

Mediating Role of Perceived Organizational Support on the Relationship between Leader-Member Exchange and Innovative Work Behavior of R&D Employees: A Social Exchange Perspective

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Abstract

All executives in today's highly competitive business environment must demonstrate effective leadership skills. The leader-member exchange is one of the basic ingredients of leadership that can embody employee behaviors to exhibit innovative work behavior and perceived organizational support within organizations. The innovative work behavior depends on the supportive work environment and such organizational climates are perceived as being oriented towards creativity and innovation. The research findings signify that the relationship between leader-member exchange and innovative work behavior is mediated by perceived organizational support that serves as the main goal of this study. By applying a variety of statistical techniques including exploratory factor analysis and mediation effect analysis on a sample composed of 268 employees from a state-owned entity undertaking R&D projects, strong empirical support has been found for all the theory-driven hypothesized statements, including the mediating mechanism of perceived organizational support. This study is aimed to provide an important contribution to the existing literature by offering a profound description of how leadership characteristics of employee-centered supervisors affect the dispositional state of the employees and ultimately their roles in organizational sustainability. The results of the present study provide managers and employees with a mechanism in order to enable innovation at the workplace so that the organization can also succeed in tough competitive environments. This study provides insights into the dynamic structure of leader-member exchange in the behavioral and organizational context and it concludes by succeeding theoretical and practical implications for employees' innovative work behavior and suggesting directions for further empirical investigations.

Keywords: *Leader-Member Exchange, Innovative Work Behavior, Perceived Organizational Support, Research And Development Enterprise.*

Introduction

Over the last few decades, organizations especially those undertaken research and development activities have been investing to adapt to perpetual technological advancement. Research and development companies are driven by their research and development efforts as substantial sources of innovation. Research is conducted to enhance understanding about any topic or area of research to satisfy consumers' specific needs while development activities deal with the application of knowledge to manufacture useful materials, instruments, or machinery to meet rapidly changing market objectives (Schilling, 2017). Hence, organizations exert incredible efforts to ensure Innovative Work Behavior (IWB) of the employees by spending lots of time and financial resources (Martins & Terblanche, 2003).

The organizations particularly the supervisors have of necessity concentrated on its human sources who are the individuals gearing up for the success and sustainability of the organizations they are working in. Homans (1961) suggested that social interactions within the parties occur in two ways, known as social exchanges and economic exchanges. As opposed to economic exchanges, social exchanges happen between individuals when one acts in a way to benefit another with no particular obligation. Setton et al. (1996) and Wayne et al. (1997) argue that social exchanges are the foundation of high-quality relations built between the leaders and their employees. The Leader-Member Exchange (LMX) Theory was originally coined as the Vertical Dyad Linkage (VDL) theory (Dansereau et al., 1975). The scholars (Gerstner & Day, 1997; Krishnan, 2005 and UhlBien, 2006) suggest that high-quality relationships result in more positive leadership outcomes than those with low-quality.

The leadership behaviors displayed by supervisors have always been essential roles that make employees moving in the right direction to success. According to Gregory et al. (2010), when employees feel that the organization treats them fairly, the employees' tendency towards generating creative ideas and transforming their creativity into innovative outcomes increases. There are some scholars (Amabile et al., 2004; Atwater & Carmeli, 2009; Scott & Bruce, 1994; Shalley et al., 2004 and Zhou & George, 2003) that evidenced the association between LMX, creativity and IWB. On the other hand, De Jong and Den Hartog (2007) define IWB as a continual process instead of one-time voluntary action, in which employees are struggling to put their creative inputs into implementation by building organizational support. Thus, LMX as a fundamental approach to leadership is incredibly efficacious on employees in the development of dispositions such as IWB and Perceived Organizational Support (POS) along with their perceptions of confidence and support between the organizations they are working in.

Literature Review

Leader-Member Exchange (LMX)

