

## **Fostering Teamwork Quality through Managerial Coaching: Mediating Role of Psychological Engagement in Project Organizations**

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### **Abstract**

*Teamwork quality has important implications for organizational success. Drawing upon the wellbeing and positive psychology coaching theories, managerial coaching is known to induce positive work outcomes. However, little attention is paid to explore how coaching can prompt the quality of teamwork in the context of managing contemporary projects. We examined the mechanism through which managerial coaching impacts teamwork quality in projects using a sample of 463 managers from a variety of project organizations in Pakistan. Data was collected through an online survey by adopting existing measures; managerial coaching, psychological engagement, and teamwork quality. Simple and multiple regression analyses were used to test the hypotheses. We found that workplace managerial coaching was positively associated with teamwork quality and that psychological engagement of employees partially mediated this relationship. Findings indicate that developing a culture of managerial coaching can foster a psychological climate for employee engagement if teamwork quality is a priority for project success. We recommend that project managers should develop and practice coaching skills at work to reach success.*

**Keywords:** Managerial coaching, Psychological engagement, Teamwork quality, Project management

### **Introduction**

Projects are inevitable for social and economic development. The China-Pakistan Economic Corridor is a recent example of managing multiple complex projects. Successful projects need to fulfill stakeholders' expectations (Dinu, 2016). Human capital is the backbone of any project; a lack of teamwork may cause project failure. Antony and Gupta (2019) found incompetent teams and employees' resistance to change as important reasons for project failure. Effective leadership is a source of motivation needed to better engage employees at work (Singh *et al.*, 2016). Project managers are more concerned with employees' engagement and teamwork quality since the same is attributed to desirable workplace outcomes (Anthony-McMann *et al.*, 2017). Workplace coaching, a relatively new field in management science, has emerged as a social process (Shoukry &

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Cox, 2018) that facilitates change, high performance, and reflective learning for responding to challenging contexts (Brockbank, 2006).

Employee engagement is related to desired work outcomes (Anthony-McMann *et al.*, 2017) such as job performance, turnover intention, and organizational citizenship behavior (Claxton, Rana, Ardichvili, & Tkachenko, 2014). Psychological states guide employees' decision to engage or disengage in work roles (Kahn, 1990) and may pose challenge to employee engagement, teamwork quality, and success. Coaching can help cope with various project management challenges (Berg & Karlsen, 2007). However, the application of coaching in project management perspectives needs to be examined (Thompson & Cox, 2017). Despite its pragmatic benefits, most businesses may not dedicate themselves to coaching. Literature suggests researching antecedents and consequences of engagement for theory development (Saks & Gruman, 2014).

This study examined how managerial coaching could be applied to induce teamwork quality for establishing excellence in project management. Specifically, we addressed three questions through hypotheses testing in the context of project organizations in Pakistan: Whether managerial coaching improves employees' psychological engagement at work? Whether managerial coaching improves teamwork quality? Whether psychological engagement of employees mediates the relationship between managerial coaching and teamwork quality?

### **Theoretical Background and Hypotheses**

The field of coaching is not standalone. It is multidisciplinary and builds upon diverse theories in related fields. Positive psychology studies human flourishing for optimal functioning needed to thrive (Gable & Haidt, 2005). It provides a robust scientific base for life and executive coaching (Kauffman, 2006). This study advances around wellbeing theory (Seligman, 2012) which forms the basis for positive psychology coaching (Passmore & Oades, 2014) to cultivate psychological wellbeing at work and achieve valued goals of performance and teamwork quality.

### **Managerial Coaching**

Coaching aims to maximize work performance. Downey (1999) defined coaching as an art of "facilitating the performance, learning, and development of another" p. 15. It improves job performance, facilitates organizational citizenship behavior, reduces turnover intention (Claxton *et al.*, 2014), and influences employee wellbeing (Zhao & Liu, 2020). The concept of coaching has rapidly expanded in business and industry (Mikkelsen, 2020). It is recognized as a powerful leadership approach where managers see their employees transform, improve relationships, build trust, become innovative, and get ready for change. Coaching enables employees to take responsibility for their own learning and development which increases their skill levels and the motivation needed to

exhibit higher levels of job performance. However, not all managers have sufficient time to engage in coaching conversations (McCarthy, & Milner, 2013). A systematic approach to coaching, such as developing managerial coaching, can be more fruitful than individual-focused traditional techniques (Lawrence, 2017).

