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Shafi, MQ, Iqbal, R, Shahzad, K et al. (1 more author) (2021) The Mediating Role of Project Citizenship Behavior in the Relationship Between Organizational Justice Dimensions and Project Success. Project Management Journal, 52 (6). pp. 547-562. ISSN 8756-9728

https://doi.org/10.1177/87569728211026423

The Mediating Role of Project Citizenship Behavior in the Relationship between Organizational Justice Dimensions and Project Success

Abstract:

The impact of behavioral aspects on project success remains an area which requires more attention. Drawing on the social exchange theory (SET), our study tested the mediating role of project citizenship behavior (PCB) in the relationship of all four organizational justice dimensions (i.e. procedural, distributive, informational and interpersonal justice) with project success. A time lagged survey of project team members (n = 233) was conducted and analyzed through SEM. The results indicate that all four organizational justice dimensions are positively associated with project success, whereas informational justice appears to be the most influential dimension, and that PCB mediates all of these relationships. Project managers/sponsors should enact organizational justice and enhance project citizenship to achieve project success.

Keywords: Organizational Justice, Project Citizenship Behavior, Project Success

Introduction

Project success is probably the most extensively deliberated topic in project management literature. A vast amount of factors has been identified which potentially enhance or improve the performance of projects – some of them are more generally applicable such as tools, practices and support (Jitpaiboon et al., 2019) whereas others are focused on specific regions or industries such as software or public–private partnership projects (Tam et al., 2020; Almarri and Boussabaine, 2017). However, project performance issues are continuing, and large amounts of money are wasted on a daily basis due to poor performance and issues such as overspend, scope creep, time overrun and non-achievement of goals (PMI, 2020b). PMI's recent Pulse of the Profession study found that worldwide over 11% of every Dollar spent on projects is in fact lost (PMI, 2020b). Interestingly, it was also found that 65% of organizations see the development of leadership skills of their project professionals as a high priority to improve this situation and it was recognized that project managers won't get far without people skills (PMI, 2020a). This indicates that people and psychosocial aspects are gaining importance in addressing the challenges of weak project performance (Berssaneti & Carvalho, 2015; Williams, 2016; Maqbool et al., 2017). Nevertheless, there has been little empirical attention on the psychosocial relationships and more importantly on the effect of these relationships on project success (Unterhitzenberger and Bryde, 2019).

One approach which has shown promising results in this area is organizational justice (Unterhitzenberger and Bryde, 2019; Loosemore and Lim, 2015). Organizational justice focuses on how individuals perceive fairness in the workplace (Greenberg, 1987) and recognizes that the way employees are treated has an impact on their behavior at work. Meta-analyses of Cohen-Charash and Spector (2001), Colquitt et al. (2001) and Viswesvaran and Ones (2002) have established that organizational justice positively influences both employees as well as

organizations with the employee's organizational citizenship behavior (OCB) being one of the key benefits (Chan and Lai, 2017; Fassina et al., 2008). OCBs are defined as behaviors displayed by employees that go beyond the contractual requirements and are above and beyond what organizations can formally demand (Fassina et al., 2008). They have been recognized as being critical to the survival of organizations due to the ever-increasing competitive business environment. Projects are also generally regarded as competitive business environments with particular pressures due to their temporary nature (Bakker et al., 2013). Project team members are required to work under limiting budget and time constraints, which often require them to go "the extra mile" and put more personal effort into a project than they are formally required to do by contract. On the project level this phenomenon has been defined as project citizenship behavior (PCB) (Braun et al., 2012).

With our research, we propose to investigate the four-dimensional organizational justice construct and its relationship to project success including the mediating role of PCB. This is of relevance as Colquitt, J. and Jackson (2006) highlight the context sensitive nature of organizational justice and suggest that it is perceived differently in different social and organizational contexts. Currently, we do not know if the strong support for organizational justice and OCB relationship that has been found in classic organizations holds true in the significantly different context of projects. Projects are complex social constructs, which are viewed as a temporary organizational systems that are distinct from permanent organizations (Hobday, 1998; Braun et al., 2012) in four key aspects: *time*, which is limited in temporary organizations; *task,* which is the reason the project (or temporary organization) is launched; *team,* which focuses on the interpersonal relationships and the interplay with the permanent organization and *transition,* which is about the requirement to achieve transformation as a result of the temporary organization (Lundin and Söderholm, 1995).

Unterhitzenberger and Bryde (2019) utilized a simplified three-dimensional construct for organizational justice, which proposed an impact on project performance, but has limitations as it does not account for a nuanced investigation of the more detailed four dimensions of organizational justice. Furthermore, extra role behavior – or PCB – was not considered as a mediator and hence, this relationship remains unknown. Hence, we aim to answer the following research questions: *1) How do the different organizational justice dimensions impact project success? 2) Is the relationship between dimensions of organizational justice and project success mediated by project citizenship behavior?*

We conducted a large-scale time-lagged quantitative study with 314 participants and performed the analysis via partial least square structural equation modeling (PLS-SEM) (Hair, J.F. and Sarstedt, 2019). Our findings revealed that all four organizational justice dimensions positively impact project success and that this impact is mediated through PCB. We therefore contribute to project management literature in two-fold. First, we enrich the project management literature by empirically investigating the impact of organizational justice dimensions on project success directly and indirectly through the mediating role of PCB. Second, we also provide recommendations for project leaders and managers to stimulate the exhibition of citizenship behavior in project teams and thus, contribute towards project success. In the next section, we will provide the theoretical background for our hypotheses, then we will consider methodological aspects, present our findings and discuss the results. Finally, the theoretical & managerial implications and limitations of our study will be presented.

Theory and Hypotheses

Organizational Justice

Organizational justice has traditionally been defined as the degree to which an aspect of the organizational environment is perceived as fair following certain rules or standards (Cropanzano et al., 2001). The concept is known to be subjective – as being "in the eye of the beholder" (Colquitt, J. et al., 2018, p.159) and viewed as a phenomenon which is complex and multifaceted "as individuals are concerned about fairness for several reasons, judge the fairness of several aspects of decision events, and use fairness perceptions to guide a wide range of key attitudes and behaviors" (Colquitt, J. et al., 2005, p. 45). Initially, a differentiation between three different types (or dimensions) of justice was made (Colquitt et al., 2005) namely: 1) Distributive justice focuses on the fair allocation of outcomes; 2) Procedural justice focuses on the fairness of the processes used to determine outcome distributions or allocations 3) Interactional justice focuses on communicating the outcomes and processes. However, it has also been recognized that for a more differentiated understanding of interactional justice a distinction should be made between interpersonal and informational justice, whereas interpersonal justice means the quality of interaction and the treatment received and informational justice is concerned with the accuracy, truthfulness and timeliness of the information shared (Colquitt, J., 2001). For our work we will adopt this four-dimensional organizational justice construct, consisting of distributive, procedural, interpersonal and informational justice, for which no empirical investigation has been conducted in the project context as the only previous study by Unterhitzenberger and Bryde (2019) used the three-dimensional construct.