The concept LMX was initially termed by Dansereau, Graen and Haga (1975), who developed the theory of LMX in contrast to the perspectives asserting that supervisors display similarly shaped attitudes with all of the workforces regardless of the type of relationships established between them. The LMX theory is grounded on the value of the relationship established between supervisor and employee (Liden, Sparrowe, & Wayne, 1997). Supervisors' relationships with their employees show differences depending on the exchanges prescribed in the employment agreement (Graen & Cashman, 1975; Graen & Scandura, 1987). Wayne, Shore and Liden (1997) suggest that the selected cohort has exclusive interaction with personnel, who are given a high degree of responsibility and can easily reach the resources. The reciprocal association between supervisor and the chosen staff yield employee-driven outcomes including employee engagement, enhanced performance, perceived organizational support and innovative work behavior, which is critical for the achievement of organizational objectives (Garg and Dhar, 2014). Thus employees display positive attitudes by putting significant efforts in favor of their supervisor and ultimately their organization (Garg & Dhar, 2017). LMX, which was initially developed as a single factor construct, is aimed to measure the quality of exchange association between supervisor and employee (Graen & Cashman, 1975; Graen & Scandura, 1987). As opposed to the conventional approach suggesting the unidimensionality of LMX, Liden and Maslyn (1998) have evolved the term LMX to comprehend four dimensions called *affect*, *loyalty*, *contribution* and *professional respect*. Liden and Maslyn (1998) have emphasized the importance of the incorporation of these dimensions into LMX based on the notion that these relationships change according to the grade of the exchange between supervisor and employee with varying forerunners and outcomes. *Affect* refers to the association based on friendly communication other than workplace relationships while *loyalty* is described as the activities in the constructive and helpful context given one organizational member to another and ultimately to the leader for the realization of other individuals' goals. *Contribution* refers to the portion of work operations completed by each employee as well as the degree to which employees exert effort for the achievement of their objectives. *Professional respect* is a type of relationship founded on mutual consideration and regard between each employee and leader in

intrapersonal and job-related context and it is nurtured with interpersonal esteem, commitment and communal liability (Srivastava & Dhar, 2016).

Perceived Organizational Support (POS)

POS occurs when employees believe that their contributions are valuable for the organization and the organization is considerate about the well-being (Eisenberger, Huntington, Hutchison, & Sowa, 1986). Latterly Hellman, Fuqua and Worley (2006) extended the definition of POS to comprise the aspects such as rewards, which are articulated as motivating factors for employees, as a result of their productivity and loyalty to the organization. Social Exchange Theory (SET) (Blau, 1964) and the personification process (Levison, 1965) can be implied as to the underlying approaches for POS. Through an organizational context, the term personification is culminated by the process of transference (Freud, 1912) in which employees reflect human attributes on organizations and personalize the organizations as the prominent characters in their lives (Levinson, 1965). In line with the Norm of Reciprocity (Gouldner, 1960), employees' relationship with their organization is heavily reliant upon the reciprocity defined as a social exchange in which employees' sense of the organization's engagement to them will thereby determine the degree to which employees commit to their organization (Shore and Tetrick, 1991). Shore and Wayne (1993) argue that employees' perceptions of organizational support result in their inclination to exchange by demonstrating effective job performance. Positive attitudes in connection with employees' perception of organizational support benefit organizations in the accomplishment of their goals (Eisenberger & Stinglhamber, 2011) by increasing creativity and innovative activities within the organization.

Innovative Work Behavior (IWB)

Schumpeterian economy perspective views innovation as an eminent source for a sustainable competitive edge and central for value creation for the firms (Schumpeter, 1934). Hence organizational innovativeness is regarded as a critical determinant in achieving the competitive advantage and renewing the strategies (Zhang & Bartol, 2010). Organizational innovation is viewed as the cultivation of innovative business strategies in an organization by affiliating these strategies with environmental, structural and managerial factors (Gopalakrishnan & Damapour, 1997; Gupta, Tesluk, & Taylor, 2007). Organizations experience challenges on how to determine policies allowing employees to deploy their creativity (Hisrich & Kearney, 2014). From an organizational setting, individuals' creativity and innovative activities in the firms are converted to innovation through the creative process which facilitates the generation and implementation of new and useful ideas. Amabile (1988) and Oldham and Cummings (1996) articulate creativity as the creation of new ideas for developing products, services, processes, operations, resources, capabilities, procedures and policies. In the literature, creativity is differentiated from IWB (West & Farr, 1990; Scott & Bruce, 1994) since scholars usually set the creativity as the initial pace for innovation and focus solely on innovation-oriented idea generation and implementation (Amabile, 1996; West, 2002). De Jong and Den Hartog (2007) define IWB as the generation and implementation of novel and useful ideas, processes, products or procedures deliberately by the employees who are intending to increase individual and/or organizational performance. Scott and Bruce (1994) express the functionality of IWB as a multiple-stage process which comprises opportunity exploration, idea generation, idea championing, and idea implementation while Janssen (2010) suggested that IWB comprises three distinct phases called idea generation, idea promotion and idea realization. In this context, employees' responsibilities relating to these stages make them eminent for the innovative capabilities of organizations (Scott & Bruce, 1994).

Theoretical Framework

The Objective of the Research

Human resource as the fundamental component of entities or organizations is a critical item in terms of their contribution to the entity or organization related to efficiency and continuity. This study scrutinized

the relationships between the employees and the organization and the theories relating to LMX, IWB and POS were investigated accordingly. The theory on LMX is pivoted around the interaction and relationship between the employee and the supervisor working in an entity or organization. While IWB focuses on employee's innovative activities in an organization, POS theory draws attention to the process of mutual exchange as well as the support provided to employees by their employers. These theories explain the relationship, interaction, attachment and future development between organizations and employees as a human source. This study aims to define the association between LMX and IWB and their impacts in line with the perceptions of the employees working in a state-owned R&D entity. The purpose of this study also serves to identify whether the relationship between LMX and IWB is partially or fully mediated by the POS. The data analysis performed in this study provides a detailed investigation of employees' expectations from managers or organizations as well as the relationships between them. The activities that can be undertaken by organizations or human resources were evaluated through the data analysis conducted in this study.

