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Article

How leader member exchange affects effectiveness of performance appraisal system: A chain of reactions model

Cogent Business & Management

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Suggested Citation: Maharvi, Muhammad Waqas; Kumar, Aneel; Channa, Khalil Ahmed; Mahmood, Ayaz (2023) : How leader member exchange affects effectiveness of performance appraisal system: A chain of reactions model, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 10, Iss. 2, pp. 1-21, <https://doi.org/10.1080/23311975.2023.2238392>

This Version is available at:

<https://hdl.handle.net/10419/294552>

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To cite this article: Muhammad Waqas Maharvi, Aneel Kumar, Khalil Ahmed Channa & Ayaz Mahmood (2023) How leader member exchange affects effectiveness of performance appraisal system: A chain of reactions model, Cogent Business & Management, 10:2, 2238392, DOI: [10.1080/23311975.2023.2238392](https://doi.org/10.1080/23311975.2023.2238392)

To link to this article: <https://doi.org/10.1080/23311975.2023.2238392>



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Received: 07 December 2022
Accepted: 15 July 2023

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Reviewing editor:
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MANAGEMENT | RESEARCH ARTICLE

How leader member exchange affects effectiveness of performance appraisal system: A chain of reactions model

Muhammad Waqas Maharvi¹, Aneel Kumar^{2*}, Khalil Ahmed Channa³ and Ayaz Mahmood⁴

Abstract: The main purpose of the current study was to evaluate the effectiveness of performance appraisal system that highlights the role of performance appraisal reactions (i.e. performance appraisal fairness and performance appraisal satisfaction) in the relationship between leader-member exchange and effectiveness of performance appraisal. Fairness of performance appraisal reactions (i.e. distributive and procedural) mediates at step one and satisfaction with performance appraisal reaction mediates at step two, in a serial mediation model. The study was a cross-sectional quantitative study in which survey approach was used for data collection. The data were collected through a survey questionnaire, from 557 teachers, working in school education department of Punjab, Pakistan, using proportionate random



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Muhammad Waqas Maharvi is currently serving at The Islamia University of Bahawalpur as an Assistant Professor. He has done his PhD (Management Sciences) and MS (Management Sciences) from COMSATS University Islamabad (CUI). He visited Japan under the Kizuna Program of Tokyo. He was awarded the “Best Paper Award” in an International Conference on Trends in Economics, Humanities and Management, (ICTEHM’14) at Thailand. He has been teaching diversified subjects like Performance and Career Management, Research Methodology, Human Resource Management, Organizational Behavior and Leadership, etc., at graduate and undergraduate levels. His research interests include Performance Management, Organizational Behavior, Human Resource Management and Leadership.

Aneel Kumar is an experienced Associate Professor in HRM at Shah Abdul Latif University, Khairpur, with a demonstrated history of working in the higher education industry. His research papers are published in elite journals, including SSCI Journals, and participated in elite management conferences around the world such as Academy of Management conference, USA. Skilled in Statistics, Structural Equation Modeling with AMOS, Data Analysis, and SPSS. A professional with MS (Management Sciences) from COMSATS University Islamabad (CUI) and PhD focused in HRM from Sukkur IBA University.

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sampling technique. The findings of this study showed the significant effect of the quality of the leader member exchange relationship on effectiveness of performance appraisal system. Further, in a serial mediation model, performance appraisal reactions, i.e. fairness of performance appraisal (distributive and procedural), were found as mediators at step one and satisfaction with performance appraisal as mediator at step two in the aforementioned relationship.

Subjects: Psychological Methods & Statistics; Testing, Measurement and Assessment; Work & Organizational Psychology

Keywords: leader member exchange; distributive and procedural fairness; performance appraisal satisfaction; effectiveness of performance appraisal system

1. Introduction

Performance appraisal (PA) system is a concern for every organization and they are striving hard to distinguish between good and poor performance. Therefore, research attention being paid to appraisal effectiveness by contemporary researchers is on the rise (Ikramullah et al., 2016; Pichler, 2019; Pichler et al., 2016). According to Long et al. (2013), “PA systems consist of the processes of setting standards, application, managing and informing the incidents related to employees’ performance appraisal” (p. 887) and effectiveness of PA means providing accurate, complete, and fair evaluation of each person’s performance that gives useful information to both the organization and to the individual, assisting management in human resource decisions and providing detailed and honest performance feedback to employees (Murphy & Cleveland, 1995). Though, PA system is used worldwide, but literature reveals mixed outcomes of PA in public and private sectors (Lira, 2014; Wright, 2002). PA system has not been developed and applied in a way to achieve effectiveness yet and consequently, there has been dissatisfaction of users regarding PA system (Elicker et al., 2006; Xervaser et al., 2016). Darehzereshki (2013) suggested that the high level of frustration in employees has encouraged investigators to evaluate the effectiveness of PA system. More importantly, an ineffective PA system brings negative consequences which can jeopardize the whole system (Adler et al., 2016). In order to make PA system effective, many studies have been carried out and the areas which have been investigated most rigorously are psychometric properties, imperfection in rating approach, prevalence of reliability, rating formats validation and social context (Cook & Crossman, 2004; Erdogan & Enders, 2007; Iqbal, 2012; Pichler, 2019; Walsh & Fisher, 2005). PA takes place in a social context which plays a major role in the effectiveness of such appraisals and how participants react to the PA process (Colquitt & Zipay, 2015; Kuvaas, 2011). Surprisingly, a survey of fortune 100 firms revealed that only one-third of the organizations surveyed actually conducted attitude surveys to assess social context of PA (Eisenberger et al., 2010). There is a burgeoning literature advocating social context of PA as key area of research inquiry (Levy & Williams, 2004; Murphy & Cleveland, 1995; Pichler, 2019; Pichler et al., 2016). Social context plays a vital role in the effectiveness of performance appraisal (Levy & Williams, 2004). Therefore, this study has focused on the role of social context in PA system. Studies related to social context of appraisal system, have identified several antecedents related to PA such as transformational leadership (Kusumah et al., 2021); supervisor (Khan, 2021) and many more but leader-member exchange (LMX) is more important and frequently used one (Babagana et al., 2019; Pichler, 2012).

1.1. Leader-member exchange and effectiveness of performance appraisal

LMX is the level of association between the rater and ratee and the extent to which they extend resources and support to each other (Liden et al., 2006). Focusing on social context, Erdogan and Enders (2007) included LMX as a social contextual factor. Homans’s (1958) social exchange theory referred social behavior as exchange (Richard, 1976). Later, Dansereau et al. (1975) proposed vertical-dyad linkage theory which postulated the dyadic relationship between leader and subordinate”. Further, Graen and Uhl-Bien (1995) renamed vertical-dyad linkage theory as the LMX

theory. Early studies investigated the influence of mutual relationship in workplace on performance and productivity (Liden & Maslyn, 1998). It was Murphy and Cleveland (1995) and Pichler (2012, 2019) who emphasized the role of social context in performance appraisal. Pichler (2019) urged the managers and the organizations to pay special attention to the quality of LMX to improve the effectiveness of PA. Therefore, focusing on social context, the point of departure for current study is to investigate the relationship between LMX and the effectiveness of performance appraisal system.