For decades research on organizational justice has suggested that it contributes positively to how individuals engage at work, e.g. by predicting higher levels of job performance and OCB (Baer et al., 2018; Colquitt, J. et al., 2018) as well as better work attitudes and behaviors (Huang

et al., 2017). In particular, research has proposed consistently strong support for organizational justice as a predictor of OCB (Fassina et al., 2008; Colquitt et al., 2013). This association is often discussed using the theoretical lens of social exchange theory (Moorman and Byrne, 2005). Social exchange theory (SET) assumes that social life – including working life – consists of a series of transactions between different parties (Mitchell et al., 2012). These transactions comprise of actions which are conditional on the rewarding actions of others and therefore create a process of reciprocity (Cropanzano et al., 2017; Cropanzano and Mitchell, 2005). Unlike economic exchanges, social exchange relationships are characterized by the exchange of less tangible, sometimes symbolic resources with the exchange being governed by certain rules such as reciprocity (Blau, 1964). This means that it is assumed that individuals respond to fair treatment from their supervisor by putting extra effort into their work and going beyond their contractual duties and hence, engage in OCB which is beneficial to their supervisor and their organization (Fassina et al., 2008). Utilizing SET as a theoretical lens we aim to investigate the association of organizational justice dimensions with OCB in the project setting.

The setting in which justice relationships are investigated is critical as Colquitt, J. and Jackson (2006) highlighted the context sensitivity of justice rules. They suggest that justice is perceived differently in different settings, as different aspects of justice are more important in certain contexts whereas others are more important in others. However, their context was limited to a comparison of individual vs. team perception and team characteristics of size and diversity. Also, Fortin (2008) considers only team environment, culture and power as context, whereas team environment does not consider the unique characteristics of projects. Research on projects as temporary organizations shows that they are distinct from permanent organizations and this distinction is based not only on the *temporariness* of projects but also on the other unique

characteristics of *team* (demographics of members who work together), *task* (purpose of project initiation and implementation) and *transition* (something needs to be changed because of the temporary organizations) (Lundin and Söderholm, 1995). Hence, the project context with temporary teams working on specific tasks towards the achievement of a transition or transformation is a context which has only been scarcely addressed in organizational justice research (Loosemore and Lim, 2015; Unterhitzenberger and Bryde, 2019). Our work will therefore contribute to closing this gap.

Project Citizenship Behavior

The individual's behavior at work which goes beyond contractual arrangements has gained much attention over the past decades with OCB being at the core of many investigations (Podsakoff et al., 2000; Dovidio et al., 2017). Generally, OCB is referred to as the voluntary behavior by workers, which is neither expected nor formally required by the job description but has been recognized to carry immense significance for the effective functioning of firms (Organ, 1988; Podsakoff et al., 1997). Examples of OCB are when individuals perform tasks efficiently to achieve the organization's objectives, proactively propose novel solutions to improve the work or assist a co-worker without expecting any favor in return. However, it has been recognized that OCB cannot simply be transferred to the project setting due to its unique characteristics of time, task, teams and transactions (Lundin and Söderholm, 1995; Braun et al., 2012). According to Braun et al. (2012), project citizenship behavior (PCB) consists of four dimensions which are related to but not identical with the seven dimensions of OCB. Firstly, there is helping behavior, which relates to helping another individual or team from a different organization working on the same project. Secondly, project loyalty is introduced as a cross-organizational point of reference

in addition to the employment organization. Thirdly, project compliance is concerned with the compliance to formal and informal rules and regulations established for the project and fourthly, proactive behavior relates to the individual initiatives project team members from different organizations demonstrate and their civic virtue towards the project. These findings highlight the importance of a project context investigation of citizenship behavior and we will adopt Braun et al. (2012) concept of PCB to examine its association with organizational justice and project success.

Project Success

As stated earlier, project success has been addressed widely in the academic literature and consequently, there is a broad diversity of views on what constitutes project success. The only overarching agreement is that project success has moved on from simply considering the iron triangle of cost, time and quality to a more holistic view of success which incorporates different perspectives (Pollack et al., 2018). However, this has led to a situation where there is the danger of "comparing apples and oranges discussing project success" (Albert et al., 2017, p.797) due to a lack of commonly agreed success criteria. It has been recognized that project success or failure might depend on the individual stakeholders' interpretation of the success criteria (Davis, 2018) which indicates that a more nuanced view is required. Albert et al. (2017) concluded from a comprehensive literature review that a differentiation between hard and soft criteria is necessary with hard criteria being aspects such as cost, time, performance, quality and economic success and soft criteria representing different stakeholder perspectives. For this study we determined that the aspects of time, cost, performance, client use, satisfaction and effectiveness are suitable criteria to define project success following Aga et al. (2016). Effectiveness in this context is defined as the

extent to which a project meets its objectives. These criteria represent a mix of hard (time, cost, performance) and soft aspects (client use, satisfaction, effectiveness), which are captured according to the stakeholders' perception, and therefore allow for the integration of different stakeholder perspectives (Aga et al., 2016). This follows the recommendations by Albert et al. (2017) and Davis (2018) and will allow us a nuanced assessment of project success.

Hypotheses

Findings from previous studies suggest that organizational justice positively impacts various facets of performance and success: Mahajan and Benson (2013) found that organizational justice positively impacts on firm success, Swalhi et al. (2017) demonstrate an association of organizational justice and job performance and Unterhitzenberger and Bryde (2019) showed some relationship with project performance. Hence, a general positive association between the overall concept of organizational justice and project success can be assumed. However, the more nuanced relationships with different organizational justice dimensions remain to be better understood. A number of studies have established that procedural justice impacts task performance of individuals and the importance of procedural justice in the context of performance has been widely accepted (Zapata-Phelan et al., 2009; Colquitt, J. et al., 2001; Cohen-Charash and Spector, 2001). On the other hand, the association between distributive justice and job performance is less clear as some studies have found support for it (Skarlicki and Folger, 1997; Cohen-Charash and Spector, 2001) whereas others failed to do so (Swalhi et al., 2017). The picture is similarly contradicting for the association between interpersonal justice and task performance as some studies found significant support for the relationship (Cropanzano et al., 2002; Rupp and Cropanzano, 2002) whereas others didn't (Colquitt, J.A. et al., 2006; Zapata-Phelan et al., 2009). Informational justice has only rarely

been investigated in relation to performance (Schumacher et al., 2020), however the combined dimension of interactional justice (interpersonal and informational justice) has shown promising support for a positive relationship with task performance (Zapata-Phelan et al., 2009). This shows that whilst various studies have consistently found support for the overall relationship between organizational justice and performance (Unterhitzenberger and Bryde, 2019; Mahajan and Benson, 2013; Swalhi et al., 2017), the impact of the individual dimensions is less clear. Therefore, we argue that the relationships between the individual dimensions and project success need to be investigated and clarified. Based on the overall positive impact of organizational justice on performance, we assume that this support is also present through the individual dimensions. This assumption is grounded in the supportive findings outlined above which provide us with sufficient theoretical underpinning to investigate these relationships in more detail. We therefore hypothesize that the individual dimensions of organizational justice significantly and positively affect project success:

H1a: Distributive justice positively impacts project success.