Leader-Member Exchange and Innovative Work Behavior

Through the perspective of LMX theory, when time goes on, the relational aspects between the leader and its followers are shaped to evolve from low-quality LMX to high-quality LMX, which is thus closely tied to the innovation potential of the individuals (Green & Scandura, 1987). There are researchers (Axtell et al., 2000; Janssen, 2005; Krause, 2004; Peterse et al., 2010; Scott & Bruce, 1998; Stoffers & Heijders, 2009) claiming that leadership behaviors, as well as effective leadership styles, positively affect the innovativeness of individuals. Scott and Bruce (1994) and Stoffers and Heijders (2009) reported a positive and significant influence of LMX on IWB. In the literature, the significant and positive relationship between LMX and IWB was verified by Basu and Green (1997), who found that higher quality exchange results with IWB. The IWB increases along with the complexity of the works. Therefore employees are more prone to exhibit IWB when they deal with tasks that require more thinking and perceive fairness in the distribution of rewards which thus induce employees in daily working life (Janssen, 2000; Sanders, Moorkamp, Torka, Groenveld & Groenveld, 2010). Van Yperen and Janssen (2010) reported a positive effect of LMX on IWB in their research conducted among 170 employees serving for energy industry whereas Taştan and Davoudi (2015) found no significant effect of LMX on IWB. On the other hand, LMX is found to be a significant forerunner of IWB (Xerri, 2013, Agarwal, 2014). The positive influence of LMX on IWB was supported by Yuan and Woodman (2010), as well. Based on the review of the literature and related findings, the following hypothesis is proposed in this study:

H₁: LMX has a positive and significant influence on IWB.

Leader-Member Exchange (LMX) and Perceived Organizational Support (POS)

The standards of the relationship between the leader and employees are accentuated by high-quality exchanges in the form of close interaction, trust, emotional support and rewards (Dienesch & Liden, 1986) and be evolved to establish LMX. According to Eisenberger and Rhoades (2002), POS is impacted by LMX since the leaders formally represent the entire organization. Wayne et al. (2002) argue that employees are enthusiastic to build high-quality relationships with their supervisors depending on the degree of the support yielded by their organization. By considering the supervisor's significant impact on employees' own experiences with the organization, it is possible to make the implication that the linkage between the supervisor and employees cannot entail any emotional commitment towards the organization (Landry & Vandenberghe, 2009) in case of low levels of LMX. Wayne, Shore and Liden (1997) stated the impact of LMX on POS, which is supported by Masterson et al. (2000) and Wayne et al. (2002) who reported the positive association between LMX and POS. Wayne, Shore, Bommer and Tetrick (2002) assume that employees with an enhanced level of POS are more likely to focus on relationships relied on high-quality exchanges with their supervisors. Thus, the following hypothesis is proposed in parallel with the review of the literature and related findings:

H₂: LMX has a positive and significant influence on POS.

Perceived Organizational Support (POS) and Innovative Work Behavior (IWB)

The increased level of POS in employees may elicit the sense that they will receive a reward from the organization in the future (Shore & Shore, 1995). From an organizational perspective, the interaction between employees is a determinant of a factor for the emergence of IWB (De Jong, 2007). Axtell et al. (2000; 2006) focused on the impacts of team characteristics such as team climate, team control, team support and team leader support on individual-level innovation and reported a significant impact on employees' level of IWB. De Jong and Den Hartog (2007) argue that idea IWB is a perpetual voluntary process since championing and implementation require collective activities (De Jong & Den Hartog, 2010) rather than individual by gaining the support of the organization. Many studies (Eisenberger et al., 1990; Settoon et al., 1996; Wayne et al., 1997) conducted so far imply that employees' tendency to display discretionary behaviors increase in line with their perception of organizational support. Employees feel the necessity to receive support from both the managers and the entire organization to develop innovative solutions for work-related issues (Pemberton, Mavin, Coakes, & Smith, 2007). The reactions of employees are shaped to attribute their engagement to activities beyond prescribed task responsibilities rather than expected which thus results in fringe benefit payments among coworkers (Liu, 2009; Podsakoff, MacKenzie, Paine, & Bachrach, 2000). Employees tend to build relationships based on the social exchange that is pivoted around their perception of support and recognition from both supervisors and peers in the organization. The employees determine their commitment to accordingly with the quality of exchange by considering the support yielded by organizations (Shore & Tetrick, 1991; Wayne et al., 1991). Janssen (2005) examined the linkage between the employees' perceived influence and their IWB levels in his survey conducted among 170 employees working in a Dutch company and reported the moderating effect of leader supportiveness. Based on the empirical results, Janssen (2005) concluded that employees are induced to exert their influence in the performance of innovative activities at the workplace when they perceive leaders support their innovativeness. The following hypothesis is proposed accordingly to the review of the literature and related findings:

H₃: POS has a positive and significant influence on IWB.