### **Managerial Coaching and Psychological Engagement**

The concept of engagement is strategically valued by organizations due to its significant association with proactivity, knowledge sharing, creativity, adaptivity, job satisfaction, and job involvement (Eldor & Harpaz, 2016). Engagement increases individual, team, and organizational performance leading to quality outcomes (Bakker & Albrecht, 2018). Psychological engagement refers to the conditions of meaningfulness, safety, and availability that one feels in a work role (Asiwe *et al.*, 2017). It is a highly positive, motivational, and dedicated state of an individual with a strong focus on work (Schaufeli & Bakker, 2010). Kahn (1990) described three psychological conditions; meaningfulness, safety, and availability which guide individuals' decisions to associate or disassociate with their work. Shuck and Reio Jr. (2014) explained that these psychological conditions influence engagement at work. Leadership, employees' psychological states, and organizational factors are important determinants of work engagement (Nel & Linde, 2019). Coaching in organizational contexts is a recognized antecedent of employee engagement (Eldor & Harpaz, 2016). Coaching helps managers in identifying strengths and development opportunities both at individual and organizational levels. Managers can influence psychological engagement and discretionary efforts of employees through coaching interventions focusing on talent management practices that could help people in building self-awareness and grow (Lockwood, 2007). Accordingly, we proposed:

*H<sub>1</sub>: Managerial coaching has a significant positive association with psychological engagement*

### **Psychological Engagement and Teamwork Quality**

Teams, groups of people working together on common tasks (Hoegl & Gemuenden, 2001), are central to organizational life. Teamwork is the process of collaboration where team member's inputs are converted into team outputs for attaining desired goals (Driskell, Salas & Driskell, 2018). Different teams exhibit different levels of quality in their collaboration and task performance. Hoegl and Gemuenden (2001) described six facets that indicated teamwork quality; communication, coordination, mutual support, effort, cohesion, and balance of members' contributions. Teamwork enhances goal setting, team performance, innovation (Hoegl & Parboteeah, 2003); improved group cognition; and project success (Kuthyola, Liu, & Klein, 2017). Psychological climate influences employee engagement leading to discretionary efforts

that an individual exhibits in teams (Shuck & Reio Jr, 2014). Psychological conditions of meaningfulness, safety, and availability exhibit a strong relationship with the engagement of the human spirit at work (May, Gilson, & Harter, 2004). Experienced managers envision that employee engagement may yield good quality teamwork (Hoegl & Gemuenden, 2001) which can push teams towards peak performance over time (Bolman & Deal, 1992).

*H<sub>2</sub>: Psychological engagement has a significant positive association with teamwork quality*

### **Managerial Coaching and Teamwork Quality**

Coaching is a business management style to realize team effectiveness (Dayan & Di Benedetto, 2009). It can help in the identification and development of high potential employees. It is likely to improve psychological engagement leading to teamwork quality. Based on the literature on preceding hypotheses (1 & 2), we further proposed that when managers practice coaching skills at work, they will find that team members psychologically exhibit more meaningfulness, safety, and availability to better engage and deliver in their assigned work roles. Therefore, managerial coaching develops psychological conditions for work engagement and advances teamwork quality to realize project success. Accordingly, we proposed:

*H<sub>3</sub>: Managerial coaching has a significant positive association with teamwork quality*

### **The Mediating Role of Psychological Engagement**

Motivated team members maintain team spirit and positively contribute to the quality of teamwork (Hoegl & Gemuenden, 2001). Engaged employees exhibit more enthusiasm and energy at work which increases performance. Alessandri *et al.* (2018) found that employees' psychological capital determines their level of work engagement and performance. Psychological conditions are linked with the employee's connection to their work roles (Bakker & Albrecht, 2018). Engagement is reckoned to be a mediating variable that is influenced by its antecedents to generate valuable outcomes (Saks & Gruman, 2014). Lower engagement can lower employee performance (Knight, Patterson, & Dawson, 2017). Fletcher (2019) recognized that the meaningfulness of work is crucial for employee engagement. Psychological safety induces task performance (Frazier *et al.*, 2017) by creating conducive work environments, solving psychological health issues, and engagement at work (Dollard & Bakker, 2010). Working environment, teams, and co-worker relationships predict work engagement which in turn determines positive work outcomes (Anitha, 2014). Accordingly, hypothesized:

*H<sub>4</sub>: Psychological engagement mediates the relationship between managerial coaching and teamwork quality*

### Theoretical Model

Based on the proposed hypotheses in this study, we proposed the following research model for empirical testing in this study:

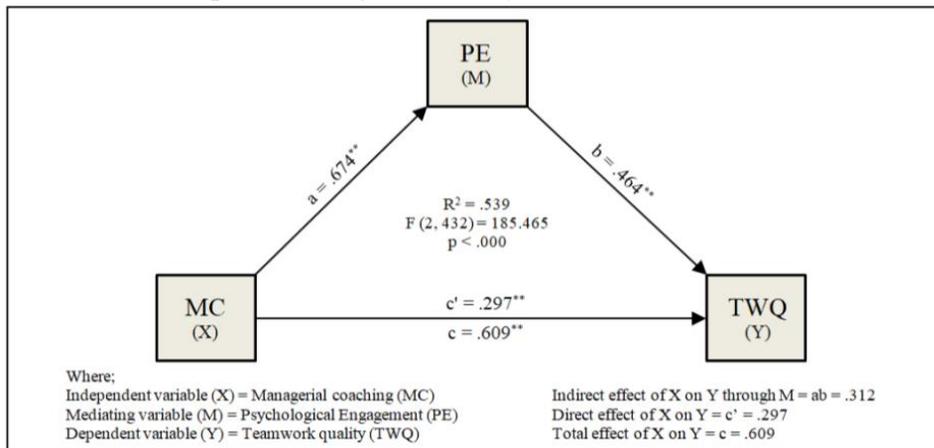


Fig. 1: Theoretical Model of Managerial Coaching and Teamwork Quality

### Methodology

We adopted a quantitative, cross-sectional, and correlational study design.

### Sample and Procedure

An online survey request was sent to about 5000 supervisory engineers, consultants, and constructors registered with Pakistan Engineering Council whose email addresses were found available. A random sample of 436 individuals, who reported working on managerial positions in a variety of projects across Pakistan, responded. It was considered sufficient as prior research suggests that 2 to 50 subjects per variable could provide accurate predictions (Austin & Steyerberg, 2015).

### Measures

We used self-report measures to develop the questionnaire for data collection in this study. Participants were asked to reflect upon their organization’s vision, culture, employees, policies, processes, and performance in a broader outlook and appropriately respond to survey items using a 5-point Likert scale; (1) almost always, (2) occasionally, (3) often, (4) very often, and (5) almost always. Cronbach’s alpha indicated reliability of all measures (Table 1). We measured *managerial coaching* ( $\alpha=.945$ ) by using a 20-item scale adopted from McLean, Yang, Kuo, Tolbert, and Larkin (2005). The scale consisted of four dimensions focusing on coaching skills and practices on open communication, team approach, value people, and accept ambiguity at the workplace. The scale measures the extent to which participating managers possess and practice coaching skills which creates a culture of managerial coaching at work. To measure *psychological engagement*

( $\alpha=.970$ ) we adopted a 14-item scale from Palacios Marqués and José Garrigós Simón (2006). This scale measures how much employees experience psychological meaningfulness, safety, and availability to perform assigned work roles. The measurement used for *teamwork quality* ( $\alpha=.888$ ) was a 38-item scale adopted from Hoegl and Gemuenden (2001) consisting of subscales namely communication, coordination, mutual support, effort, cohesion, and balanced member's contribution. The scales aimed to examine the extent to which participants contribute towards the overall quality of work performed by their teams. The *Participant's profile* was obtained on five characteristics; gender, age, education, experience, position level, and field of work.

### **Validity and Reliability**

We ensured content validity by adopting pre-tested valid measures. Expert judgments were obtained which showed consensus on relevancy, suitability, and trustworthiness of chosen items, response formats, and instructions. Convergent validity as shown in Table 2 was assessed using confirmatory factor analysis to indicate that measures of a construct were mutually correlated. Most item loadings were larger than .700 and significant, AVE was found greater than .5, and Alpha coefficients exceeded .700 for all variables which indicated good convergent validity. The values of Kaiser-Meyer-Olkin Measure of Sampling Adequacy ( $.631 \leq KMO \leq .945$ ) and Bartlett's Test of Sphericity ( $352.204 \leq \chi^2 \leq 3926.469$ ) for all variables were significant ( $p < .001$ ). This indicated the appropriateness of factor analysis outcomes. Discriminant validity was also examined using correlational and confirmatory factor analysis. On comparison, the values of the square root of AVE for all variables were found higher than their correlation with other variables which showed a good level of discriminant validity (Velayudhan & Thomas, 2018).

## **Results**

### **Sample Characteristics**

The sample consisted of 87.6% males and 12.4% females; 69.5% indicated marital status as single. Most were young project managers (84.4%); 26-30 years (73.6%) and 31-40 years (10.8%) of age. The sample represented highly qualified participants in different areas of academic qualification; Bachelors/Masters (79.5%), MS/MPhil (20.6%), and Ph.D. (3.4%). Only 23.9% indicated having managerial education; PMP (9.6%), MSPM (8.3%), and MBA (6%). Most (59.4%) had the total experience of project management for up to three years while 26.1% showed experience of 12 years or more. About 91% indicated experience in their current organization for up to three years (61%) and 4-6 years (30.3%). They were employed on top management (12.2%), middle management (28.7%), first-line management (19.3%), and supervisory level (39.9%)

positions. Most of them (57.1%) stated working on the operational and production activities of their projects.