1.2. The role of performance appraisal reactions

Extending the role of social context in PA process, we argue that researchers have always recognized the role of LMX in PA, however, the process or the mechanism through which LMX determines the effectiveness of PA has been understudied. To put it in other way, LMX literature has been criticized for paying limited attention to mediators in the relationship between LMX and effectiveness of PA (Liden et al., 2006). Social exchange theory (SET) is the theory of mutual obligations (Blau, 1964) and based on SET (Blau, 1964), LMX theory describes that how the quality of relationship between managers and their subordinates affects the mutual obligations (Graen & Uhl-Bien, 1995). There is also a norm of reciprocity (Gouldner, 1960) which compels the recipient of favourable treatment to respond with positive attitudes and behaviours and these exchanges are not only behavioural but also emotional (Graen & Uhl-Bien, 1995). Procedural justice theory also postulates that the relationship quality with authority is a potential predictor of the favourable reactions (Lind et al., 1990). Social context of PA is closely related to the PA reactions (Erdogan & Enders, 2007; Johnson et al., 2009) and relationship between supervisors (raters) and their subordinates (ratees) is a key dynamic that influences the PA reactions (Elicker et al., 2006; Levy & Williams, 2004). PA reactions are among the essential criteria to be considered while evaluating the effectiveness of PA (Cook & Crossman, 2004; Lira, 2014; Mishra & Farooqi, 2013; Pichler, 2019; Sudin, 2011). They are found to be correlated with employees' attitudes and performance behaviours but yet employees' reactions are often negative for managers' reviews, therefore, there is need to understand the process whereby key predictors (i.e., LMX) are related to appraisal reactions (Pichler, 2019). Responding to the Pichler's call, based on social exchange theory (Blau, 1964; Homans, 1958), LXM theory (Graen & Uhl-Bien, 1995), and norms of reciprocity (Gouldner, 1960) and considering social context of PA process, we propose PA reactions (i.e., distributive and procedural fairness and PA satisfaction) as the process through which ratees' perception of quality of LMX will influence the effectiveness of the PA system. According to PA literature, there are two most frequently considered PA reactions: PA fairness (Adler et al., 2016; Colquitt & Zipay, 2015; García-Izquierdo et al., 2012) and PA satisfaction (Cook & Crossman, 2004; Kuvaas, 2011; Lira, 2014). Investigation of many decades on organizational justice shows that employees always look for a fair system especially when it is about evaluating their performance (Holtz, 2015; Kim & Park, 2017; Xervaser et al., 2016). Taxonomy of Justice by Greenberg (1987) and Colquitt (2001) proposed different dimensions of a fair system that could be applied on PA evaluation. This research has integrated two (i.e., distributive and procedural fairness) factors of organizational justice conceptualization because these two factors have found consistent support in the research (Colquitt, 2001). The concept of distributive fairness was first originated in equity theory by Adams (1965). This theory proposes that distributive fairness is the result of a comparison between one's own output-input ratio and a referent other's output-input ratio. Colquitt (2001) described the concept of procedural justice or fairness as, "fairness of the decision-making processes used by the instructors" (p. 390). Further, the second reaction-PA satisfaction is the central reaction (Kuvaas, 2011; Lira, 2014; Mishra & Farooqi, 2013). PA satisfaction is defined as ratees' belief that the appraisal they receive is the actual or true description of their performance and they have been rated accurately (Nease et al., 1999). Kim and Park (2017) defined PA satisfaction as the acceptance of appraisal practices by the rates. Responding to the Pichler's call, to understand the process involved in the relationship between LMX and the effectiveness of PA, this study has

incorporated these two PA reactions as the process, to propose a serial mediation model, in which PA reactions i.e., fairness of PA (i.e., distributive and procedural), mediate at step one and satisfaction with PA mediates at step two in the positive relationship between LMX and effectiveness of PA.

2. Theoretical framework & hypotheses

LMX is an important area of research inquiry (Chouhan et al., 2016; Erdogan & Enders, 2007; Levy & Williams, 2004; Liden et al., 2006) and is closely related to effectiveness of PA system (Pichler, 2019), which is congruent with social exchange theory (Jawahar, 2010). The model developed by Erdogan and Enders (2007) included LMX as a social contextual factor highlighting the importance of social context. Being conceptually related to rater-ratee relationships, this was articulated in the review by Levy and Williams (2004). Several studies have highlighted the role of quality of LMX in improving the effectiveness of PA system (Pichler, 2012, 2019; Scaduto et al., 2015) but there is a dearth of empirical evidences. LMX theory (Graen & Uhl-Bien, 1995), based on SET (Blau, 1964) may provide us the theoretical foundations to support this notion. LMX theory describes that how the quality of relationship between managers and their subordinates affects the mutual obligations (Graen & Uhl-Bien, 1995). There is also a norm of reciprocity (Gouldner, 1960) which compels the recipient of favourable treatment to respond with positive attitudes and behaviours. Therefore, based on these theoretical assumptions, it can be postulated that the high quality of LMX may yield the PA system which is fair enough, indicating the overall effectiveness of PA. Therefore, it is proposed that

H1: Ratees' perception of high quality of leader-member exchange will positively predict the effectiveness of performance appraisal system.

Much research has been done on PA but it has focused on aspects of PA such as raters' errors and accuracy of ratings and there has not been sufficient emphasis on PA reactions (Murphy & Cleveland, 1995). They are found to be correlated with employees' attitudes and performance behaviours but yet employees' reactions are often negative for managers' reviews, therefore, there is need to understand the process whereby key predictors (i.e., LMX) are related to appraisal reactions (Pichler, 2019). The LMX and PA reactions are highly interrelated, yet there has been no comprehensive work on their relationship. As a result, an integrative framework was needed with propositions about how LMX can contribute to effectiveness of PA through the reaction links of PA fairness and PA satisfaction. There have been a few studies, testing relationships between quality of exchange relationships and PA fairness (Cogliser et al., 2009; Colquitt et al., 2013; Elicker et al., 2006; Erdogan, 2002; Jawahar, 2010; Levy & Williams, 2004). Many researchers have found that perceptions of PA fairness (i.e., distributive and procedural fairness) are related to PA satisfaction (García-Izquierdo et al., 2012; Jawahar, 2010; Lira, 2014) which leads to effectiveness of PA. When employees have high LMX, they feel that they are being treated with dignity and respect and they show favorable attitude towards their PA. This favorable attitude towards appraisal signifies that they are satisfied with PA. Numerous studies in this regard investigated that PA satisfaction signifies effectiveness of PA. There are some notable consistencies in terms of measured relationships between LMX and PA satisfaction which is mediated by PA fairness, and which is consistent with literature of PA. Further, considering the social context literature, based on the premises of organizational justice theory (Colquitt & Zipay, 2015; Greenberg, 1987), social exchange theory (Graen & Uhl-Bien, 1995) and Pichler's (2019) review, we may derive that the high quality of relationship between rater and ratee induces the ratee to respond the favourable treatment with the positive appraisal reactions (i.e., distributive and procedural fairness and PA satisfaction). Subordinates may perceive that the outcomes reflected against the contributions they have put in are fair enough and the organizational policies and procedures are also fair enough and in turn such fairness reactions provoke the satisfaction with PA and further, in turn such reaction of satisfaction with PA determines the effectiveness of PA process. Further, findings from numerous studies have shown these effects in parts such as relationship between the quality of exchange

relationships and PA fairness (i.e., distributive and procedural) (Elicker et al., 2006; Erdogan, 2002; Wang et al., 2019); relationship between the quality of exchange relationships and PA satisfaction (Dusterhoff et al., 2014; Wang et al., 2019); relationship between PA fairness (i.e., distributive and procedural) and PA satisfaction (Ayoun et al., 2022; Dusterhoff et al., 2014; Elicker et al., 2006; Getnet et al., 2014; Jawahar, 2007; Lira, 2014); relationship between PA fairness (i.e., distributive and procedural) and effectiveness of PA (Babagana et al., 2019; Mok Kim Man & Yie Yeen, 2021); relationship between PA satisfaction and effectiveness of PA (Culbertson et al., 2013); procedural fairness as mediator in the relationship between LXM and PA satisfaction (Pichler et al., 2016). Therefore, based on these theoretical assumptions and empirical evidences, it is proposed that LMX influences the effectiveness of PA system through mediating impact of PA distributive and procedural fairness reactions at step one and PA satisfaction reaction at step two.