H1b: Procedural justice positively impacts project success.

H1c: Interpersonal justice positively impacts project success.

H1d: Informational justice positively impacts project success.

We have outlined above that organizational justice is one of OCB's strong predictors (Fassina et al., 2008). The meta-analysis by Colquitt et al. (2013) examined 493 independent samples and identified a positive association between each dimension of organizational justice and OCB (r = uncorrected population correlation; r_c = corrected population correlation): interpersonal justice (r = .32; r_c = .43), informational justice (r = .30; r_c = .42), procedural justice (r = .23; r_c =

.30), and distributive justice (r = .17; r_c = .21). This provides strong support to hypothesize a positive association between the different organizational justice dimensions and OCB, however we do not know if this relationship holds true in the project context. This is especially the case, as OCB cannot simply be transferred to the project context, but needs to be adapted and is characterized by four unique dimensions (Braun et al., 2012). Whilst Lim and Loosemore (2017) attempt to investigate this relationship, they do not consider the project context sufficiently and simply use traditional OCB definitions, which is inappropriate according to Braun et al. (2012). Therefore, we see the need to investigate this relationship in the project context. Utilizing the rationale of SET we assume that individuals who are treated fairly in projects (based on the four dimensions of organizational justice) will engage in reciprocal transactions by putting extra effort into their work and going beyond contractual duties (Fassina et al., 2008). Based on this evidence, we propose that the organizational justice dimensions are positively linked with PCB**:**

H2a: Distributive justice positively impacts PCB.

H2b: Procedural justice positively impacts PCB.

H2c: Interpersonal justice positively impacts PCB.

H2d: Informational justice positively impacts PCB.

OCB has been recognized as being critical to the survival of organizations (Fassina et al., 2008) and leading to sustainable organizational effectiveness, for instance high productivity, improved coordination, high performance, enhanced capability to respond to the changes in environment and so on (Podsakoff et al., 2000). Additionally, it has been found that it increases an individual's task performance (Allen and Rush, 1998) as well as the performance of work groups (Podsakoff et al., 1997). This linkage has also been examined in the project setting and a recent

research carried out by Wang et al. (2018) established the positive effect of OCB on the performance of megaprojects. This suggests that there is evidence for a link between OCB and different aspects of performance. In line with this, PCB has demonstrated its impact on the effectiveness of projects by predicting success criteria such as the iron triangle (Braun et al., 2013) or the achievement of project objectives (Ferreira et al., 2013). Hence, we have established that the different organizational justice dimensions are some of the most robust predictors of OCB (Fassina et al., 2008; Colquitt et al., 2013) and that OCB impacts on different aspects of performance (Podsakoff et al., 2000). Following this, one may expect that PCB can help to clarify the nature of the linkage between the different organizational justice dimensions and success in the project context. Thus, we hypothesize that the demonstration of citizenship behavior by project team members due to perceived organizational justice supports the achievement of project success:

H3a: The relationship between distributive justice and project success is mediated by PCB.

H3b: The relationship between procedural justice and project success is mediated by PCB.

H3c: The relationship between interpersonal justice and project success is mediated by PCB.

H3d: The relationship between informational justice and project success is mediated by PCB.

We have illustrated the hypothesized relationships in Figure 1.

In addition to the hypotheses, we control for potentially confounding variables that we need to account for, but which do not drive our theory (Spector and Brannick, 2011). Our control variables are focused on demographic characteristics of the participants and include gender, marital status, age, position and experience. These are variables which could potentially have an influence on the relationship between the dependent and independent variables, but which are not the focus of our study.

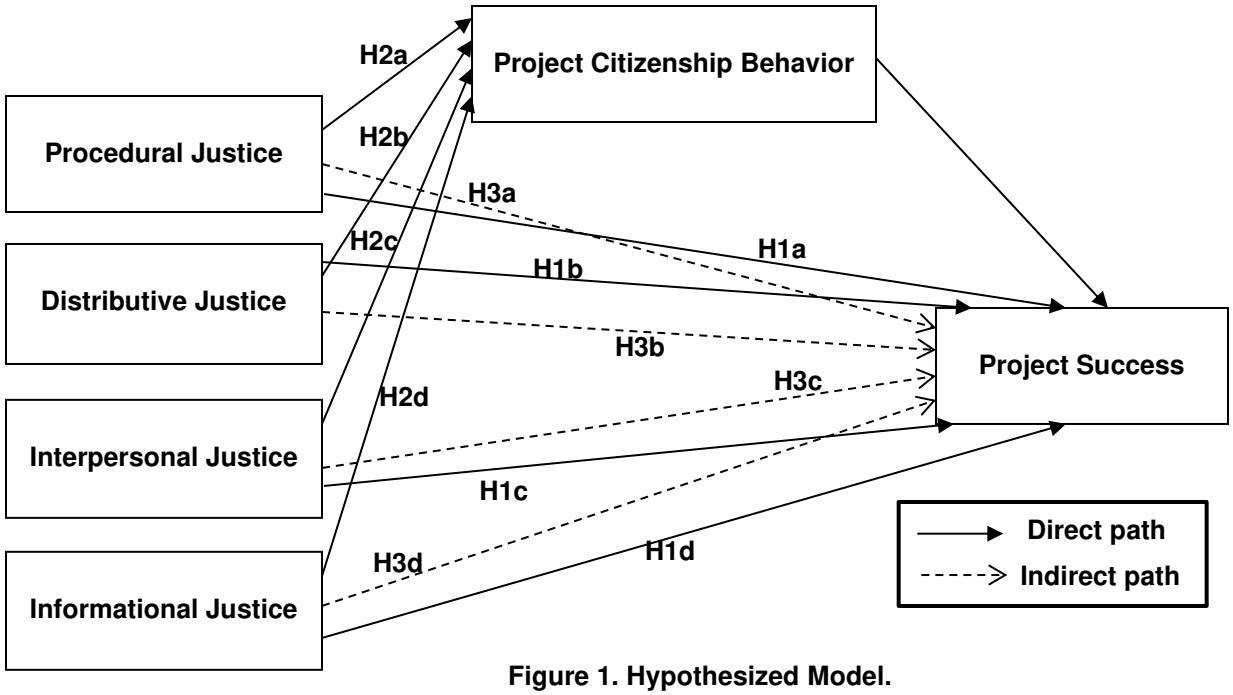

Figure 1. Hypothesized Model.