Table 1: *Descriptive Statistics and Reliability of Measures*

Constructs / Dimensions	Items	Mean ± SD	Cronbach's Alpha		
			Existing	Pilot (n=40)	Main (n=436)
<b>Managerial coaching</b>	<b>20</b>	<b>3.459 ± .846</b>	<b>.840<sup>a</sup></b>	<b>.967</b>	<b>.945</b>
Open communication	5	3.436 ± .986	.760 <sup>a</sup>	.911	.841
Team approach	5	3.662 ± .986	.710 <sup>a</sup>	.934	.894
Value people	5	3.359 ± .951	.750 <sup>a</sup>	.863	.833
Accept ambiguity	5	3.380 ± .898	.690 <sup>a</sup>	.842	.833
<b>Psychological Engagement</b>	<b>14</b>	<b>3.619 ± .828</b>	<b>-</b>	<b>.961</b>	<b>.923</b>
Meaningfulness	6	3.700 ± .939	.913 <sup>b</sup>	.976	.897
Safety	3	3.274 ± 1.050	.746 <sup>b</sup>	.897	.770
Availability	5	3.728 ± .951	.824 <sup>b</sup>	.961	.898
<b>Teamwork Quality</b>	<b>38</b>	<b>3.508 ± .799</b>	<b>.910<sup>c</sup></b>	<b>.981</b>	<b>.970</b>
Communication	10	3.461 ± .867	.940 <sup>c</sup>	.913	.894
Coordination	4	3.524 ± .905	.850 <sup>c</sup>	.855	.818
Mutual support	7	3.620 ± .849	.930 <sup>c</sup>	.947	.890
Effort	4	3.476 ± .938	.940 <sup>c</sup>	.894	.822
Cohesion	10	3.469 ± .836	.970 <sup>c</sup>	.919	.891
Balanced members' contribution	3	3.554 ± .948	.720 <sup>c</sup>	.857	.799

<sup>a</sup> n=644 (McLean et al., 2005); <sup>b</sup> n=222 (Palacios Marqués & José Garrigós Simón, 2006);

<sup>c</sup> n=145 (Hoegl & Gemuenden, 2001).

Table 2: *Convergent Validity of Measure (n=436)*

Constructs / Dimensions	Items	Commonalities <sup>a</sup>		Loadings		AVE <sup>b</sup>	Alpha ( $\alpha$ )
		Min	Max	Min	Max		
<b>Managerial coaching</b>	<b>20</b>						
Open communication	5	.588	.651	.775	.807	.611	.841
Team approach	5	.643	.758	.802	.871	.705	.894
Value people	5	.468	.672	.684	.820	.603	.833
Accept ambiguity	5	.591	.609	.769	.780	.600	.833
<b>Psychological Engagement</b>	<b>14</b>						
Meaningfulness	6	.652	.676	.808	.822	.661	.897
Safety	3	.566	.766	.752	.875	.687	.770
Availability	5	.686	.738	.828	.850	.711	.898
<b>Teamwork Quality</b>	<b>38</b>						
Communication	10	.594	.768	.580	.860	.712	.894
Coordination	4	.302	.827	.550	.909	.667	.818
Mutual support	7	.480	.672	.693	.820	.604	.890
Effort	4	.300	.847	.518	.920	.682	.822
Cohesion	10	.585	.842	.765	.878	.712	.891
Balanced members' contribution	3	.537	.812	.733	.901	.717	.799

<sup>a</sup> *Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity are significant ( $p < .001$ ).*

<sup>b</sup> *Average Variance Explained at Initial Eigenvalues of above 1.*

### Descriptive Statistics

We computed descriptive statistics to assess the normality of data. Mean as a measure of central tendency and standard deviation as a measure of variability indicate normal distribution of data. On a 5-point scale, the mean values ranging from 2.94 to 3.82 with a standard deviation ranging from 1.01 to 1.34 showed that data for all variables in this study were normally distributed around the mean. The values of skewness (tilt of distribution) and kurtosis (peak of distribution) are considered two main components of normality of variables (Ghadamsil & Braimah, 2016); values ranging within  $\pm 1.96$  are considered as acceptable (Shao, 2018). The other research accepts these values to be within the range of  $\pm 2.00$  (Jafari & Rezaee, 2014). Accordingly, the skewness (-.796 to -.058) and kurtosis (-1.137 to -.194) values for all items of measures were found acceptable.