The Mediating Effect of Perceived Organizational Support (POS) between Leader-Member Exchange (LMX) and Innovative Work Behaviour (IWB)

The employees need to feel support from their supervisors and ultimately overall organization to perform the innovative activities within the organization (Coakes & Smith, 2007). In this context, employees' sense of supervisors' support in return for their contributions and efforts as a form of reward addresses the reciprocity between LMX and POS, which thereby results in the employees' commitment to their organizations (O'Driscoll, & Randall, 1999). POS is viewed as influential on employees' dispositions related to their attachment to the organization (Eisenberger, Armeli, Rexwinkel, Lynch, & Rhoades, 2001; Vandenberghe, Bentein, & Stinglhamber, 2004).

Yuan and Woodman (2010) and Sanders et al. (2010) suggest that there is a positive influence of LMX on IWB while Eisenberger, Fasolo, and Davis-LaMastro (1990) argue the positive impact of POS on IWB, as well. This implies that the IWB level of the employees is both directly and indirectly impacted by LMX (Eisenberger et al., 1990). In particular, POS theory is founded on employees' reactions to organizations' positive attitudes towards them and considerations about their wellbeing, which thereby plays a substantial role in stimulating them to exploit their potential. In line with this perspective, Eisenberger, et al. (1990) concluded that POS could give rise to an increase in IWB of the employees. On the other hand, supportive human resource practices in organizations are embodied to enhance the quality of relationships between the supervisors and employees by mediating the association between LMX and IWB. The verification of this view is supplied by Sanders, Moorkamp, Torka, Groeneveld, and Groeneveld (2010) in their research

conducted in four Dutch and German companies. The extent and prevalence of employee creativity are articulated to be impacted by the leaders in Amabile's Componential Theory of Creativity (2004; 2012). Based on this theory, it can be inferred that high-quality LMX has peculiar potential to be a determinant of employees' creativity and IWB, which was empirically evidenced by many researchers (Atwater & Carmeli, 2009; Scott & Bruce, 1994; Tastan & Davoudi, 2015; Xerri, 2012; Yuan et al., 2010; Zhou & George, 2003). To summarize the above explanations and consider the findings in the literature, it is posited that LMX has a positive influence on IWB and POS entails IWB. Hence, it could be concluded that IWB is positively impacted by both LMX and POS and there is a mediating effect of POS on the relationship between LMX and IWB. Hence, the hypothesis, which is essentially reliant on the review of the literature and related findings, is proposed as follows:

H₄: POS has a mediating effect on the relationship between LMX and IWB.

Research Methodology

The research is intended to determine the mediating role of POS in the relation between LMX and IWB through data analysis associated with the questionnaire forms sent to the employees working in a state-owned R&D entity. The hypotheses stating the relationships between the variables were generated in line with the research model shown in Figure 1.1.

Research Model and Hypotheses

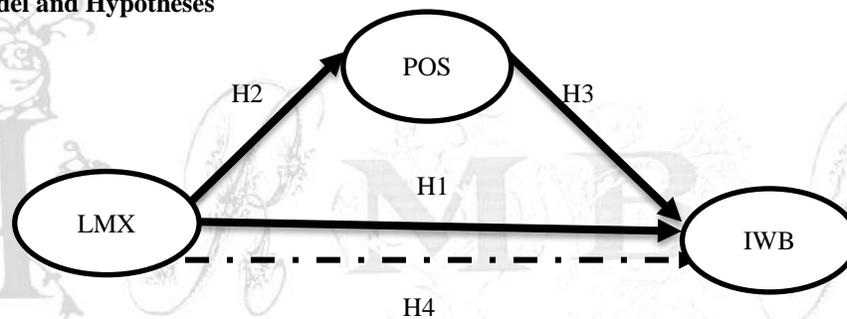


Figure 1.1. Research Model

H1: LMX has a positive and significant influence on IWB.

H2: LMX has a positive and significant influence on POS.

H3: POS has a positive and significant influence on IWB.

H4: POS has a mediating effect on the relationship between LMX and IWB.

Previous research has probed the relationship between LMX, IWB and POS. Nevertheless, in most studies, the role of POS as the mediator has not been explored so far. The mediation of POS in the association between LMX and IWB was analyzed in this study. The associations and their directions among the variables are shown in the research model illustrated in Figure 1.1 and the hypotheses H₁, H₂, H₃ and H₄ have been proposed accordingly.