Methodology

Population, Sampling and Data Collection

The research design of our present study was quantitative in nature adopting a positivist research philosophy with a deductive approach. This allowed us to remain neutral and independent during the investigation whilst using a large sample to test hypotheses developed from existing theories (Saunders et al., 2019). The participants in our study had to fulfill the following criteria: 1) experience of at least one year of working in or leading projects and 2) worked in or led at least one completed project with knowledge about the results of that project. A convenient sampling technique was used. They belong to various sectors such as engineering and construction, healthcare, education and I.T. Access to the participants was gained through professional contacts of the study authors. Respondents participated voluntarily in the survey and their informed consent was obtained. All respondents were assured of the data confidentiality and anonymity.

A time-lagged self-reported questionnaire was used to collect data which was administered in three waves. The independent variables i.e. all dimensions of organizational justice were collected in Time 1, mediating variable i.e. project citizenship behavior was collected in Time 2 and dependent variable i.e. project success was collected at Time 3. Each of the time intervals was three weeks apart. The purpose of time lags was to overcome common method bias and self-serving bias issues (Podsakoff et al., 2003). Codes were assigned to respondents in order to maintain their privacy and for the purpose of matching the responses of same respondents from T1, T2 and T3. This helped to contact the same respondents with their consent in T2 & T3 accordingly.

At T1, we received 363 usable responses out of the 400 questionnaires we distributed (response rate 91%). At T2, questionnaires were sent to those respondents only, who responded in T1, and 314 usable questionnaires were returned (response rate 87%). At T3, the same process was followed with a total of 233 usable questionnaires returned, which were then considered for statistical analysis (response rate 58%). There were 82.4% male respondents and 17.6% females. Most of the respondents (93.6%) were aged between 18-40. 43.8% of our respondents were single and 56.2% were married. Nearly half the participants worked in a managerial position (49.8 %). 54.5% of the respondents had 1-5 years of experience, 27.5% ranging between 6-10, 16.7% between 11-20 years and only 1.3% between 21-30 years. None of the respondents had +30 years' experience.

Measures

A 5-point Likert scale was used to assess responses for all variables, where 1 refers to strongly disagree and 5 refers to strongly agree. The detailed items with identifiers are presented in Appendix 1, whereas an overview of the measures and sample items are provided below:

Organizational Justice

To measure Organizational Justice the 20-item scale developed by Colquitt (2001) was used. It utilizes the four-dimensional construct measuring distributive, procedural, interpersonal and informational justice:

Procedural Justice

Procedural justice was measured using a seven-item scale. One sample item was "Have you been able to express your views and feelings during those procedures?" The Cronbach's alpha of the instrument was .713.

Distributive Justice

A four-item scale was adopted to measure distributive justice. One item of this scale was "Does your (outcome) reflect the effort you have put into your work?" The Cronbach's alpha of distributive justice was .643.

Interpersonal Justice

Interpersonal justice was measured using a four-item scale. One item of this scale was "Has (he/she) treated you in a polite manner?". The Cronbach's alpha of the instrument was .578.

Informational Justice

Informational justice was measured using a five-item scale. One sample item was "Has (he/she) been candid in (his/her) communications with you?" The Cronbach's alpha of the scale was .805**.**

Project Citizenship Behavior

To measure project citizenship behavior, the 16-item scale developed by Braun et al. (2013) was used. One sample item was "I have made innovative suggestions to improve the project work". The alpha reliability of the scale was .790.

Project Success

For measuring project success, the 12-item scale developed by Aga et al. (2016) was used. One sample item was "The project was completed on time". The Cronbach's alpha of the instrument was .898.

Data Analysis

Structural equation modelling (SEM) is a statistical analysis method which is commonly used to test structural relationships by combining factor analysis and multiple regression analysis. According to Kline (2011), SEM is used to specify, identify, estimate, test and modify a measurement and structural model. Thus, in the present study we used the partial least squares (PLS) method (Hair et al., 2011) to perform confirmatory factor analysis (CFA) through SmartPLS 3.0 to verify the fitness of our model with the data. For the structural model the direct and indirect effect was determined through Process Macro presented by Hayes (2013). The analysis was done by using the model 4 from the manual provided by Hayes (2013) as it is the classical model of mediation.

Results

Control Variables

One Way ANOVA was performed to explore the impact of the control variables. Table 1 depicts that there is a significant difference caused in project success across marital status of respondents ($f = 3.59$, $p<.05$) therefore, marital status was controlled for in the regression analysis. We currently do not know for certain, why marital status caused this significant difference. One

reason might be that priorities and commitment to the job change after marriage, but this needs to be explored in more depth in a separate study. It was also found that there was no significant difference in project success across other demographics of respondents i.e. gender, age, position and experience.

Table 1: One Way ANOVA

Demographics	Project Success	
	F value	p value
Gender	2.230	.137
Marital Status	3.921	.049
Age	0.433	.649
Position	0.386	.535
Experience	1.382	.249

Descriptive Statistics and Correlation

The mean values, standard deviations (SD) and correlation analysis are presented in Table 2. It indicates that distributive justice ($r = .520$, $p < .001$), procedural justice ($r = .553$, $p < .001$), interpersonal justice ($r = .554$, $p < .001$) and informational justice ($r = .627$, $p < .001$) are positively associated with project success thus, giving preliminary support to our hypotheses. It furthermore shows that project citizenship behavior is positively associated with project success ($r = .517$, $p < .001$). Since all the correlation coefficient values (r) lie within the range of .3 to .7 there is no problem of multicollinearity in our data.

