgs, A. C. (1993). Relations between work group characteristics and effectiveness: Implications for designing effective work groups. *Personnel Psychology*, 46(4), 823–847.
- Carless, S. A., Wearing, A. J., & Mann, L. (2000). A short measure of tl. *Journal of Business and Psychology*, 14(3), 389–405.
- Chou, H.-W., Lin, Y.-H., Chang, H.-H., & Chuang, W.-W. (2013). Transformational leadership and team performance: The mediating roles of cognitive trust and collective efficacy. *Sage Open*, 3(3), 1–10.
- Clarke, N. (2010). Emotional intelligence and its relationship to transformational leadership and key project manager competences. *Project Management Journal*, 41(2), 5–20.
- Dionne, S. D., Yammarino, F. J., Atwater, L. E., & Spangler, W. D. (2004). Transformational leadership and team performance. *Journal of Organizational Change Management*, 17(2), 177–193.
- 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.
- Dulewicz, V., & Higgs, M. (2005). Assessing leadership styles and organisational context. *Journal of Managerial Psychology*, 20(2), 105–123.
- Dvir, T., Eden, D., Avolio, B. J., & Shamir, B. (2002). Impact of transformational leadership on follower development and performance: A field experiment. *Academy of Management Journal*, 45(4), 735–744.
- Dwivedula, R., Bredillet, C. N., & Müller, R. (2016). Personality and work motivation as determinants of project success: The mediating role of organisational and professional commitment. *International Journal of Management Development*, 1(3), 229–245.
- Fernet, C., Trépanier, S.-G., Austin, S., Gagné, M., & Forest, J. (2015). Transformational leadership and optimal functioning at work: On the mediating role of employees' perceived job characteristics and motivation. *Work & Stress*, 29(1), 11–31.
- Geoghegan, L., & Dulewicz, V. (2008). Do project managers' leadership competencies contribute to project success? *Project Management Journal*, 39(4), 58–67.
- 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.
- Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. (2010). *Multivariate data analysis: A global perspective*. Upper Saddle River, NJ: Pearson.
- Henry, K. B., Arrow, H., & Carini, B. (1999). A tripartite model of group identification: Theory and measurement. *Small Group Research*, 30(5), 558–581.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2012). *Using partial least squares path modeling in advertising research: Basic concepts and recent issues*. Cheltenham, UK: Edward Elgar.
- Huemann, M. (2010). Considering human resource management when developing a project-oriented company: Case study of a telecommunication company. *International Journal of Project Management*, 28(4), 361–369.
- Imran, M. K., Ilyas, M., & Aslam, U. (2016). Organizational learning through transformational leadership. *The Learning Organization*, 23(4), 232–248.
- 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.
- Keller, R. T. (2006). Transformational leadership, initiating structure, and substitutes for leadership: A longitudinal study of research and development project team performance. *Journal of Applied Psychology*, 91(1), 202–210.
- Kendra, K., & Taplin, L. J. (2004). Project success: A cultural framework. *Project Management Journal*, 35(1), 30–45.
- Kozlowski, S. W., & Ilgen, D. R. (2006, dec). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest*, 7(3), 77–124.
- Lindgren, M., & Packendorff, J. (2009). Project leadership revisited: Towards distributed leadership perspectives in project research. *International Journal of Project Organisation and Management*, 1(3), 285–308.
- Lindsjörn, Y., Sjøberg, D. I., Dingsøy, T., Bergersen, G. R., & Dybå, T. (2016). Teamwork quality and project success in software development: A survey of agile development

- teams. *Journal of Systems and Software*, 122, 274–286.
- Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review*, 26(3), 356–376.
- Martens, C. D. P., Machado, F. J., Martens, M. L., de Oliveira e Silva, F. Q. P., & de Freitas, H. M. R. (2018). Linking entrepreneurial orientation to project success. *International Journal of Project Management*, 36(2), 255–266.
- Morgan, T. L. (2012). *An examination of project managers' leadership contributions to PS using critical success factors* (Unpublished doctoral dissertation). Capella University, Minnesota.
- Muller, R., Geraldi, J., & Turner, J. R. (2012). Relationships between leadership and success in different types of project complexities. *IEEE Transactions on Engineering Management*, 59(1), 77–90.
- Nixon, P., Harrington, M., & Parker, D. (2012). Leadership performance is significant to project success or failure: A critical analysis. *International Journal of Productivity and Performance Management*, 61(2), 204–216.
- 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.