Research Population and Sample

The population of the study consists of 450 employees working in a state-owned R&D entity located in Ankara in 2020. The employees declared a positive reaction during the implementation phase of the survey and the data acquired through questionnaire forms are assumed to entirely reflect the opinions of the employees.

Data Collection Method

A questionnaire technique was used to obtain data. The questionnaire forms for the determination of the relationship between LMX, IWB and POS as well as the mediating effect of POS between LMX and IWB, returned as 268 out of 450 employees working in a state-owned R&D entity located in Ankara. The survey was accomplished between January 10, 2020 and February 30, 2020. The questionnaire forms were composed of four sections. The first section included the questions relating to demographic properties, gender, age, education level, job title and service years of the participants. Scale questions measuring LMX (Liden & Maslyn, 1998), IWB (Scott & Bruce, 1994), and POS (Eisenberger, Huntington, Hutchison, & Sowa, 1986) were included in the second, third and fourth section, respectively. Totally 26 questions were included in the questionnaire forms in which the number of questions for measuring personal features, LMX, IWB and POS are 12, 6 and 8, respectively.

In the pilot study, reliability analysis was performed. It is assumed that the questionnaire forms used as a data-collecting instrument are reliable, adequate to represent the population and responded objectively by the participants. The data acquired through questionnaire forms were assumed to entirely reflect the opinions of the employees in the sample size, as well. The sample was composed of the employees who occupied a range of roles including chief expert researcher, expert researcher, an assistant expert researcher, executive assistant, chief expert, expert and assistant expert in a state-owned entity undertaking R&D projects in Turkey.

The scale questions applied to measure LMX, IWB and POS in this survey were previously used in the articles of Liden and Maslyn (1998), Scott and Bruce (1994) and Eisenberger, Huntington, Hutchison, and Sowa (1986). Five-point Likert scales consist of five answering categories/options/choices as *strongly agree*, *agree*, *neither agree nor disagree*, *disagree*, *strongly disagree* were used in this survey.

Measurement and Analysis Tool of the Research

In this survey, data collected through the questionnaire forms were downloaded to SPSS 21 package software for necessary data analysis. Data relating to demographic features, gender, age, education, position, a period of service of the participants were evaluated as frequency and percentage values by using/through SPSS-descriptive statistics-frequencies method. The Cronbach alpha values were calculated to measure the reliability of the research data by using the reliability analysis in SPSS. In this study, mean value, as well as standard deviation, were also computed to identify the LMX, IWB and POS levels of the participants. Kaiser-Meyer-Olkin (KMO) exploratory factor analysis was conducted to determine whether the sample would provide results sufficiently powered to perform the analysis. Barlett's test was used to determine whether the correlation between the variables is sufficient. The correlation analysis was performed to determine the relationship between the variables and was evaluated through Bivariate Correlation Analysis in SPSS. The regression analysis was conducted to measure the effects between the dependent variable, independent variable and mediator variable. Through this model, the mediation analysis was conducted to perform direct and indirect measures of the mediation of POS in the relationship between LMX and IWB. The research model was tested by using PROCESS software developed by Andrew F. Hayes (Hayes, 2013). The PROCESS software program tests the entire model as well as the indirect effect of the mediator variable (Edwards & Lambert, 2007).

Results

Research findings relating to demographic characteristics

For the analysis of data, the SPSS 21 package software was utilized. The descriptive statistics and absolute and relative frequencies were used to demonstrate the socio-economic features of the participants. The data

concerning the demographic variables were described with frequency analyses and the percentage values. The detailed results of the demographic variables are given in Table 2.1 below.

Table 1: The Demographic Characteristics of Respondents

Variable	N= 268	Frequency (<i>f_i</i>)	Percentage (%)
<i>Gender</i>			
Female		151	56.3
Male		117	43.7
<i>Age</i>			
Age between 18 and 24		5	1.9
Age between 25 and 31		114	42.5
Age between 32 and 38		89	33.2
Age between 39 and 45		40	14.9
46 and over		20	7.5
<i>Educational Attainment</i>			
High School		4	1.5
Middle School		12	4.5
Undergraduate		116	43.3
Master Degree		103	38.4
Doctorate Degree		33	12.3
<i>Positional Level</i>			
Chief Expert Researcher		21	7.8
Expert Researcher		55	20.5
Assistant Expert Researcher		45	16.8
Officer – Executive Assistant		46	17.2
Chief Expert		26	9.7
Expert		23	8.6
Assistant Expert		52	19.4
<i>Years of Service</i>			
Between 1 and 3 years		103	38.4
Between 4 and 6 years		74	27.6
Between 7 and 10 years		31	11.6
Between 11 and 15 years		30	11.2
16 years and above		30	11.2

It was determined that the number of female employees participating in the survey is 151 which corresponds to 56.3 % of total participants while the number of the male employees is 117 which composes 43.7 % of the participants. The majority of survey participants were composed of 114 (42.5 %) employees between the ages of 25 and 31. Of the participants, 89 employees (33.2%) aged between 32 and 38 years; 40 employees (14.9%) aged between 39 and 45 years, 20 employees (7.5%) aged 46 years and over and 5 employees (1.9%) aged between 18 and 24 years. The age range of the participants is majorly composed of younger age groups. Hence, the selected sample reflects the research population. Within the age groups range of participants, it can be expressed that the millennial generation also known as Generation Y reflects the ideas of the majority.