H2: Ratees' perceptions of high leader-member exchange will positively predict their perceptions of effectiveness of performance appraisal system through their reactions. Further, among the performance appraisal reactions, distributive fairness and procedural fairness will serve as the first tier of mediator, and performance appraisal satisfaction will be the second tier of mediator.

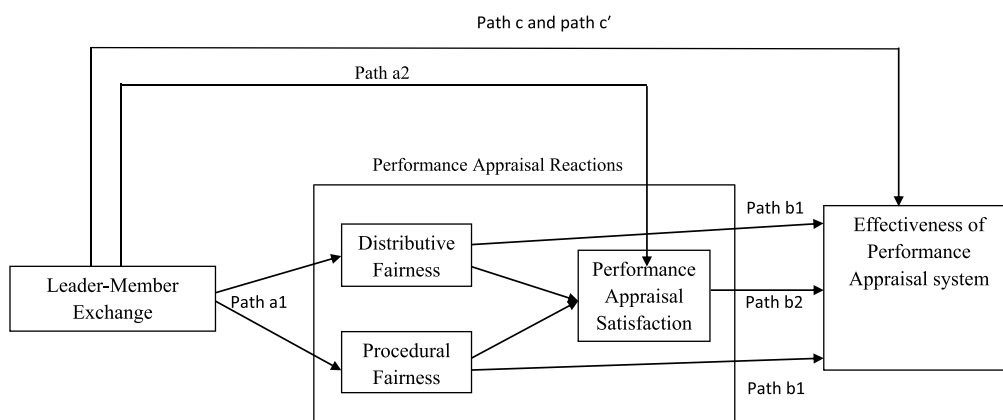
The proposed model for current study is given in Figure 1.

3. Materials and methods

3.1. Data and sample

The focus of current study was to evaluate the effectiveness of PA system used for government school Teachers in school education department of Punjab province of Pakistan. It is a cross-sectional quantitative study based on positivist philosophy. The present study conducted survey to collect the primary data from respondents. The data were collected using close-ended questionnaires. Responses were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). It is common for principal and teacher to have a strong, one-on-one relationship. This was because, according to the PA literature, both are instituted in the social environment. Hence, they share perceptions about exchange relationships (Randall & Sharples, 2012). The study is carried out in a natural environment with minimal interference by the researcher in order to get the true response of the participants. Stratified random sampling was used to provide equal probability of being selected to all subsets of the frame. In the present study, main population was the combination of different groups: gender (male and female) and school levels (higher secondary schools and high schools). According to Sekaran and Bougie (2016) proportionate stratified random sampling is the best option when some stratum or strata is/are too small or too large, or when there is more variability suspected within a particular stratum. Therefore, proportionate stratified random sampling was used to draw the required sample. All lists of

Figure 1. Proposed research model.



schools located in each division were available with respect to school level and gender such as list of higher secondary schools for boys, list of high schools for boys, list of higher secondary schools for girls and list of high schools for girls were available separately. According to census of 2014, there were 6614 higher secondary and high schools in Punjab, in which 659 (322 Male, 337 Female) were higher secondary schools and 5955 (3241 male, 2714 female) were high schools. The population of the study was 6614 higher secondary and high schools of Punjab. The study considered teachers of higher secondary schools and high schools as sample. Detail of population with respect to gender and school level in each division is shown in Table 1. It was needed to take the sample according to proportion of each division with respect to gender and school levels. Therefore, the researcher used proportionate stratified sampling and a total of 1960 questionnaire were sent according to proportion of each division with respect to gender and school level (Krejcie & Morgan, 1970; Sekaran & Bougie, 2016). Detail of sample with respect to gender and school level in each division is shown in Table 2. In response, 603 questionnaires were received back to the researcher, with response rate 30.8%. After dropping surveys with missing data, the researcher conducted his analysis on 557 questionnaires which was 28.4% of sample. Even for a population of 10 000 000, at a 95 confidence level, a sample size of 384 is considered as representative of total populations (Saunders et al., 2015). Therefore, we believe that 557 is a very good sample size, even excluding missing data cases. 46 missing cases that were excluded from analysis were really not considerable. Responses to many of the items were missing which made it difficult to include them in analysis. A manipulation of data by replacing these huge missing values has really led to bias in our results. It is well-known fact that missing values can severely distort the results of analysis even replaced by mean (Pallant, 2020). Therefore, these were excluded. Detail of responses used for analysis with respect to gender and school level in each division is shown in Table 3.

3.2. Measures

This research has used the existing measurement scales but after refining and adapting in the light of gray literature as and where needed. Our refinement is limited to changes in terminologies used in Pakistani appraisal system like use of PA report instead of PA form. The LMX is measured from the subordinates' perspective. There are different published scales to measure the exchange levels in recent studies but the researcher has used most widely used scale developed by Liden and Maslyn (1998). This scale consists of 12 items that measure four dimensions; contribution, affect, loyalty and professional respect. Contribution refers to “perception of the current level of work-oriented activity each member puts forth toward the mutual goals (explicit or implicit) of the dyad” (p. 50). Affect refers to “the mutual affection members of the dyad have for each other based primarily on interpersonal attraction, rather than work or professional values” (p. 50). Loyalty

Table 1. Population

| Divisions | Higher Secondary School | | | High School | | | Total Schools | | |
|-----------------|-------------------------|--------|-------|-------------|--------|-------|---------------|--------|-------|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Lahore | 21 | 40 | 61 | 366 | 318 | 684 | 387 | 358 | 745 |
| Rawalpindi | 52 | 41 | 93 | 491 | 425 | 916 | 543 | 466 | 1009 |
| Sargodha | 41 | 37 | 78 | 342 | 258 | 600 | 383 | 295 | 678 |
| Gujranwala | 51 | 55 | 106 | 517 | 514 | 1031 | 568 | 569 | 1137 |
| Faisalabad | 39 | 52 | 91 | 420 | 412 | 832 | 459 | 464 | 923 |
| Dera Ghazi Khan | 28 | 18 | 46 | 185 | 177 | 362 | 213 | 195 | 408 |
| Multan | 45 | 38 | 83 | 344 | 226 | 570 | 389 | 264 | 653 |
| Sahiwal | 21 | 26 | 47 | 265 | 164 | 429 | 286 | 190 | 476 |
| Bahawalpur | 24 | 30 | 54 | 311 | 220 | 531 | 335 | 250 | 585 |
| Total Schools | 322 | 337 | 659 | 3241 | 2714 | 5955 | 3563 | 3051 | 6614 |

Table 2. Number of sent questionnaires

| Divisions | Higher Secondary School | | | High School | | | Total Schools | | |
|-----------------|-------------------------|--------|-------|-------------|--------|-------|---------------|--------|-------|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Lahore | 6 | 12 | 18 | 109 | 94 | 203 | 115 | 106 | 221 |
| Rawalpindi | 16 | 13 | 29 | 145 | 126 | 271 | 161 | 138 | 300 |
| Sargodha | 12 | 11 | 23 | 101 | 76 | 177 | 114 | 87 | 200 |
| Gujranwala | 15 | 16 | 31 | 153 | 153 | 306 | 168 | 169 | 337 |
| Faisalabad | 12 | 15 | 27 | 125 | 122 | 247 | 136 | 137 | 274 |
| Dera Ghazi Khan | 8 | 5 | 13 | 54 | 53 | 107 | 63 | 58 | 120 |
| Multan | 13 | 11 | 24 | 102 | 67 | 169 | 115 | 78 | 193 |
| Sahiwal | 6 | 8 | 14 | 79 | 49 | 128 | 85 | 56 | 142 |
| Bahawalpur | 7 | 9 | 16 | 92 | 65 | 157 | 99 | 75 | 173 |
| Total Schools | 95 | 100 | 195 | 960 | 805 | 1765 | 1056 | 904 | 1960 |