- Pinto, J. K., & Prescott, J. E. (1988). Variations in critical success factors over the stages in the project life cycle. *Journal of Management*, 14(1), 5–18.
- Pinto, J. K., & Slevin, D. P. (1988). *Critical success factors in effective project implementation*. John Wiley & Sons, Inc.
- Posner, B. Z., & Kouzes, J. M. (1988). Development and validation of the leadership practices inventory. *Educational and Psychological Measurement*, 48(2), 483–496.
- Prabhakar, G. P. (2005). Switch leadership in projects an empirical study reflecting the importance of transformational leadership on project success across twenty-eight nations. *Project Management Journal*, 36(4), 53–60.
- Salas, E., Cooke, N. J., & Rosen, M. A. (2008). On teams, teamwork, and team performance: Discoveries and developments. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, 50(3), 540–547.
- Scott-Young, C., & Samson, D. (2007). Project success and project team management: Evidence from capital projects in the process industries. *Journal of Operations Management*, 26(6), 749–766.
- Sheard, A., & Kakabadse, A. (2002). Key roles of the leadership landscape. *Journal of Managerial Psychology*, 17(2), 129–144.
- Shenhar, A. J., & Dvir, D. (2007). Project management research—the challenge and opportunity. *Project Management Journal*, 38(2), 93–99.
- Slevin, J. K., D. Pand Pinto. (1987). Balancing strategy and tactics in project implementation. *Sloan Management Review*, 29(1), 33–41.
- Sohmen, V. S. (2013). Leadership and teamwork: two sides of the same coin. *Journal of Information Technology & Economic Development*, 4(2), 1–18.
- Strang, K. D. (2007). Examining effective technology project leadership traits and behaviors. *Computers in Human Behavior*, 23(1), 424–462.

- Sumner, M., Bock, D., & Giamartino, G. (2006). Exploring the linkage between the characteristics of it project leaders and project success. *Information Systems Management*, 23(4), 43–49.
- Takahashi, K., Ishikawa, J., & Kanai, T. (2012). Qualitative and quantitative studies of leadership in multinational settings: Meta-analytic and cross-cultural reviews. *Journal of World Business*, 47(4), 530–538.
- Tehseen, S., Ramayah, T., & Sajilan, S. (2017). Testing and controlling for common method variance: A review of available methods. *Journal of Management Sciences*, 4(2), 142–168.
- Tjosvold, D. (1988). Cooperative and competitive dynamics within and between organizational units. *Human Relations*, 41(6), 425–436.
- Turner, R., Huemann, M., & Keegan, A. (2008). Human resource management in the project-oriented organization: Employee well-being and ethical treatment. *International Journal of Project Management*, 26(5), 577–585.
- Unger-Aviram, E., Zwikael, O., & Restubog, S. L. D. (2013). Revisiting goals, feedback, recognition, and performance success. *Group & Organization Management*, 38(5), 570–600.
- Verburg, R. M., Bosch-Sijtsema, P., & Vartiainen, M. (2013). Getting it done: Critical success factors for project managers in virtual work settings. *International Journal of Project Management*, 31(1), 68–79.
- Walker, S. K. (2011). Connected: The surprising power of our social networks and how they shape our lives. *Journal of Family Theory & Review*, 3(3), 220–224.
- Wang, E., Chou, H.-W., & Jiang, J. (2005). The impacts of charismatic leadership style on team cohesiveness and overall performance during ERP implementation. *International Journal of Project Management*, 23(3), 173–180.
- Wang, X.-H. F., & Howell, J. M. (2012). A multilevel study of transformational leadership, identification, and follower outcomes. *The Leadership Quarterly*, 23(5), 775–790.
- Yang, L.-R., Huang, C.-F., & Wu, K.-S. (2011). The association among project manager's leadership style, teamwork and PS. *International Journal of Project Management*, 29(3), 258–267.
- Yang, L.-R., Wu, K.-S., & Huang, C.-F. (2013). Validation of a model measuring the effect of a project manager's leadership style on project performance. *KSCE Journal of Civil Engineering*, 17(2), 271–280.
- Zagoršek, H., Dimovski, V., & Škerlavaj, M. (2009). Transactional and transformational leadership impacts on organizational learning. *Journal of East European Management Studies*, 14(2), 144–165.
- Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2013). *Business research methods*. USA: Cengage Learning.
- Zwikael, O., & Smyrk, J. (2012). A general framework for gauging the performance of initiatives to enhance organizational value. *British Journal of Management*, 23, 6–22.