Of the study population N= 268, it was determined that 4 participants (1.5 %) have a high school degree, 12 participants (4.5 %) have a college degree, 116 participants have a bachelor’s degree (43.3%), 103

participants have a master’s degree and 33 participants (12.3 %) have a doctorate (See Table 2.1). According to the educational levels of the study population, the majority of the participants consist of 116 employees who have bachelor’s degree and the minority of the participants consist of 4 employees have a high school degree. The numbers of the participants who have master’s degrees (103 employees -38.4%) and bachelor’s degrees (116 employees-43.3%) are due to the reason that the state-owned R&D entity, where the survey was carried out, is an organization performing R&D activities. Besides, the number of the participants having a doctorate (33 employees-12.3%) which follows the number of those having a master’s degree indicates that the education level of the employees is highly valued by the entity in terms of personnel qualification.

When the distribution of the study population (N= 268) is characterized based on the positional level, it was determined that 21 participants (7.8%) were Chief Expert Researcher, 55 participants (20.5%) were Expert Researcher, 45 participants (16.8%) were Assistant Expert Researcher, 46 participants (17.2%) were Executive Assistant, 26 participants (9.7%) Chief Expert, 23 participants (8.6%) were Expert and 52 participants (19.4%) were Assistant Expert (See Table 2.1). According to the positional level of the participants, the majority consists of Expert Researcher which corresponds to 20.5% (55 employees) of the study population. In this respect, this higher level of employee participation in the researcher group amongst others is a significant aspect in terms of the selected sample which reflects the study population and employee qualification of the state-owned R&D entity which undertakes R&D activities in Turkey.

As shown in Table 1, the employees with service years ranging from 1 and 3 represent the majority composed of 103 participants (38.4%) amongst the population (N=268), which shows that the number of the recently recruited cohort is relatively high. The portions determined based on years of service are 74 participants with 4 and 6 years (27.6%), 31 participants with 7 and 10 years (11.6%), 30 participants with 11 and 15 years (11.2%), and 30 participants (11.2%) with 16 and more years, respectively.

Data Analysis

Exploratory Factor Analysis

Exploratory factor analysis was performed to test the research model and hypotheses by using the principal components (varimax) method and the results were investigated accordingly. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is used to measure whether the sample is appropriate and sufficient while the Bartlett test measures whether the sample size is well suited to perform factor analysis. Kaiser-Meyer-Olkin (KMO) and Bartlett analyses also determine whether the variables allow for correlation. KMO values of 0.50 or above are regarded as acceptable while the explained variance ratios achieved for LMX, IWB and POS were 0.65, 0.66 and 0.63 (>0.60) respectively.

Based on the results of exploratory factor analysis given in Table 2, it has been determined that variables LMX, IWB and POS show a single-factor structure.

Table 2: Exploratory Factor Analysis

Variables	Scale Items	KMO	Bartlett's Test of Sphericity (p)	Explained Variance	Eigen Values	Factor Number
Leader-Member Exchange	LMX_1	0.95	c2 (66) = 3020.22 (p<0.001)	%65	7.84	Single-Factor Structure
	LMX_2					
	LMX_3					
	LMX_4					
	LMX_5					

	LMX_6					
	LMX_7					
	LMX_8					
	LMX_9					
	LMX_10					
	LMX_11					
	LMX_12					
Innovative Work Behaviour	IWB_13	0.86	c2 (15) = 977.38 (p<0.001)	%66	3.93	Single-Factor Structure
	IWB_14					
	IWB_15					
	IWB_16					
	IWB_17					
IWB_18						
Perceived Organizational Support	POS_19	0.93	c2 (28) = 1313.10 (p<0.001)	%63	5.04	Single-Factor Structure
	POS_20					
	POS_21					
	POS_22					
	POS_23					
	POS_24					
	POS_25					
POS_26						

KMO: Kaiser-Meyer-Olkin Sampling Adequacy Value>0.50 Barlett's Test of Sphericity (p): (p<0001)