Table 3. Responses used for data analysis

| Divisions | Higher Secondary School | | | High School | | | Total Schools | | |
|-----------------|-------------------------|--------|-------|-------------|--------|-------|---------------|--------|-------|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Lahore | 4 | 6 | 10 | 33 | 29 | 62 | 37 | 35 | 72 |
| Rawalpindi | 7 | 6 | 13 | 40 | 29 | 69 | 47 | 35 | 82 |
| Sargodha | 6 | 7 | 13 | 26 | 26 | 52 | 32 | 33 | 65 |
| Gujranwala | 7 | 7 | 14 | 28 | 28 | 56 | 35 | 35 | 70 |
| Faisalabad | 7 | 9 | 16 | 39 | 35 | 74 | 46 | 44 | 90 |
| Dera Ghazi Khan | 4 | 3 | 7 | 17 | 10 | 27 | 21 | 13 | 34 |
| Multan | 6 | 6 | 12 | 23 | 12 | 35 | 29 | 18 | 47 |
| Sahiwal | 4 | 5 | 9 | 18 | 12 | 30 | 22 | 17 | 39 |
| Bahawalpur | 4 | 4 | 8 | 30 | 20 | 50 | 34 | 24 | 58 |
| Total Schools | 49 | 53 | 102 | 254 | 201 | 455 | 303 | 254 | 557 |

refers to “The expression of public support for the goals and the personal character of the other member of the LMX dyad” (p. 50). Professional respect refers to “perception of the degree to which each member of the dyad has built a reputation, within and/or outside the organization, of excelling at his or her line of work” (p. 50). Several studies have suggested that LMX should be used as a single factor measure (Eisenberger et al., 2010; Erdogan & Enders, 2007; Liden et al., 2006). Therefore, following this precedent, this study has also used a single factor measure. To make fairness measures more relevant to various contexts, Colquitt (2001) developed a scale for a multidimensional measure of PA fairness. This study has used the same items as developed by Colquitt (2001) to measure two most widely used dimensions of PA fairness (i.e., distributive and procedural fairness). Distributive fairness scale contains four items and is specific to the appraisal fairness context. Procedural fairness scale contains seven items and is specific to the PA context. To measure PA satisfaction, this study has used the five items’ scale developed by Greller (1978). This scale has already been used in numerous appraisal studies (Lira, 2014; Pichler et al., 2016). Effectiveness of PA system has been measured by the seven items’ scale of Longenecker et al. (1988). This scale is specific to the PA context. Further, based on literature review, experience, age and gender are included as demographic variables. A detailed survey questionnaire is given in the appendix “A” part.

3.3. Data analysis

First, initial data screening tests (i.e., missing value, outliers,) were performed. Further, confirmatory factor analysis (CFA) was performed, using structural equation modeling approach with AMOS software, to check and validate the hypothesized model fit. Model validation is the process by which researchers intend to determine the extent to which the items of a particular factor are actually measuring the factor which they are supposed to measure (Byrne, 2013). In the initial CFA, our model could not be specified. The results of initial CFA model fit are given in Table 4. The CFA indicates amongst the results of absolute indices, the chi-square goodness of fit test shows that ($\chi^2/df = 2872.674/550 = 5.223$, $p < 0.000$), whereby if $\chi^2/df < 3$ meaning that the model is fit. Moreover, the value of Root Mean Square Error of Approximation (RMSEA) = .087 shows slightly above par value. Although, the value of 0 shows perfect fit but different researchers argued that it is unrealistic to obtain hence its must fall within the range of i.e., 0.05 to 0.08 to indicate better fit. Next assessing the incremental fit measures, the satisfying cut off value for incremental fit indices close to or > 0.90 will indicate a better model fit of the data. The Incremental fit index (IFI) = .791; Tucker-Lewis index (TLI) = .773; Comparative fit index (CFI) = .790 values derived from initial CFA model clearly shows that our model could not be specified.

However, sometimes, a model is not specified in an initial CFA run then it is logical and reasonable to go into exploratory mood to respecify model (Byrne, 2013). All factor loadings and error covariance terms are the only source of misspecification of a CFA model (Byrne, 2013). Turning first to the MIs, we intend to find the quite large modification indices associated with the pairs of error terms which stand apart with other values. These, large stand apart MIs show the clear evidence of misspecification associated with the pairs of error terms (Byrne, 2013). Model respecification must be supported by strong substantive and or empirical evidence (Byrne, 2013). We believe that the misspecification of error terms found in our model could be due to systematic measurement error rather than random, measurement error. Such systematic error could be due to either items or respondents (Byrne, 2013, p. 110). It could be either due to apparent item content overlap or respondents characteristics, such as biased responses. Therefore, we respecified the model by adding the error terms of stand apart large MIs of the items of a construct and removing the items with low factor loadings i.e., $< .5$. Three items of LMX, out of twelve; two items of procedural fairness, out of seven, one item of PA satisfaction, out of five, and one item of effectiveness of PA system, out of seven were removed. None of the items were removed from distributive fairness. The results of the respecified CFA model are given in Table 5. The CFA indicates amongst the results of absolute indices, the chi-square goodness of fit test shows that ($\chi^2/df = 1069.061/321 = 3.330$, $p < 0.000$). Moreover, the Root Mean Square Error of Approximation (RMSEA) = .065 indicates better fit. Next, Incremental fit index (IFI) = .919, Tucker-Lewis index (TLI) = .904, Comparative fit index (CFI) = .919 values derived from respecified CFA model clearly shows that our model is specified.

Table 4. Summary of model fit (Model 1)

| | χ^2 | Df | χ^2/df | RMSEA | IFI | TLI | CFI |
|-----------|----------|-----|-------------|-------|-------|-------|-------|
| Model Fit | 2872.674 | 550 | 5.223*** | 0.087 | 0.791 | 0.773 | 0.790 |

Note: *** $p < 0.000$, RMSEA = "Root Mean Square Error of Approximation", IFI = "Incremental Fit Index", TLI = "Tucker-Lewis Index", CFI = "Comparative Fit Index".

Table 5. Summary of model fit (Model 2)

| | χ^2 | Df | χ^2/df | RMSEA | IFI | TLI | CFI |
|-----------|----------|-----|-------------|-------|-------|-------|-------|
| Model Fit | 1069.061 | 321 | 3.330*** | 0.065 | 0.919 | 0.904 | 0.919 |

Note: *** $p < 0.001$, RMSEA = "Root Mean Square Error of Approximation", IFI = "Incremental Fit Index", TLI = "Tucker-Lewis Index", CFI = "Comparative Fit Index".