Table 2: Descriptive Statistics and Correlation Analysis

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Gender	1.176	.381	_										
2.MStatus	1.562	.497	.022	_									

3. Age	1.858	.501	-.027	.407**	_								
4. Position	1.502	.501	.347**	-.014	.044	_							
5. Exp	1.648	.802	.105	.293**	.444**	.098	_						
6. DJ	3.438	.552	-.087	-.106	-.024	-.048	.024	(.643)					
7. PJ	3.184	.554	-.102	-.117	.010	.017	-.032	.587**	(.713)				
8. INTJ	3.393	.605	-.177**	-.032	-.081	.094	-.063	.424**	.627**	(.578)			
9. INFJ	3.502	.515	.031	-.090	-.014	.031	-.017	.279**	.377**	.378**	(.805)		
10. PCB	3.440	.439	-.033	-.083	.068	-.039	-.001	.474**	.569**	.361**	.432**	(.790)	
11. PS	3.676	.570	-.098	-.129*	-.058	.041	-.046	.520**	.553**	.554**	.627**	.517**	(.898)

N= 233. *p < .05; **p < .01. Gender (1 = Male, 2 = Female); MStatus = Marital status (1 = Single, 2 = Married); Age (1 = 18 – 25 years, 2 = 26 – 40 years, 3 = 41 – 60 years, 4 = 61 years and above); Position (1 = Managerial, 2 = Non-Managerial); Exp = Experience (1 = 1 – 5 years, 2 = 6 – 10 years, 3 = 11 - 20 years, 4 = 21 – 30 years, 5 = 31 years and above). DJ= Distributive Justice; PJ= Procedural Justice; INTJ= Interpersonal Justice; INFJ= Informational Justice; PCB= Project Citizenship Behavior; PS= Project Success. Alpha reliabilities are presented in brackets.

Tests of the Measurement Model

To justify the measurement model, confirmatory factor analysis (CFA) was performed (Anderson & Gerbing, 1988) which consisted of six latent variables: distributive justice (DJ), procedural justice (PJ), interpersonal justice (INTJ), informational justice (INFJ), project citizenship behavior (PCB) and project success (PS). As per the results of the measurement model (1st level) all the indicators with factor loadings < .5 were dropped including one item of interpersonal justice (INTJ2), seven items of project citizenship behavior (PCB6, PCB7, PCB8, PCB9, PCB10, PCB11, PCB12) and one item of project success (PS6) because the elimination of these items improved the validity of our measurement model (Hair et al., 2011). Figure 2 shows the measurement model (2nd level) after removal of the items. We would like to note that PCB14,

for which the outer loading was slightly lower than .5, was included because that the validity of the measurement model was not compromised and the item loading was very close to .5.

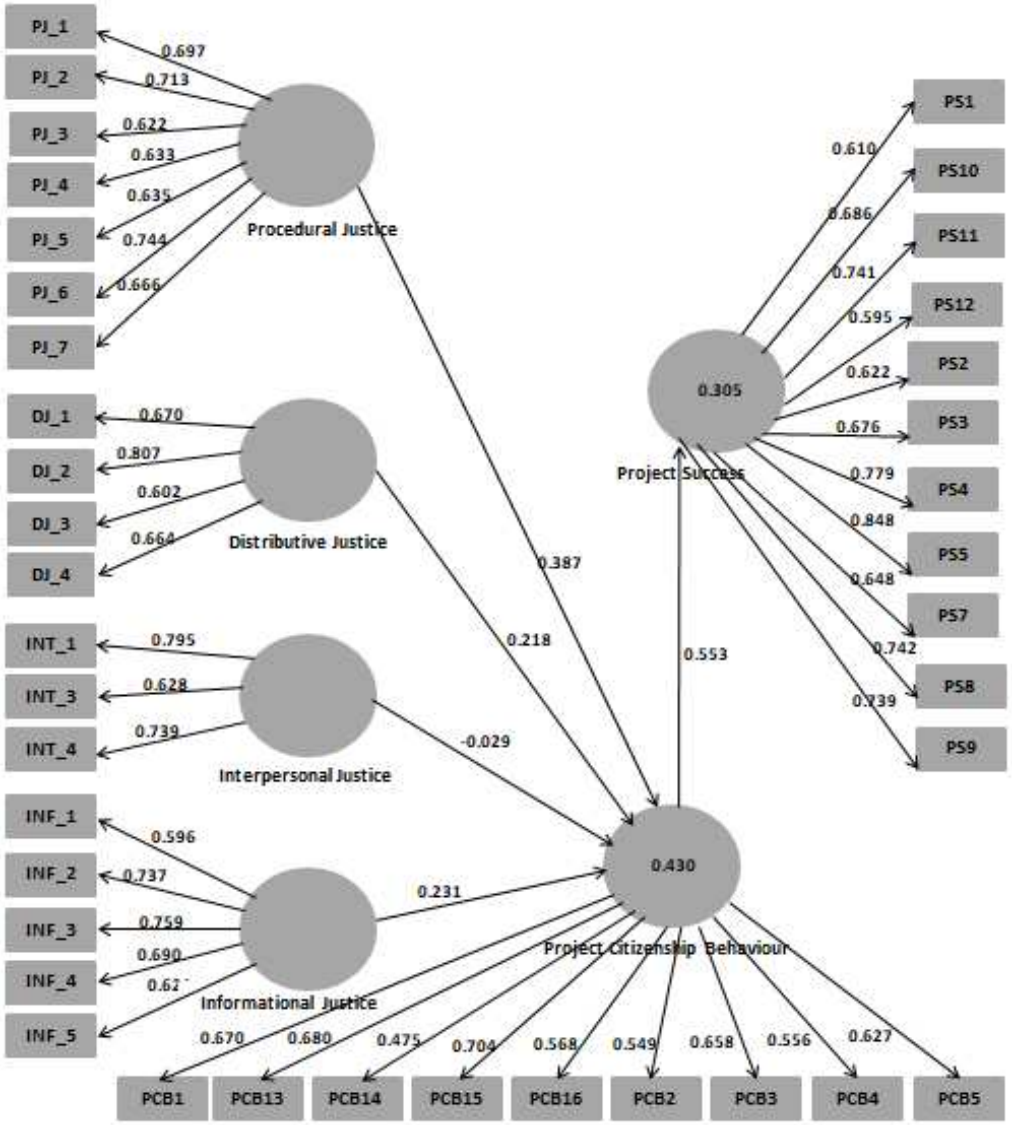

Figure 2. Measurement Model (2nd Level)

Table 3: Measurement Model (Estimates)

Construct	Item	Loading	Cronbach Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Distributive Justice	DJ1	0.670	0.643	0.782	0.476
	DJ2	0.807			
	DJ3	0.602			
	DJ4	0.664			