Mean Analysis of the Variables

Table 3: The Mean and Standard Deviation Analysis based on gender differences

N=268	Gender	N	M	S. D.	S. E.
LMX	Female	151	3.64	0.82	0.08
	Male	117	3.73	1.04	0.11
IWB	Female	151	3.61	0.85	0.08
	Male	117	3.52	1.02	0.10
POS	Female	151	3.08	0.85	0.08
	Male	117	2.97	0.91	0.07

M=Mean, S.D.=Standard Deviation; S.E.=Standard Error

Table 3 indicates the mean and deviation analysis of the variables based on the gender differences in which the variables were examined by calculating their mean values in line with the responses given by female and male employees to the items of LMX, IWB and POS scales. LMX of male employees can be expressed with higher levels or perceptions as compared to female employees. The given in the table above, innovative work behavior levels of female employees are higher than male employees. Besides, female employees show higher values in perceiving or adopting the levels of perceived organizational support when compared with male employees.

Research Scales and Reliability Analysis

Table 4: The Reliability Analysis

Scales	Sub-dimensions	Cronbach's α	KMO	
Leader-Membership Exchange	Affect	0.92	0.95	0.94
	Loyalty	0.93		
	Contribution	0.73		
	Professional respect	0.95		
Innovative Work Behaviour		0.89	0.87	
Perceived Organizational Support		0.92	0.92	

As a result of the analysis, as shown in Table 4, it can be observed that Chronbach alfa coefficients, which determine the reliability of the scales, were higher than 0.70. The values closer to 1.00 indicate that the statements contained in the measuring instrument are consistent with each other and homogeneous for sample measurement. Therefore, we can conclude that the compiled data were fitting the statistical analysis.

Table 5 given below shows the values yielded by the correlation, standard deviation and mean analysis where Pearson correlation analysis was performed to examine the relationship among the research variables. The results of the analysis suggest a positive and significant ($r = 0.41, p < 0.01$) relationship between IWB and LMX. The results also concluded that there is a positive and significant ($r = 0.50, p < 0.01$) relationship between POS and LMX. The results revealed a positive and significant ($r = 0.64, p < 0.01$) relationship between POS and IWB, as well. Based on the results of the correlation analysis; LMX, IWB and POS are found to be positively and significantly correlated with each other. Hence, the hypotheses H1, H2 and H3 were supported.

Table 5: Correlation, Standard Deviation and Mean Analysis

Variables	Mean	S.D.	1	2	3
Leader-Member Exchange	3.68	0.93	1		
Innovative Work Behaviour	3.61	0.92	0.41**	1	
Perceived Organizational Support	3.03	0.87	0.50**	0.64**	1

** $p < 0.01$; N=268; M=Mean; S.S.=Standard Deviation

Regression Analysis by using Bootstrapping Method

As shown in Table 6, regression analysis was conducted by generating three models to explore the relationships between LMX, IWB and POS as variables. The regression analysis is performed to identify the association and effect between two or more variables which have caused and effect relationship. The regression analysis, in which simple linear regression analysis and bootstrapping analysis were applied, yielded unstandardized regression coefficient (β), standard error, and significance (t) and p values.

Based on the results of the regression analysis, it has been determined that leader-member exchange has a positive and significant effect on innovative work behavior as shown in Model 1 ($\beta=0.41; p < 0.01$). Nevertheless, LMX explains the 17% of IWB ($R^2=0.17$) as given in the model. As is evident from Model 2, it has been determined that LMX has a positive and significant effect on POS ($\beta=0.47; p < 0.01$). Nevertheless, LMX explains the 25% POS ($R^2=0.25$) as shown in the model. As given in Model 3, POS has a positive and significant effect on IWB ($\beta=0.62; p < 0.01$). Nevertheless, POS explains 42% of IWB as seen by the model ($R^2=0.42$).

Table 6: Regression Mediator Variable Analysis (Bootstrapping Method)

VARIABLES		β	S.E.	t	L.L.	H.L.	*P	R	R ²	F
MODEL 1	Constant	2.07	0.21	9.69	1.65	2.50	0.00	0.40	0.17	53.69
	LMX IWB	0.41	0.06	7.33	0.30	0.52	0.00			
MODEL 2	Constant	1.28	0.19	6.76	0.91	1.66	0.00	0.50	0.25	88.69
	LMX POS	0.47	0.05	9.42	0.37	0.57	0.00			
MODEL 3	Constant	1.27	0.19	6.59	0.89	1.66	0.00	0.64	0.42	96.83
	POS IWB	0.62	0.06	10.80	0.51	0.73	0.00			

N=268; *P<0.01; β : unstandardized regression coefficient; S.E.: Standard Error; R²: Percentage of model explained, t and P: significance, L.L.: Lower Limit, U.L.: Upper Limit

As a result of regression analysis, which was performed by using the Bootstrapping method, the hypotheses H1, H2 and H3 were supported accordingly.