### Correlation Analysis

We computed Pearson's correlation coefficients to determine the nature and strength of the relationship among the constructs of this study. The item responses were transformed into mean scores for relevant variables (dimensions) which were further

transformed to compute mean scores for relevant constructs. The mean scores for all constructs were used to compute inter construct correlations; managerial coaching (MC), psychological engagement (PE), and teamwork quality (TWQ). Bootstrapping (1000 samples) was used to avoid sampling errors and response biases in estimating correlations. Results indicated significant positive correlations ( $.646 \leq r \leq .689$ ,  $p < .01$ ) among all constructs (Table 3).

Table 3: *Bootstrap<sup>b</sup> Correlation Analysis*

Constructs	1	2	3
1. Managerial coaching	1		
2. Psychological Engagement	.689**	1	
3. Teamwork Quality	.646**	.667**	1

<sup>b</sup> *Bootstrap results are based on 1000 bootstrap samples; \*\* Correlation is significant at the .01 level (2-tailed)*

Managerial coaching indicated positive relationships with psychological engagement ( $r=.689$ ), and teamwork quality ( $r=.646$ ). Psychological engagement showed a positive association with teamwork quality ( $r=.667$ ). This indicated a strong possibility of the mediation process as predicted.

### Regression Analysis

We used simple and multiple regression analyses to test the proposed hypotheses. Assumptions of regression analysis (independence, multicollinearity, normality, linearity, and homoscedasticity) were found satisfied for all models. All the  $\beta$ -weights and t-values found in all regression results were significant at  $p<.01$  levels.

*H<sub>1</sub>: Managerial coaching has a significant positive association with psychological engagement*

The psychological engagement was regressed on managerial coaching (Table 4, model 1) and found that managerial coaching explained about 47% variance in psychological engagement (model 1). An incremental change of about 67% in psychological conditions for engagement was also predicted through one-unit change in managerial coaching ( $\beta=.674$ ). Accordingly, we accepted Hypothesis 1. In stepwise regression model 2, we found that all dimensions of managerial coaching positively contribute towards psychological engagement; open communication ( $\beta=.207$ ), team approach ( $\beta=.177$ ), value people ( $\beta=.144$ ), and accept ambiguity ( $\beta=.142$ ). In stepwise regression model 3, all dimensions of psychological engagement; psychological availability ( $\beta=.443$ ), meaningfulness ( $\beta=.105$ ), and safety ( $\beta=.148$ ) were found more related to managerial coaching.

*H<sub>2</sub>: Psychological engagement has a significant positive association with teamwork quality*

Teamwork quality was regressed on psychological engagement (Table 5, model 1) and found that psychological engagement explained about 49% variance in teamwork quality. An incremental change of about 67% in teamwork quality was also predicted through one-unit change in psychological engagement. Hence, Hypothesis 2 was accepted. In stepwise regression model 2, we found that all dimensions of psychological engagement positively contributed towards teamwork quality; psychological availability ( $\beta=.336$ ), meaningfulness ( $\beta=.208$ ), and safety ( $\beta=.125$ ). In stepwise regression model 3, only four dimensions of teamwork quality; communication ( $\beta=.271$ ), mutual support ( $\beta=.152$ ), coordination ( $\beta=.151$ ), and cohesion ( $\beta=.151$ ) were found more related to psychological engagement.

*H<sub>3</sub>: Managerial coaching has a significant positive association with teamwork quality*

Teamwork quality was regressed on managerial coaching (Table 6, model 1) and found that managerial coaching explained about 42% variance in teamwork quality. An incremental change of about 61% in teamwork quality was also predicted through one-unit change in managerial coaching. Hence, hypothesis 3 was accepted. In stepwise regression model 2, we found that only three dimensions of managerial coaching; open communication ( $\beta=.191$ ), team approach ( $\beta=.250$ ), value people ( $\beta=.143$ ) contributed more to predict teamwork quality. In stepwise regression model 3, only three dimensions of teamwork quality; coordination ( $\beta=.266$ ), balanced member's contribution ( $\beta=.216$ ), and communication ( $\beta=.183$ ) were found more related to managerial coaching.