	DJ2	0.807			
Informational Justice	INFJ1	0.596	0.805	0.856	0.460
	INFJ2	0.737			
	INFJ3	0.759			
	INFJ4	0.680			
	INFJ5	0.621			
Interpersonal Justice	INTJ1	0.795	0.578	0.766	0.524
	INTJ3	0.628			
	INTJ4	0.739			
Procedural Justice	PJ1	0.697	0.713	0.811	0.464
	PJ2	0.713			
	PJ3	0.622			
	PJ4	0.663			
	PJ5	0.635			
	PJ6	0.744			
	PJ7	0.666			
Project Citizenship Behavior	PCB1	0.670	0.790	0.843	0.377
	PCB2	0.549			
	PCB3	0.658			
	PCB4	0.556			
	PCB5	0.627			
	PCB13	0.680			
	PCB14	0.475			
	PCB15	0.704			
	PCB16	0.568			
Project Success	PS1	0.610	0.898	0.914	0.495
	PS2	0.622			
	PS3	0.676			
	PS4	0.779			
	PS5	0.848			
	PS7	0.648			
	PS8	0.742			
	PS9	0.739			
	PS10	0.696			
	PS11	0.741			
	PS12	0.595			

The convergent validity was assessed through internal consistency, CR and AVE. For an adequate convergent validity of the scale, a minimum threshold of AVE is .50. However, convergent validity will be sufficient to measure any concept with an AVE < .50 if the composite reliability is > .60 (Fornell & Larcker, 1981). Thus, convergent validity is established according to the results reported in Table 3. After verification of the convergent validity, the discriminant

validity was evaluated. Discriminant validity determines whether a construct is distinct from other constructs by empirical standards, hence if it is not highly correlated with other constructs. Table 4 indicates that the values on the diagonal exceed all the preceding values in rows and columns of the matrix. That means that the square root of each construct's AVE is greater than its correlation with other constructs thus, it suggests that discriminant validity is established (Hair, J. et al., 2011).

Table 4: Discriminant Validity

Constructs	DJ	INFJ	INTJ	PJ	PCB	PS
DJ	0.690					
INFJ	0.310	0.682				
INTJ	0.444	0.445	0.724			
PJ	0.602	0.389	0.610	0.678		
PCB	0.511	0.437	0.408	0.591	0.614	
PS	0.522	0.637	0.598	0.566	0.553	0.704

DJ= Distributive Justice; PJ= Procedural Justice; INTJ= Interpersonal Justice; INFJ= Informational Justice; PCB= Project Citizenship Behavior; PS= Project Success

Hypothesis Testing

We used the process macro by Hayes (2013) to determine the direct and indirect effects. Table 5 shows that distributive justice positively impacts project success ($\beta = .529$, $p < .001$) and project citizenship behavior ($\beta = .375$, $p < .001$) thus, H1a and H2a are supported. Moreover, the indirect effect (.169) of project citizenship behavior between distributive justice and project

success is significant with 95% confidence interval. Project citizenship behavior partially mediates the relationship between distributive justice and project success, thus, H3a is supported.

Table 5: Results of Direct and Indirect Effects between Distributive justice, Project Citizenship Behavior and Project Success

Predictors	β	SE	T	p
DJ ⟶ PS	.529	.058	9.077	.000
DJ ⟶ PCB	.375	.046	8.068	.000
PCB ⟶ PS	.449	.077	5.808	.000
DJ ⟶ PCB ⟶ PS	.360	.062	5.837	.000
	Indirect	LL 95% CI	UL 95% CI	
Bootstrap results for indirect effect	effect			
	.169	.064	.294	

DJ= Distributive Justice; PCB= Project Citizenship Behavior; PS= Project Success. Un-standardized regression coefficients reported. Bootstrap sample size 5000. LL=Lower Limit; CI= Confidence Interval, UL=Upper Limit.

Table 6 depicts that procedural justice positively impacts project success (β = .561, p< .001) and project citizenship behavior (β = .449, p< .001) thus, H1b and H2b are supported. Moreover, Table 6 indicates the significant indirect effect (.174) of project citizenship behavior between procedural justice and project success with a 95% confidence interval. Project citizenship behavior partially mediates the relationship between procedural justice and project success, therefore, H3b is supported.

Table 6: Results of Direct and Indirect Effects between Procedural justice, Project Citizenship Behavior and Project Success

Predictors	β	SE	T	P
PJ ⟶ PS	.561	.057	9.897	.000
PJ ⟶ PCB	.449	.043	10.395	.000
PCB ⟶ PS	.386	.083	4.669	.000
PJ ⟶ PCB ⟶ PS	.387	.066	5.885	.000

	Indirect effect	LL 95% CI	UL 95% CI
Bootstrap results for indirect effect	.174	.069	.288

PJ= Procedural Justice; PCB= Project Citizenship Behavior; PS= Project Success. Un-standardized regression coefficients reported. Bootstrap sample size 5000. LL=Lower Limit; CI= Confidence Interval, UL=Upper Limit.

Table 7 indicates that interpersonal justice positively impacts project success ($\beta = .519$, $p < .001$) and project citizenship behavior ($\beta = .260$, $p < .001$) thus, H1c and H2c are supported. In addition, Table 7 shows that the indirect effect (.121) of project citizenship behavior between interpersonal justice and project success is significant with a 95% confidence interval. Project citizenship behavior partially mediates the relationship between interpersonal justice and project success, hence, H3c is supported.

Table 7: Results of Direct and Indirect Effects between Interpersonal Justice, Project Citizenship Behavior and Project Success

Predictors	β	SE	T	P
INTJ ⟶ PS	.519	.051	10.123	.000
INTJ ⟶ PCB	.260	.045	5.840	.000

PCB ⟶ PS	.464	.069	6.672	.000
INTJ ⟶ PCB ⟶ PS	.398	.050	7.904	.000

	Indirect effect	LL 95% CI	UL 95% CI
Bootstrap results for indirect effect	.121	.039	.213

INTJ= Interpersonal Justice; PCB= Project Citizenship Behavior; PS= Project Success. Un-standardized regression coefficients reported. Bootstrap sample size 5000. LL=Lower Limit; CI= Confidence Interval, UL=Upper Limit.

Table 8: Results of Direct and Indirect Effects between Informational justice, Project Citizenship Behavior and Project Success

Predictors	**β**	**SE**	**T**	**P**
INFJ ⟶ PS	.685	.057	12.072	.000
INFJ ⟶ PCB	.365	.051	7.182	.000
PCB ⟶ PS	.389	.069	5.618	.000
INFJ ⟶ PCB ⟶ PS	.543	.059	9.208	.000

	Indirect effect	LL 95% CI	UL 95% CI
Bootstrap results for indirect effect	.142	.060	.214

INFJ= Informational Justice; PCB= Project Citizenship Behavior; PS= Project Success. Un-standardized regression coefficients reported. Bootstrap sample size 5000. LL=Lower Limit; CI= Confidence Interval, UL=Upper Limit.

Table 8 depicts that informational justice positively impacts project success ($\beta = .685$, $p < .001$) and project citizenship behavior ($\beta = .365$, $p < .001$), thus, H1d and H2d are supported. Moreover, Table 8 demonstrates the significant indirect effect (.142) of project citizenship behavior between informational justice and project success with a 95% confidence interval. Project

citizenship behavior partially mediates the relationship between informational justice and project success, thus, H3d is supported.