In order to further validate our proposed model, four alternative measurement models (Bentler & Bonett, 1980) were also developed. In first alternative model, four factors were developed and the fit indices were poorer than our proposed five factor model and some fit indices were even lower than the acceptable level (CMIN/df = 4.770, IFI = 0.868, TLI = 0.845, CFI = 0.867, and RMSEA = 0.082). In second alternative model, three factors were developed and the fit indices were much poorer than our proposed five factor model and most of fit indices were even lower than the acceptable level (CMIN/df = 5.668, IFI = 0.835, TLI = 0.809, CFI = 0.834, and RMSEA = 0.092). In third alternative model, two factors were developed and the fit indices were very poorer than our proposed five factor model and most of fit indices were even lower than the acceptable level (CMIN/df = 7.615, IFI = 0.764, TLI = 0.729, CFI = 0.763, and RMSEA = 0.109). In fourth alternative model, all the items were loaded on one factor and the fit indices were worst as compared to our proposed five factor model and much lower than the acceptable level (CMIN/df = 8.072, IFI = 0.747, TLI = 0.710, CFI = 0.746, and RMSEA = 0.113). The results of four alternative measurement models are given in Table 6.

Common method bias is a serious problem and one of the main sources of measurement error because it can influence the empirical results by distorting the relationships of under study construct (Podsakoff et al., 2003). (Anderson, Longenecker et al. (1988) #127; Podsakoff et al. (2003) #102; Podsakoff et al. (2003) #64). Different procedural and statistical techniques can be used to control common method biases (Podsakoff et al., 2003). In this study, two approaches were taken to account for the common method variance i.e. ex-ante approach and ex-post approach. In the current study, survey questionnaire was developed carefully to reduce common method variance. It was ensured that the language of questionnaire was easy to understand for the respondents keeping in view their qualification (Masters Degree) and their ability to understand English. Different scale formats, anchors and reverse coded items were also used in the questionnaire. The large sample size was also used to reduce this bias. Moreover, an introductory paragraph was written in order to make them feel comfortable and respond freely. Using the procedural approach, certain preventive measures were undertaken. For example taking a large sample and ensuring confidentiality of data received by respondents. The ex-post approach was another technique to control the effect of common method variance (CMV). This technique was more analytical in which different statistical remedial measures were used. Using statistical approaches, initially, most widely used Harman single factor test (Podsakoff et al., 2003) was applied. The basic assumption of this technique is that either a single factor will emerge or a single factor will account for major amount of covariance among the measures (Podsakoff et al., 2003). Traditionally it has been done through exploratory factor analysis (EFA) with unrotated factor solution. Seven factors emerged from the results of unrotated EFA and neither of the factor accounted for a major

Table 6. Alternative measurement models

| 04 Factors Model | | | | | | | | |
|-------------------------|----------|-----|-------------|--|-------|-------|-------|-------|
| | χ^2 | Df | χ^2/df | | RMSEA | IFI | TLI | CFI |
| Model Fit | 1550.222 | 325 | 4.770*** | | 0.082 | 0.868 | 0.845 | 0.867 |
| 03 Factors Model | | | | | | | | |
| | χ^2 | Df | χ^2/df | | RMSEA | IFI | TLI | CFI |
| Model Fit | 1859.256 | 328 | 5.668*** | | 0.092 | 0.835 | 0.809 | 0.834 |
| 02 Factors Model | | | | | | | | |
| | χ^2 | Df | χ^2/df | | RMSEA | IFI | TLI | CFI |
| Model Fit | 2512.962 | 330 | 7.615*** | | 0.109 | 0.764 | 0.729 | 0.763 |
| 01 Factor Model | | | | | | | | |
| | χ^2 | Df | χ^2/df | | RMSEA | IFI | TLI | CFI |
| Model Fit | 2671.870 | 331 | 8.072*** | | 0.113 | 0.747 | 0.710 | 0.746 |

Note: *** $p < 0.001$, RMSEA = "Root Mean Square Error of Approximation", IFI = "Incremental Fit Index", TLI = "Tucker-Lewis Index", CFI = "Comparative Fit Index".

amount of variance. Therefore, CMV was not an issue. Some researchers have applied confirmatory factor analysis (CFA) as the more sophisticated technique (Podsakoff et al., 2003). As this research has adopted all the developed measures and none of measures have been developed in current study, therefore, we also applied Harman single factor test through CFA as the more sophisticated technique. The Harman single factor test did not account for a substantial amount of variance by one factor and further model fit indices were also well below acceptable level. Although, Harman single factor test has widely been used but this technique has several limitations such as it is unlikely that a single factor will fit the data and this method actually does nothing to statistically control for or partial out (Podsakoff et al., 2003). Therefore, this study has further applied the latent common method variance factor test (Podsakoff et al., 2003). Under this method, items are allowed to load on their theoretical constructs, as well as on a latent common methods variance factor and significance of the structural parameters is examined both with and without the latent common methods variance factor in the model, which permits the researcher to control for both method variance and random error. Total variance explained by latent common method variance factor test was around 12 percent and model fit indices did not improve significantly. There are no specific guidelines on how much variance a common method factor should extract (Podsakoff et al., 2003) but the variance explained by common latent factor can be considered as indicative of least as there were no significant improvements found in model fit indices and the factor loadings of all items were quite low on common latent factor in comparison to loadings on their respective latent factor. Therefore, CMV was not an issue of concern.

Although, SEM techniques are very sophisticated and have advantage over traditional multivariate techniques performed in SPSS but there are no widely and easily applied methods for modelling multivariate relations like mediation in serial, investigated in current study. Therefore, this study has followed the most widely and easily applied method of testing mediation in serial by Hayes (2012, 2017) but in order to check the fit of our hypothesized model, CFA has been performed. Following, the CFA analysis, mean, standard deviation, reliability, validity (i.e., convergent and discriminant), correlations and further mediation analysis has been performed on the basis of mean scores of items of each variable in SPSS, whereas, composite reliability and validity is calculated on the basis of factor scores derived from CFA model. Reliability of the scale is assessed by using reliability coefficient i.e. Cronbach's alpha (α) and also by composite reliability. Reliability in social research is considered as acceptable if $\alpha = 0.70$ or above (Sekaran & Bougie, 2016). The scales used have been employed in previous research, so acceptable reliabilities were already established. But for current study Cronbach's alpha and composite reliability has been assessed again. Composite reliability is often preferred over Cronbach's alpha, the traditional way of calculating reliability, because it gives a truer indication of internal consistency by taking into account the possibility that the indicators may have different factor loadings and error variances. Convergent and discriminant validity is assessed following the procedure of Hair et al. (2010). Convergent validity is established if the average variance extracted (AVE) is .50 or above and discriminant validity is established when average shared squared variance (ASV) and maximum shared squared variance (MSV) is less than AVE. All the measures were well within the acceptable level. Reliability (i.e., Cronbach's alpha and composite) and validity (i.e., convergent and discriminant) of all measures are given in Table 7. Further, the results of descriptive statistics (i.e., mean and standard deviation), which provide a quick summary of all variables, are also presented in Table 7. Correlations among study variables are presented separately in Table 8.

4. Results

Data were analyzed by using SPSS 19.0. The researcher applied Hayes (2012, 2017) method to test the serial mediations step by step. The mediating effect of PA fairness (i.e., distributive and procedural fairness) at first step and PA satisfaction at second step between LMX and effectiveness of PA system is examined. Effects of single mediator can be assessed by traditional methods (Baron & Kenny, 1986) but to measure the effects of mediators step by step or parallel, process model six is specifically developed to deal with two or more than two mediators in serial. The process model 6 follows the following seven paths; a_1 , a_2 , b_1 , b_2 , d , c , c' . All the path coefficients

Table 7. Descriptive statistics; reliability and validity

| S. No. | Variable | M | S.D | α | ρ_c | AVE | MSV | ASV |
|--------|---|------|------|----------|----------|-----|-----|-----|
| 1. | Age | 3.13 | 1.42 | --- | --- | --- | --- | --- |
| 2. | Gender | NA | NA | --- | --- | --- | --- | --- |
| 3. | Experience | 3.58 | 1.18 | --- | --- | --- | --- | --- |
| 4. | Leader-Member Exchange | 4.14 | 0.54 | .90 | .90 | .50 | .45 | .26 |
| 5. | Distributive Fairness | 4.16 | 0.51 | .80 | .80 | .51 | .38 | .24 |
| 6. | Procedural Fairness | 3.60 | 0.76 | .82 | .83 | .52 | .46 | .29 |
| 7. | Performance Appraisal Satisfaction | 3.65 | 0.80 | .83 | .83 | .57 | .46 | .29 |
| 8. | Effectiveness of Performance Appraisal System | 3.96 | 0.60 | .89 | .88 | .55 | .45 | .39 |

Note: M = Mean; α = Cronbach's Alpha, ρ_c = Composite Reliability; S.D= Standard Deviation; AVE = average variance extracted, MSV = maximum shared squared variance, ASV = average shared squared variance; N = 557.