Mediation Analysis

Table 7: The Mediation Effect Analysis (Bootstrapping Method)

	Direct Effect	Indirect Effect	Total Effect	Confidence Interval (Indirect) BoLLCI-BoULCI (%95)	Type of Mediation
LMX-POS-IWB	0.12**	0.29*	0.41	0.21-0.38	Partial Mediation Effect

N=268; *P<0.01; **P<0.05

As shown in Table 7, mediation analysis was performed to examine direct and indirect effects between the variables. The direct effect of LMX as an independent variable on IWB as a dependent variable was initially investigated in the model generated for mediation effect analysis. In the second part, the indirect effect of LMX on IWB through the mediation of POS (mediator variable) was investigated. The analysis concluded that the indirect effect of LMX on IWB through the mediation of POS is significant ($\beta=0.29$; $p<0.01$). The effect size of the effect was determined due to the difference between total effect and direct effect ($0.41-0.12=0.29$). The effect size was obtained at 29 %. After identifying the indirect effect, the significance of this effect should be identified, as well.

The significance level of this effect was determined by employing the Bootstrapping confidence interval of which both the lower limit and upper limit should be below or above zero. As given in Table 7, the results of the mediation analysis suggest that the confidence interval (BoLLCI-BoULCI) falls within 21 % and 38 %. It could be implied from the results that the direct effect of LMX on IWB through POS (mediator variable) is significant, whereas the regression coefficient decreases which connotes the partial mediation effect ($\beta:0.12$; $p<0.05$). The hypothesis H4 was supported according to the results of the mediation analysis performed employing the Bootstrapping method. Hence, POS has a partial mediation effect between LMX and IWB.

Discussion

The primary target of this study was to determine the relationship between LMX and IWB and their respective impacts in line with the perceptions of the employees working in a state-owned R&D entity undertaking R&D activities in Ankara, Turkey. Besides, the mediating role of POS in the relationship

between LMX and IWB was verified through empirical methods as well. The empirical results of this study yielded significant relationships among LMX, IWB and POS. After conducting a literature review on the initial phase of this research, LMX was elucidated as a variable impacting the efficiency of the organization and leading organizational outcomes. Besides, many scholars argue that LMX gained prominence for organizations (Graen & Bien, 1995). The empirical studies evidence the positive association between LMX and IWB (Basu & Green, 1997; Scott & Bruce, 1994).

By considering the results of the exploratory factor analysis the survey data was determined to be satisfactory enough to perform the analysis and the fit indices of the research model were sufficient. The results of the correlation analysis indicate moderate positive significant relationships between LMX and IWB, POS and LMX and POS and IWB. By considering the results of the regression analysis it was initially interpreted that there was a positive significant influence of LMX on IWB. Secondly, LMX was found to have a positive significant influence on POS.

Thirdly, the positive significant influence of POS on IWB was determined. The results of the mediation effect employing the Bootstrapping method, the partial mediation effect of POS determined between LMX and IWB. Accordingly, the results would provide implication that the organization's supportive activities, which will be implemented with aim of enhancing the LMX levels between the employees and the supervisors, will also enhance employees' level of IWB through POS and result in increased employee productivity within the organization. Thus, the improvement of overall organizational performance and competencies can effectively be facilitated.

Although this research has taken some accomplishments, it has also limitations, mainly from the data structure view since the research data is the cross-sectional data and it is collected through self-report questionnaires that expose the research to the possibility of the same source bias. Nevertheless, the findings, which reveal the positive significant associations between LMX, IWB and POS, are hoped to improve the literature by providing extensive analyses of these variables and yield outcomes to create the newest area of research relating to the studies focusing on the relationships between the organizations and employees. The hypotheses H1, H2, H3 and H4 postulated in this study were verified consistent with the results of previous researches.

Conclusion

The workplace environment is constantly changing and organizations need to align with these changes to stay competitive in a harsh market. The findings yielded in this empirical research show that employees are more inclined to be efficient and creative and they are also eager to perform more effectively and implement innovative solutions when they perceive support from the organization and their relationships with leaders are well-established. Instead of attempting to internalize, employees view their relationships with the organizations as a form of social exchange which is based on the support, commitment, recognition and reward received from the supervisors and entire organization.

This study not only indicates the expected associations between the variables explored but also plays an important role in generating insights for the studies focusing on the immense contributions of employees as a human resource in the sustainability of organizations specifically for government institutions and private companies where employees spend enormous effort to fulfill their responsibilities. In this context, LMX and POS have emerged as the leading factors that focus on human relationships. On the other hand, IWB is another critical factor considerably reliant upon both organizational and human relationships. This research is intended to create understanding and provide contributions to the managers in the solution of industry-based problems through adopting approaches dealing heavily with employees. Thereby, this study is focused on exploring how LMX can influence employees' IWB with the mediation of POS.

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