Discussion

The present study provides new insights into how the four organizational justice dimensions impact project success through mediation of project citizenship behavior (PCB). The results of our research supported all the hypothesized relationships, and we will discuss them in more detail below to develop an enhanced understanding of the underlying mechanisms. Altogether, these findings improve our understanding of the importance of organizational justice and PCB and their contribution to project success.

Firstly, we found evidence that all four organizational justice dimensions i.e. distributive, procedural, interpersonal and informational justice are positively associated with project success (supporting hypotheses 1a, 1b, 1c and 1d). Interestingly, all four dimensions have about the same impact with informational justice showing a slightly stronger relationship than the other dimensions. Unterhitzenberger and Bryde (2019) found that procedural justice was the most influential factor, with distributive and interactional justice having a significantly weaker impact. Despite the differences in the strength of relationships the findings of our study confirm Unterhitzenberger and Bryde (2019) findings that all organizational justice dimensions demonstrate a positive association with project success. This suggests that the implementation of fair principles and processes throughout the project and across different aspects is critical. Making decisions about the distribution of resources should be guided by the principles of need, equity and equality to align with justice rules (Colquitt, J. and Shaw, 2005) in order to encourage project team members to reciprocate the behavior and engage in the social exchange of beneficial actions

(Cropanzano et al., 2017). The implementation of fair procedures and principles by the project manager strongly influence the project success because the project team members then use fairness perceptions as heuristic to evaluate if they can swiftly trust the management (Proudfoot and Lind, 2015) and the quality of their relationship with the project manager is strengthened when they perceive that the project related decisions are taken in a reliable and transparent manner (Colquitt et al., 2001).

Our study also reveals that the treatment of and communication with the project team members is significant in regard to its impact on project success. When project team members are treated with politeness, dignity and respect following interpersonal justice rules they reciprocate to uphold their ethical beliefs by delivering project tasks effectively (Bies, 2015; Cheung, 2013). Similarly, when the project team members are provided with reasonable justifications for decisions and when the communication of these decisions happens in a truthful way, they develop a strong identity with the project. Thus, they respond by performing high and contributing to project success due to perceived informational justice. This is also the dimension we have found to be most influential which suggests that a truthful and justified sharing of information is very important for project team members. This is unique to the project context and might be grounded in the fact that projects are often characterized by a high degree of uncertainty and that truthful and justified communication reduces this uncertainty for project team members who subsequently use this information to make more informed decisions to the benefit of the project.

Overall, this suggests that the basic principles of organizational justice are applicable in the project context and that despite the context sensitivity of the concept significant benefits can be realized in the projects (Colquitt, J. and Jackson, 2006). It also highlights the relevance of social exchange theory (Cropanzano and Mitchell, 2005; Cropanzano et al., 2017) as a theoretical lens

as it demonstrates that actions by the project manager in terms of fair treatment create reciprocal actions by the project team members which subsequently contribute to enhance project success. We therefore advocate that all four dimensions of organizational justice are crucial and should be present to facilitate project success. Thus, it is the responsibility of project managers and/or sponsors to make sure that all aspects of organizational justice are addressed throughout the life cycle of a project. This ranges from appropriate governance arrangements to realistic planning assumptions to day-to-day communications. At this stage it is not about defining specific tasks for the sponsor and the project manager, it is rather about raising awareness of justice rules and adopting these rules as underlying principles of all action throughout the project (Colquitt, J. and Shaw, 2005)

Secondly, and perhaps most importantly we demonstrated that all four organizational justice dimensions i.e. distributive, procedural, interpersonal and informational justice are positively associated with project citizenship behavior (supporting hypotheses 2a, 2b, 2c and 2d). This illustrates that the association between organizational justice and OCB is not only significant in permanent organizations (Fassina et al., 2008; Jafari and Bidarian, 2012), but that organizational justice is also a predictor of PCB in the context of temporary organizations. This is an important new finding as PCB is related to, but not identical with OCB (Braun et al., 2012; Braun et al., 2013). Furthermore, unlike Lim and Loosemore (2017), who utilized traditional OCB measures in the project context, our study made use of the adapted and context adjusted PCB measures. Through this we are able to establish that the use of context-specific measures matter as Lim and Loosemore (2017) only found a significant association between interpersonal justice and OCB, but not with any of the other dimensions which contradicts broadly accepted knowledge (Fassina et al., 2008). Our study however was able to demonstrate that organizational justice is indeed a

predictor of OCB in the project context, i.e. PCB, if the appropriate measures are utilized. This is due to the fact that OCB measures do not actually account for the context specific characteristics of projects and hence, consider aspects such as general helping behavior, organizational loyalty or organizational compliance, which do not appear to be impacted by justice perceptions in the project as they are related to the permanent organization the project team member is working for. In contrast to this, PCB measures such as project-specific helping behavior, project loyalty and project compliance directly relate to the temporary organization and hence, are impacted by justice perceptions in the project.

We also found that PCB mediates the relationship of all four organizational justice dimensions with project success (supporting hypotheses 3a, 3b, 3c and 3d). Despite the fact that there is strong theoretical underpinning for these hypothesized relationships, this is the first study that explicitly examined how PCB mediates the relationship between organizational justice dimensions and project success. Previous studies have proven that organizational justice is a robust predictor of OCB and OCB has also been recognized as a survival factor for organizations (Fassina et al., 2008; Colquitt et al., 2013; Jafari and Bidarian, 2012), but we are the first to establish this relationship in the project context. Having established that all four organizational justice dimensions have a positive impact on project success, we are able to explain this relationship through the mediation of PCB. PCB is the extra-role behavior that project team members demonstrate voluntarily in an inter-organizational project environment, i.e. across the boundaries of permanent organizations (Braun et al., 2012). Our findings determine that PCB is encouraged by the implementation of fair processes and principles in projects as is OCB in permanent organizations. Through its adapted dimensions of project-specific helping behavior, project loyalty, project compliance and project-specific proactive behavior it encourages individuals to go

the extra mile, be more effective and productive (Basu et al., 2017) and subsequently facilitates project success.

Thus, we have contributed to existing literature by providing insights on how project citizenship behavior influences project success along with implications for project leaders and project managers to encourage project team members to go the extra mile or beyond the formal obligations for effective project delivery.