Table 8. Correlation Matrix

| S. No. | Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--------|---|-------|-------|------|-------|-------|-------|-------|---|
| 1. | Age | 1 | | | | | | | |
| 2. | Gender | -.06 | 1 | | | | | | |
| 3. | Experience | .91** | -.07 | 1 | | | | | |
| 4. | Leader-Member Exchange | .05 | -.09* | -.04 | 1 | | | | |
| 5. | Distributive Fairness | -.07 | .05 | -.04 | .43** | 1 | | | |
| 6. | Procedural Fairness | -.06 | -.04 | -.08 | .44** | .43** | 1 | | |
| 7. | Performance Appraisal Satisfaction | .004 | -.07 | .005 | .41** | .28** | .59** | 1 | |
| 8. | Effectiveness of Performance Appraisal System | -.07 | -.06 | -.07 | .59** | .52** | .59** | .53** | 1 |

Note: * $p < 0.05$, ** $p < 0.01$; N = 557.

are mentioned in detail; first path a1 is based on the fact that independent variable (i.e., LMX) and first mediating variable (i.e., PA fairness) should be significantly related to each other. Secondly, path a2 the independent variables (i.e., LMX) should also be significantly associated with second mediator (i.e., PA satisfaction). Third path b1 states that first mediator (i.e., PA fairness) is significantly related to dependent variable (i.e., effectiveness of PA system). Fourth path b2 states that second mediator (i.e., PA satisfaction) has significant relationship with dependent variable (i.e., effectiveness of PA system). Fifth d path shows that first mediator (i.e., PA fairness) and second mediator (i.e., PA satisfaction) are significantly related to each other. Sixth path c shows the significant effect of independent variable (i.e., LMX) on dependent variable (i.e., effectiveness of PA system) and it is not influenced by the proposed mediators (i.e., PA fairness and PA satisfaction). The seventh path c' shows the direct effect of independent variables (i.e., LMX) on dependent variable (i.e., effectiveness of PA system) controlling the effect of proposed mediators (i.e., PA fairness). Due to the low power of the (Baron & Kenny, 1986) technique possibly explaining the failure to find mediation, this study has used bootstrapping method. The bootstrapping procedure (Hayes, 2013), (5000 iterations, bias-corrected, 95% Confidence Intervals (CI) were used to assess the mediating effect of multiple variables between independent variable and dependent variable. Hayes (2012, 2017) has provided a macro in SPSS to assess the mediation hypothesis directly by a bootstrap approach to obtain confidence interval. Control variables (i.e., age, gender and experience) depicted negligible variance in all models when tested for

effectiveness of PA system as a dependent variable. The correlations of control variables with dependent variable (i.e., effectiveness of PA system) were also insignificant. Therefore, these were not included in further analysis.

In H1, It was proposed that ratees' perception of high LMX will positively predict the effectiveness of PA system. Table 9 showed that the total as well as direct effects for ratees' perceptions of quality of their relationship with raters (LMX) were positive and significant [{path c: $B = 0.65, p < .00$ (Total effect)} {path c': $B = 0.37, p < .00$ (Direct effect)}]. Hence, H1 accepted.

In H2, it was proposed that ratees' perceptions of high leader-member exchange will positively predict their perceptions of effectiveness of performance appraisal system through their reactions. Further, among the performance appraisal reactions, distributive fairness and procedural fairness will serve as the first tier of mediators, and performance appraisal satisfaction will be the second tier of mediator. Results given in Table 9 show that the unstandardized beta value of path a1 ($B = 0.41, p < .001$) is positively significant. It implies that LMX predicts distributive fairness. The unstandardized beta values of path a2 ($B = 0.52, p < .001$) and path d ($B = 0.20, p < .001$) are positive and significant. It implies that both LMX and distributive fairness predict PA satisfaction. The unstandardized beta values of path b1 ($B = 0.33, p < .001$) and path b2 ($B = 0.23, p < .001$) are positive and significant. It implies that both distributive fairness and PA satisfaction predict effectiveness of PA system. The unstandardized beta value of path c ($B = 0.65, p < .001$) is positive and significant. It implies that there is overall total significant effect of LMX on effectiveness of PA system. The unstandardized beta value of path c' ($B = 0.37, p < .001$) is positive and significant. It implies that there is direct significant effect of LMX on effectiveness of PA system, controlling for the effects of proposed mediators (i.e., distributive fairness and PA satisfaction). There is significant

Table 9. Results of step mediation analysis for leader-member exchange as predictor of effectiveness of performance appraisal system with paths to represent mediation by distributive fairness as mediator one and performance appraisal satisfaction as mediator two

| Models & Variables | R² | F | B | SE | t | |
|--|----------------------|----------|---------------|-----------|---------------------------|---------------------------|
| Model 1 | .19 | 126.82** | | | | |
| Path a1 (Direct Effect of LMX on DF) | | | .41 | .04 | 11.26** | |
| Model 2 | .18 | 61.57** | | | | |
| Path a2 (Direct Effect of LMX on PA satisfaction) | | | .52 | .06 | 8.36** | |
| Path d (Direct Effect of DF on PA satisfaction) | | | .20 | .07 | 2.97** | |
| Model 3 | .51 | 194.55** | | | | |
| Path b1 (Direct Effect of DF on EPAS) | | | .33 | .04 | 8.57** | |
| Path b2 (Direct Effect of PA satisfaction on EPAS) | | | .23 | .02 | 9.50** | |
| Path c' (Direct effect of LMX on EPAS) | | | .37 | .04 | 9.75** | |
| Model 4 | .35 | 297.44 | | | | |
| Path c (Total effect of LMX on EPAS) | | | .65 | .04 | 17.24** | |
| <i>Indirect Effect</i> | | | <i>Effect</i> | <i>SE</i> | <i>LLCI_{95%}</i> | <i>ULCI_{95%}</i> |
| Mediation1 (LMX -> DF -> EPAS) | | | .14 | .03 | .07 | .20 |
| Mediation2 (LMX -> PA satisfaction -> EPAS) | | | .12 | .02 | .09 | .17 |
| Mediation3 (LMX -> DF -> PA satisfaction -> EPAS) | | | .02 | .01 | .01 | .04 |
| Total Indirect Effect: | | | .28 | .03 | .20 | .34 |

$N = 557$, * $p < .050$, ** $p < .010$; Note: LMX (Leader-member exchange), DF (Distributive Fairness), PA (Performance Appraisal), EPAS (Effectiveness of Performance Appraisal System).

difference between unstandardized beta values of path c and path c' which predict that distributive fairness and PA satisfaction are mediating between the LMX and effectiveness of PA system.