*H<sub>4</sub>: Psychological engagement mediates the relationship between managerial coaching and teamwork quality*

We examined mediation using Hayes's (2017) process model 4 for SPSS. Managerial coaching (MC) was entered as an independent variable (X), teamwork quality (TWQ) as a dependent variable (Y), and psychological engagement (PE) as a mediator (M). Results indicated that managerial coaching through the partial mediating effect of psychological engagement explained 54% variance in teamwork quality (Tables 7 and 8). In step 1, the effect of X ( $b=.674$ ) on M was significant (path a). In step 2, the effect of M ( $b=.464$ ) on Y, when controlled for X was significant (path b). In step 3, the total effect (path c) of X ( $b=.609$ ) on Y, ignoring the mediator, was significant. Step 2 and 3 showed that direct effect (path c') of X ( $b=.297$ ) on Y, when controlling for M, significantly reduced from the total effect of X ( $b=.609$ ) on Y (path c). Bootstrap effect size measures (Table 8) showed that the indirect effect of X ( $ab=.312$ ) on Y was significant (Sobel  $Z=7.012$ ). Hence, significant partial mediation was observed and hypothesis 4 accepted.

**Table 4: Regression Model of Managerial Coaching and Psychological Engagement**

DV	Model / Predictors	$\Delta R^2$	B	Std. Error	$\beta$	t.
1 <sup>a</sup>	(Constant)		1.288**	.121		10.618**
	Managerial coaching	.474**	.674**	.034	.689**	19.781**
<i>Durbin Watson=1.991, VIF=1.000, Tolerance=1.000, 1.000≤Condition Index≤8.306</i>						
2 <sup>a</sup>	(Constant)		1.296**	.122		10.601**
	Team approach	.392**	.177**	.050	.214**	3.512**
	Open communication	.049**	.207**	.048	.247**	4.324**
	Value people	.026**	.144**	.050	.166**	2.892**
	Accept ambiguity	.009**	.142**	.052	.154**	2.734**
	<i>Durbin Watson=1.984, 1.262 ≤VIF≤ 3.050, .328≤Tolerance≤ 385, 1.000≤Condition Index≤17.215</i>					
3 <sup>b</sup>	(Constant)		.915**	.130		7.041**
	Psychological availability	.465**	.443**	.048	.497**	9.280**
	Psychological meaningfulness	.018**	.105**	.031	.131**	3.350**
	Psychological safety	.011**	.148**	.048	.165**	3.091**
<i>Durbin Watson=1.718, 1.262 ≤VIF≤ 3.050, .328≤Tolerance≤ 385, 1.000≤Condition Index≤17.215</i>						

\*\* $p < .01$  (1-tailed).

Dependent variable (DV): a. Psychological engagement; b. Managerial coaching

**Model summaries:**

1.  $R=.619, R^2=.474, S.E.=.601, F(1, 434)=391.277, p<.000$
2.  $R=.690, R^2=.476, S.E.=.601, F(4, 431)=97.719, p<.000$
3.  $R=.703, R^2=.494, S.E.=.604, F(4, 431)=140.801, p<.000$

**Equations:**

1.  $PE=1.288+ .674(MC)+e$
2.  $PE=1.296+.177(TA)+.207(OC)+.144(VP)+.142(AA)+e$
3.  $MC=.915+ .443(PA)+.105(PM)+.148(PS)+e$

Table 5: Regression Model for Psychological Engagement and Teamwork Quality

DV	Model / Predictors	$\Delta R^2$	B	Std. Error	$\beta$	t.
1 <sup>a</sup>	(Constant)		1.073**	.123		8.723**
	Psychological engagement	.487**	.673**	.033	.698**	20.295**
<i>Durbin Watson=1.959, VIF=1.000, Tolerance=1.000, 1.000 ≤ Condition Index ≤ 16.305</i>						
2 <sup>a</sup>	(Constant)		1.073**	.123		8.739**
	Psychological availability	.438**	.336**	.045	.401**	7.465**
	Psychological meaningfulness	.034**	.208**	.045	.245**	4.590**
	Psychological safety	.021**	.125**	.030	.165**	4.213**
<i>Durbin Watson=1.943, 1.301 ≤ VIF ≤ 2.455, .407 ≤ Tolerance ≤ .768, 1.000 ≤ Condition Index ≤ 15.396</i>						
3 <sup>b</sup>	(Constant)		1.072**	.130		8.232**
	Communication	.454**	.271**	.073	.284**	3.729**
	Mutual support	.023**	.152**	.059	.156**	2.554**
	Coordination	.011**	.151**	.062	.165**	2.441**
	Cohesion	.006**	.151*	.069	.153**	2.189**
	Effort	n.s.	n.s.	n.s.	n.s.	n.s.
	Balanced members' contribution	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Durbin Watson=2.200, 3.168 ≤ VIF ≤ 4.932, .203 ≤ Tolerance ≤ .316, 1.000 ≤ Condition Index ≤ 23.879</i>						

\*\* $p < .01$  (1-tailed); n.s.=Not Significant; Dependent variable (DV): a. Teamwork Quality, b. Psychological engagement