Implications

Theoretical Implications

From a theoretical perspective our study makes three contributions to the literature: Firstly, we establish that the four-dimensional organizational justice construct significantly impacts project success and that the implementation of fair processes and principles in the project context facilitates project success. By doing so we contribute to the literature on project success through strengthening the support for psychosocial relationships as success factors. Secondly, we demonstrate that organizational justice is a reliable predictor of extra-role behavior in the project context if the appropriate project-related measures are used. This is an important finding as it aligns the findings in regard to the linkage of organizational justice and OCB from the project literature with the literature on permanent organizations. Through this we contribute to the literature on project behavior and respond to the call for more integration of organizational behavior aspects into project studies (Unterhitzenberger and Müller, 2020). And thirdly, we are able to partly explain the impact of organizational justice on project success through PCB. This is relevant as it highlights the significance of the voluntary behavior of project team members that goes beyond

their contractual duties. And again, we contribute to the literature on project behavior by further establishing the need for dedicated concepts such as PCB to be explored and utilized.

Practical Implications

Findings of this study also provide some valuable managerial implications that can potentially alter the ways in which projects are being managed currently. In order to enhance project success, this study gives a different perspective to the present approaches of project management. The present study highlights new areas of responsibility for project sponsors and/or project managers as they should be familiar with the significance of justice rules, processes and decisions in projects due to their significant impact on success of project. The project managers need to take fairness into account throughout the project life cycle. Some practical actions can be taken in initial phases of the project for instance the design of fair procedures and principles for decision making, the fair distribution of resources among participants based on need, equity and equality, the truthful and justified sharing of sufficient information with project participants and the communication of these procedures to participants with respect and dignity. Our findings suggest that along with the implementation of organizational justice the project managers should also encourage project team members to exhibit project citizenship behavior for effective execution of project tasks. Rewards either intrinsic i.e. job autonomy, growth or extrinsic such as salary raise, bonus, allowances etc. should be given to those project team members who show extra role behavior during the course of project delivery. In particular, the findings of our study can be used to highlight the importance of establishing and practicing fair and impartial practices during the execution of any project.

Limitations and Future Directions

Along with the fruitful insights, the study has a few limitations that should be addressed in future research. First, self-reported measures were used for data collection and therefore, common method bias cannot be ruled out. Future researchers should move toward the use of multisource data collection through dyadic relationships in projects between project team members and project managers. Second, we collected data from employees working on projects situated in Islamabad, Pakistan. So, there are limitations to the generalizability beyond the specific cultural context. Various cultures have different interpretations and perceptions about organizational justice, consequently, the findings may only be applicable in the Pakistani context. Future studies must be carried out in other cultures, for instance Middle East, Asia or Europe to further look at the impact of cultural variations on the linkage between organizational justice, project citizenship behavior and project success.

Conclusion

Despite the extensive deliberations in project management literature, there is a lack of scientific research focusing on psychosocial factors in project-based organizations and their impact on project success except few promising attempts. Thus, our study contributes to body of knowledge by providing evidence that all four dimensions of organizational justice have a significant impact on project success both directly and through mediation of project citizenship behavior (PCB). Altogether, these findings enhance our understanding of the importance of organizational justice and PCB and their contribution to project success. Findings of our study provide valuable managerial implications for project leaders and project managers by advocating that project team member's perceptions about all four dimensions of organizational justice

(distribution of resources, enactment of procedures, polite treatment and candid communication) are crucial and should not be ignored throughout the life cycle of a project to facilitate project success. Findings also suggest that project leaders and project managers should provide an environment that encourages project team members to go the extra mile or beyond the formal obligations through fair treatment in order to enhance the likelihood of effective project delivery.

Appendix 1 - List of Items Used For Each Construct

Construct	Items
	Organizational Justice (by Colquitt (2001))
PJ1	Have you been able to express your views and feelings during those procedures?
PJ2	Have you had influence over the (outcome) arrived at by those procedures?
PJ3	Have those procedures been applied consistently?
PJ4	Have those procedures been free of bias?
PJ5	Have those procedures been based on accurate information?
PJ6	Have you been able to appeal the (outcome) arrived at by those procedures?
PJ7	Have those procedures upheld ethical and moral standards?
DJ1	Have your (outcome) reflected the effort you have put into your work?
DJ2	Was your (outcome) appropriate for the work you have completed?
DJ3	Have your (outcome) reflected what you have contributed to the organization?
DJ4	Was your (outcome) justified, given your performance?
INTJ1	Has (he/she) treated you in a polite manner?
INTJ2	Has (he/she) treated you with dignity?
INTJ3	Has (he/she) treated you with respect?
INTJ4	Has (he/she) refrained from improper remarks or comments?
INFJ1	Has (he/she) been candid in (his/her) communications with you?
INFJ2	Has (he/she) explained the procedures thoroughly?
INFJ3	Were (his/her) explanations regarding the procedures reasonable?
INFJ4	Has (he/she) communicated details in a timely manner?
INFJ5	Has (he/she) seemed to tailor (his/her) communications to individuals' specific needs?
	Project Citizenship Behavior (by Braun et al (2013))
PCB1	I have made innovative suggestions to improve the project work.
PCB2	I have outlined chances and potentials that could arise in the course of the project.
PCB3	I have proposed my own ideas and suggestions in the operative project work, even when it was not explicitly requested.
PCB4	I have kept informed about developments within the project, also outside my field of duty.
PCB5	I have followed strictly the rules and instructions that applied to the project
PCB6	I have strictly complied with the rules which that were set during the kick off meeting
PCB7	I have conformed to all contractual obligations I had in the project with great care
PCB8	I have immediately informed the respective supervisor, if I could not meet deadlines
PCB9	I have made the necessary improvements, if the critique of my performance was justified
PCB10	I have defended the project when it was criticized from the outside
PCB11	I have been strongly committed to the project
PCB12	I have described the project positively, if someone outside asked me
PCB13	I have done everything necessary so that the project objectives were achieved.
PCB14	I have encouraged external project staff when they were distressed by the work
PCB15	I have offered the external project team members help if they needed it at some stage in the course of the project
PCB16	I have intervened and tried to balance interests when disputes in the project team occurred
	Project Success (by Aga et al (2016)
PS1	This project has come in on schedule
PS2	This project has come in on budget
PS3	The project that has been developed worked

PS4	The project has been used by its intended clients
PS5	This project has directly benefited the intended users through either increasing efficiency or employee effectiveness
PS6	Given the problem for which it was developed, it was the best choice among the set of alternatives
PS7	Important clients, directly affected by this project, had made use of it
PS8	I was satisfied with the process by which this project was completed
PS9	Non-technical startup problems were minimal, because the project was readily accepted by its intended users
PS10	Use of this project has lead directly to improved or more effective decision making or performance for the clients
PS11	This project had a positive impact on those who made use of it
PS12	The results of this project represented a definite improvement in performance over the way clients used to perform these activities

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