Further, there were also three specific indirect effects as given in Table 9 that, as evidenced by bootstrap confidence intervals, do not contain zero. The first mediation carries the effect of the LMX on effectiveness of PA system through distributive fairness only, bypassing PA satisfaction (mediation 1: $B = 0.14, SE = 0.03, CI_{95\%} [0.07; 0.20]$). The second mediation carries the effect of the LMX on the effectiveness of PA system through PA satisfaction only, bypassing distributive fairness (mediation 2: $B = 0.12, SE = 0.02, CI_{95\%} [0.09; 0.17]$). Third and last mediation shows indirect effects of LMX passing through both distributive fairness and PA satisfaction respectively (In serial) (mediation 3: $B = 0.02, SE = 0.01, CI_{95\%} [0.01; 0.04]$). Ratees perceived that positive distributive fairness is result of high LMX and translates into increase in PA satisfaction which in turn leads to effectiveness of PA system. The total indirect effect $B = 0.28, SE = 0.03, CI_{95\%} [0.20; 0.34]$ is estimated as the sum of the three specific indirect effects: $B = 0.14, B = 0.12, B = 0.02$ and the total effect (path c: $B = 0.65$) is the sum of the direct and indirect effects: $B = 0.37$ and $B = 0.28$ respectively.

Results given in Table 10 show that the unstandardized beta value of path a1 ($B = 0.61, p < .001$) is positive and significant. It implies that LMX predicts procedural fairness. The unstandardized beta values of path a2 ($B = 0.28, p < .001$) and path d ($B = 0.54, p < .001$) are positive and significant. It implies that both LMX and procedural fairness predict PA satisfaction. The unstandardized beta values of path b1 ($B = 0.25, p < .001$) and path b2 ($B = 0.14, p < .001$) are positive and significant. It implies that both procedural fairness and PA satisfaction predict effectiveness of PA system. The unstandardized beta value of path c ($B = 0.65, p < .001$) is positive significant. It implies that there is overall total significant effect of LMX on effectiveness of PA system. Further, the unstandardized beta value of path c' ($B = 0.41, p < .001$) is positive

Table 10. Results of Step Mediation Analysis for Leader-member exchange as Predictor of Effectiveness of Performance Appraisal System with Paths to Represent Mediation by Procedural Fairness as Mediator One and Performance Appraisal Satisfaction as Mediator Two

| Models & Variables | R ² | F | B | SE | t | |
|--|----------------|----------|--------|-----|---------------------|---------------------|
| Model 1 | .19 | 130.86** | | | | |
| Path a1 (Direct Effect of LMX on PF) | | | .61 | .05 | 11.43** | |
| Model 2 | .38 | 168.85** | | | | |
| Path a2 (Direct Effect of LMX on PA satisfaction) | | | .28 | .05 | 5.06** | |
| Path d (Direct Effect of PF on PA satisfaction) | | | .54 | .04 | 13.68** | |
| Model 3 | .51 | 190.93** | | | | |
| Path b1 (Direct Effect of PF on EPAS) | | | .25 | .03 | 8.21** | |
| Path b2 (Direct Effect of PA satisfaction on EPAS) | | | .14 | .03 | 5.04** | |
| Path c' (Direct effect of LMX on EPAS) | | | .41 | .04 | 11.06** | |
| Model 4 | .35 | 297.44** | | | | |
| Path c (Total effect of LMX on EPAS) | | | .65 | .04 | 17.24** | |
| Indirect Effect | | | Effect | SE | LLCI _{95%} | ULCI _{95%} |
| Mediation1 (LMX -> PF -> EPAS) | | | .15 | .03 | .10 | .21 |
| Mediation2 (LMX -> PA satisfaction -> EPAS) | | | .04 | .01 | .02 | .07 |
| Mediation3 (LMX -> PF -> PA satisfaction -> EPAS) | | | .05 | .01 | .02 | .07 |
| Total Indirect Effect: | | | .24 | .03 | .19 | .29 |

N = 557, * $p < .050$, ** $p < .010$; LMX (Leader-member exchange), P F (Procedural Fairness), PA (Performance Appraisal), EPAS (Effectiveness of Performance Appraisal System).

and significant. It implies that there is a direct significant effect of LMX on effectiveness of PA system, controlling the effect of proposed mediators; procedural fairness and PA satisfaction. There is significant difference between unstandardized beta values of path c ($B = 0.65$, $p < .001$) and path c' ($B = 0.41$, $p < .001$), which predict that procedural fairness and PA satisfaction are mediating between the LMX and effectiveness of PA system.

Further, there were also three specific indirect effects as given in Table 10 that, as evidenced by bootstrap confidence intervals, do not contain zero. The first mediation carries the effect of the LMX on effectiveness of PA system through procedural fairness only, bypassing PA satisfaction (mediation 1: $B = 0.15$, $SE = 0.03$, $CI_{95\%} [0.10; 0.21]$). The second mediation carries the effect of the LMX on the effectiveness of PA system through performance appraisal satisfaction only, bypassing procedural fairness (mediation 2: $B = 0.04$, $SE = 0.01$, $CI_{95\%} [0.02; 0.07]$). Third and last mediation shows indirect effect of LMX passing through both procedural fairness and PA satisfaction respectively (In serial) (mediation 3: $B = 0.05$, $SE = 0.01$, $CI_{95\%} [0.02; 0.07]$). Ratee perceived that positive procedural fairness is result of high LMX which translates into increase in PA satisfaction and further, which in turn leads to the effectiveness of PA system. The total indirect effect: $B = 0.24$, $SE = 0.03$, $CI_{95\%} [0.19; 0.29]$ is estimated as the sum of the specific indirect effects: $B = 0.15$, $B = 0.04$, $B = 0.05$ and the total effect $B = 0.65$ is the sum of the direct and indirect effects: $B = 0.24$ and $B = 0.41$. Thus, H2 is accepted.

5. Discussion

Responding to the Pichler's call, based on social exchange theory (Blau, 1964; Homans, 1958), LMX theory (Graen & Uhl-Bien, 1995), and norms of reciprocity (Gouldner, 1960) and considering social context of PA process, we have assessed the relationships between LMX and effectiveness of PA system which is mediated by the PA fairness (i.e., distributive and procedural) at first step and PA satisfaction at the second step. The first proposition of this study was to assess the influence of LMX on the effectiveness of PA system. The results showed that ratees agreed with the notion that high-quality exchange relationships between the raters and ratees positively influence the effectiveness of PA system. These results are consistent with several studies advocating the role of quality of LMX in improving the effectiveness of PA system (Pichler, 2012, 2019; Scaduto et al., 2015) and putting an end to the dearth of empirical evidence on aforesaid relationship. These results are also consistent with LMX theory (Graen & Uhl-Bien, 1995), SET (Blau, 1964) and norm of reciprocity (Gouldner, 1960) which compels the recipient of favourable treatment to respond with positive attitudes and behaviours. Therefore, based on these results, we may derive that the high quality of LMX can produce the PA system which is fair enough, indicating the effectiveness of PA.

The second proposition of this study was that the ratees' perceptions of high leader-member exchange will positively predict their perceptions of effectiveness of performance appraisal system through their reactions. Further, among the performance appraisal reactions, distributive fairness and procedural fairness will serve as the first tier of mediators, and performance appraisal satisfaction will be the second tier of mediator.