**Model Summary:**

1.  $R = .698$ ,  $R^2 = .487$ , S.E.=.572,  $F(1, 434) = 411.907$ ,  $p < .000$
2.  $R = .702$ ,  $R^2 = .493$ , S.E.=.570,  $F(3, 432) = 139.885$ ,  $p < .000$
3.  $R = .703$ ,  $R^2 = .494$ , S.E.=.591,  $F(4, 431) = 105.117$ ,  $p < .000$

**Equations:**

1.  $TWQ = 1.073 + .673(PE) + e$
2.  $TWQ = 1.073 + .336(PA) + .208(PM) + .125(PS) + e$
3.  $PE = 1.072 + .271(CM) + .152(MS) + .151(CN) + .151(CH) + e$

Table 6: *Regression Model for Managerial Coaching and Teamwork Quality*

DV	Model / Predictors	$\Delta R^2$	B	Std. Error	$\beta$	t.
1 <sup>a</sup>	(Constant)		1.400**	.123		11.371**
	Managerial coaching	.417**	.609**	.035	.646**	17.629**
<i>Durbin Watson=1.922, VIF=1.000, Tolerance=1.000, 1.000≤Condition Index≤8.306</i>						
2 <sup>a</sup>	(Constant)		1.467**	.119		12.309**
	Team approach	.367**	.250**	.048	.309**	5.247**
	Open communication	.043**	.191**	.050	.240**	3.855**
	Value people	.013**	.143**	.045	.170**	3.171**
	Accept ambiguity	n.s.	n.s.	n.s.	n.s.	n.s.
	<i>Durbin Watson=1.924, 2.162 ≤VIF≤2.898, .345≤Tolerance≤386, 1.000≤Condition Index≤15.396</i>					
3 <sup>b</sup>	(Constant)		1.122**	.132		8.508**
	Coordination	.384**	.266**	.064	.285**	4.145**
	Balanced members' contribution	.043**	.216**	.053	.242**	4.097**
	Communication	.008**	.183**	.072	.187**	2.546**
	Mutual support	n.s.	n.s.	n.s.	n.s.	n.s.
	Effort	n.s.	n.s.	n.s.	n.s.	n.s.
	Cohesion	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Durbin Watson=1.695, 2.667≤VIF≤4.148, .241≤Tolerance≤375, 1.000≤Condition Index≤20.492</i>						

\*\* $p < .01$  (1-tailed); n.s.=Not Significant; Dependent variable (DV): a. Teamwork Quality, b.

Managerial coaching

**Model Summaries:**

1.  $R=.646$ ,  $R^2=.417$ ,  $S.E.=.610$ ,  $F(1, 434)=310.783$ ,  $p<.000$
2.  $R=.650$ ,  $R^2=.423$ ,  $S.E.=.608$ ,  $F(4, 431)=105.588$ ,  $p<.000$
3.  $R=.660$ ,  $R^2=.436$ ,  $S.E.=.637$ ,  $F(3, 432)=111.261$ ,  $p<.000$

**Equations:**

1.  $TWQ=1.400+ .609(MC)+e$
2.  $TWQ=1.467+ .250(TA)+.191(OC)+.143(VP)+e$
3.  $MC=1.122+ .266(CN)+.216(BMC)+.183(CM)+e$

Table 7: Regression Model for Mediation Process Analysis

Step	DV	Mediation Model Predictors	Coefficients		t.	95% CI	
			b	SE		LL	UL
1	Psychological engagement	(Constant)	1.288**	.134	9.637**	1.025**	1.551**
		MC	.674**	.036	18.475**	.602**	.745**
2	Teamwork quality	(Constant)	.802**	.148	5.421**	.511**	1.093**
		PE	.464**	.061	7.590**	.344**	.584**
		MC	.297**	.064	4.635**	.171**	.423**
3	Teamwork quality	(Constant)	1.400**	.171	8.207**	1.064**	1.735**
		MC	.609**	.047	13.030**	.517**	.701**

\*\* $p < .01$  (1-tailed); CI= Confidence Interval based on 1000 bootstrap samples; DV=Dependent variable; PE=Psychological engagement; MC=Managerial coaching; SE=Standard Error; LL=Lower Level; UL=Upper Level

**Model Summaries:**

- R=.689, R<sup>2</sup>=.474, Mean S.E.=.361, F(1, 434)=341.310, p<.000
- R=.734, R<sup>2</sup>=.539, Mean S.E.=.295, F(2, 433)=185.465, p<.000
- R=.646, R<sup>2</sup>=.417, Mean S.E.=.372, F(1, 434)=169.782, p<.000

**Equations:**

- PE=1.288+.674(MC)+e
- TWQ=.802+.464(PE)+.297(MC)+e
- TWQ=1.400+.609(MC)+e

Table 8: Total, Direct, and Indirect Effects

	Effect	SE	95% CI		t.	p.
			LL	UP		
Total effect of X on Y	.609	.047	.517	.701	13.030	.000
Direct effect X on Y	.297	.064	.171	.423	4.635	.000
Indirect effect size of X on Y (Boot) <sup>b</sup>	.312	.039	.241	.394		
Normal theory (Sobel) test	Effect	SE	Z	p.		
	.312	.045	7.012	.000		

b. Mediator: Psychological Engagement; CI=Confidence Interval based on 1000 bootstrap samples. SE=Standard Error, LL=Lower Level, UL=Upper Level

**Discussion**

Employees occupy and perform different roles at work, and teamwork quality is related to project success (Hoegl & Gemuenden, 2001). People vary in physical, cognitive, and emotional aspects which influence performance, depending on their engagement or disengagement in work roles (Kahn, 1990). Several personal, interpersonal, social, and organizational factors determine psychological conditions faced by people. Psychological problems, if infiltrated into work, can cause negative organizational outcomes. Work engagement through its antecedents generates valuable

outcomes (Saks & Gruman, 2014). Engaged employees are more connected to their work, are more dedicated, energetic, and fully engaged in activities required at work. They are open to new learning, more productive, and willing to work for the extra mile. They are proactive in changing their environments to facilitate work, staying engaged, and achieving high performance (Bakker & Albrecht, 2018). Low work engagement can lower employee wellbeing and performance (Knight, Patterson, & Dawson, 2017). Personal engagement could be cultivated by implementing policies promoting meaningfulness and availability at work (Rothmann & Baumann, 2014). Our findings also support the positive psychology coaching theory (Pasmore & Oades, 2014) which explains that practicing managerial coaching can improve the psychological wellbeing of people leading to enhanced engagement and performance at work.

Leaders promote psychologically safe work environments (Aranzamendez, James, & Toms, 2015). Managerial interventions may aim at individual and team levels to maximize engagement (Bakker & Albrecht, 2018). Our findings are consistent with previous studies that recognize managerial coaching as an antecedent of engagement at work (Eldor & Harpaz, 2016; Hakanen & Roodt, 2010; Tanskanen, Mäkelä, & Viitala, 2019). In this study, managerial coaching explains significant variance in psychological conditions for the engagement of employees and their teamwork quality. There is a need to develop a culture of managerial coaching by focusing on open communication, team approach, valuing people over tasks, and accepting ambiguity in work environments to effectively lead human resources (McLean *et al.*, 2005). Research including this study suggests interventions to create a culture that maximizes the benefits of coaching (Thompson & Cox, 2017). To benefit more from coaching, managers should be given adequate training in developing coaching skills and a supportive climate where they could pragmatically apply their coaching skills in routine work (McCarthy & Milner, 2013).

### **Conclusion**

Despite technological progressions, organizations depend on their workforces' capabilities and capacities. Managerial coaching, psychological engagement, and teamwork quality are significant and positive associates of each other. Psychological engagement partially mediates the relationship between managerial coaching and teamwork quality. This indicates that managerial coaching has the potential to induce and optimize psychological conditions of meaningfulness, safety, and availability need for employee engagement at work, which in turn could enhance the quality of teamwork. The findings offer a process model to engage all employees in positive work attitudes, which can be usefully deployed for achieving project success.

## Implications for Theory and Practice

This study advances the application of wellbeing and positive psychology coaching theories in project organizations to induce psychological engagement and teamwork quality. Organizations, where managers practice their coaching skills, can improve team performance and achieve organizational development. It is likely to improve agility, problem-solving, decision-making, innovative abilities, sharing of expertise, communication, and business processes leading to the holistic success of organizations. It can also increase job satisfaction, productivity, health, and wellbeing. Therefore, managerial coaching should be accorded a suitable place and priority at workplaces. It may be embedded in a routine work environment targeting the psychological needs of employees; meaningfulness, safety, and availability so that they feel valued, active, and responsible members of their teams.

## Limitations and Insights for Future Research

We suggest the use of managerial coaching for some remarkable improvement in psychological engagement and teamwork quality. However, this study lacks sufficient representation from senior and female project managers owing to voluntary participation. This study may be replicated to ensure the generalizability of the findings to other occupational situations. We used self-report measures and expect to see future studies using some more objective measures. This study showed no significant effects of demographic variables except gender, which needs further verification. Gender was also excluded from the regression models due to inadequate female participation, which needs to be examined using the appropriate gender ratio in the sample.

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