The results of mediation in serial showed that ratees' high quality of exchange relationships with raters influence their distributive and procedural fairness perceptions and in turn such fairness perceptions showed their satisfaction with the PA and further in turn such satisfaction with PA resulted in the effectiveness of PA system. These results are consistent with call to investigate the (1964) process whereby key predictors (i.e., quality of LMX) are related to appraisal reactions to improve the PA effectiveness (Pichler, 2019). These results are also consistent with the theoretical assumptions based on SET (Blau, 1964), and norm of reciprocity (Gouldner, 1960) which postulates that recipients respond to favourable treatment with positive attitudes and behaviours and these exchanges are not only behavioural but also emotional (Graen & Uhl-Bien, 1995). These results also supports the procedural justice theory's assumption that the relationship quality with authority is a potential predictor of the favourable reactions (Lind et al., 1990). Further, our results are also consistent with the findings from numerous studies have shown these effects in parts such as relationship between the quality of exchange relationships and PA fairness (i.e., distributive and procedural) (Elicker et al., 2006; Erdogan, 2002; Wang et al.,

2019); relationship between the quality of exchange relationships and PA satisfaction (Dusterhoff et al., 2014; Wang et al., 2019); relationship between PA fairness (i.e., distributive and procedural) and PA satisfaction (Dusterhoff et al., 2014; Elicker et al., 2006; Getnet et al., 2014; Jawahar, 2007; Lira, 2014); relationship between PA satisfaction and effectiveness of PA (Culbertson et al., 2013); procedural fairness as mediator in the relationship between LXM and PA satisfaction (Pichler et al., 2016). Thus, overall, this study has tested and validated a mediation in serial model by establishing a process whereby key predictors (i.e., quality of LMX) are related to PA appraisal reactions (i.e., distributive and procedural fairness) at step one and satisfaction with PA as step 2, to improve the PA effectiveness.

5.1. Managerial Implications

Pichler's review suggested the managers and organizations to pay special attention to the LMX as predictor of the effectiveness of PA and the PA reactions as the process involved in this relationship (Pichler, 2019). Responding to this call, this study empirically tested and validated the PA reactions as the process in the relationship between LMX and effectiveness of PA. Further, to add, industrial and organizational psychologists have researched psychometric issues for decades but they have often ignored the social context in which appraisal takes place. This study have suggested the importance of social context of PA (i.e., LMX and PA reactions), which may help managers and organization to understand the effectiveness of PA. Organizations should focus on developing raters who are socially supportive of their ratees, and who are able to develop high-exchange relationships with them. The practitioner literature is saturated with survey statistics indicating that employees often agree with their supervisors about PA and are, therefore, satisfied with the evaluation. The results of this study suggested that ratees with high LMX are less likely to result in perceptions of unfairness in the appraisal, and are more likely to lead to positive responses to the appraisal. Employees react differently to appraisals not just because of their feedback or rating, but because of the way in which they are treated by their supervisors. Our findings propose that it is imperative for rater to include the ratees in the evaluation process by giving them timely, frequent and accurate feedback and involving them in performance ratings before making the final decision. Moreover, top management should also make human resource decisions on the basis of outcomes of appraisals. This will make appraisal system more meaningful for the ratees and not just an annual exercise to fill forms.

5.2. Limitations of the Study

This study was not without limitations. First, it would have been desirable to include employees working in other departments of government of Punjab. Sensitivity of topic was major issue in the data collection process as appraisal is still considered a confidential report. Data were collected at a single point in time which makes it difficult to establish casual links. A longitudinal study might provide greater insight.

5.3. Future Directions

Future studies can test this model in other sectors and organizations where appraisals are conducted. It would be interesting to look at these variables in a matrix organization, where employees have multiple supervisors. Examining LMX from raters (supervisors) point of view may provide more fruitful insights. Some researchers (Pettijohn et al., 2001) have recommended to test some aspects of the PA process over time. So, future researchers should continue to work with longitudinal research designs. Future research should test the robustness of the proposed model of the current study with longitudinal research, measuring it before and after the appraisal. It is also important to include employees' individual differences in future research on PA. It is possible that perceptions to appraisal may differ according to individual differences. Future research should continue to address the reasons why social contextual variables predict PA fairness and why PA fairness predicts PA satisfaction. The framework developed in this study can serve as a guide for further research.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Citation information

Cite this article as: How leader member exchange affects effectiveness of performance appraisal system: A chain of reactions model, Muhammad Waqas Maharvi, Aneel Kumar, Khalil Ahmed Channa & Ayaz Mahmood, *Cogent Business & Management* (2023), 10: 2238392.

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Appendix A: Survey Questionnaire

| Leader Member Exchange (LMX) | Strongly Disagreed | Disagreed | Neutral | Agreed | Strongly Agreed |
|---|---------------------------|------------------|----------------|---------------|------------------------|
| I do work for my reporting officer (principal) that goes beyond what is specified. | 1 | 2 | 3 | 4 | 5 |
| I am willing to apply extra efforts, beyond those normally required, to meet my reporting officer's (principal) work goals. | 1 | 2 | 3 | 4 | 5 |
| I do not mind working my hardest for my reporting officer (principal). | 1 | 2 | 3 | 4 | 5 |
| I like my reporting officer (principal) very much as a person. | 1 | 2 | 3 | 4 | 5 |
| My reporting officer (principal) is the kind of person one would like to have as a friend. | 1 | 2 | 3 | 4 | 5 |
| My reporting officer (principal) is a lot of fun to work with. | 1 | 2 | 3 | 4 | 5 |
| My reporting officer (principal) defends my work actions to a superior, even without complete knowledge of the issue in question. | 1 | 2 | 3 | 4 | 5 |
| My reporting officer (principal) would come to my defense if I were attacked by others. | 1 | 2 | 3 | 4 | 5 |
| My reporting officer (principal) would defend me to others if I made an honest mistake. | 1 | 2 | 3 | 4 | 5 |
| I am impressed with my reporting officer's (principal) knowledge of his/her job. | 1 | 2 | 3 | 4 | 5 |
| I respect my reporting officer's (principal) knowledge of and competence on the job. | 1 | 2 | 3 | 4 | 5 |
| I admire my reporting officer's (principal) professional skills. | 1 | 2 | 3 | 4 | 5 |
| Distributive Fairness | | | | | |
| My outcomes reflect the efforts which I have put into my work. | 1 | 2 | 3 | 4 | 5 |
| My outcomes are appropriate for the work which I have completed. | 1 | 2 | 3 | 4 | 5 |
| My outcomes reflect what I have contributed to the organization. | 1 | 2 | 3 | 4 | 5 |
| My outcomes justify my performance. | 1 | 2 | 3 | 4 | 5 |

(Continued)

| (Continued) | | | | | |
|--|---------------------------|------------------|----------------|---------------|------------------------|
| Leader Member Exchange (LMX) | Strongly Disagreed | Disagreed | Neutral | Agreed | Strongly Agreed |
| Procedural Fairness | | | | | |
| I am able to express my views and feelings during all procedures regarding the PERS (ACR). | 1 | 2 | 3 | 4 | 5 |
| I don't have any influence over the outcome arrived at by rating procedures of PERS (ACR). | 1 | 2 | 3 | 4 | 5 |
| Rating procedures are applied consistently. | 1 | 2 | 3 | 4 | 5 |
| Rating procedures are free of bias. | 1 | 2 | 3 | 4 | 5 |
| Rating procedures are based on accurate information. | | | | | |
| I am able to appeal against the outcome arrived at by these rating procedures. | | | | | |
| Rating procedures upheld ethical and moral standards. | | | | | |
| Performance Appraisal Satisfaction | | | | | |
| I am satisfied with the PERS (ACR). | 1 | 2 | 3 | 4 | 5 |
| I feel good about the way the PERS (ACR) is conducted. | 1 | 2 | 3 | 4 | 5 |
| I am satisfied with the amount of feedback (both oral and written comments) I received from my reporting officer (principal). | 1 | 2 | 3 | 4 | 5 |
| I am satisfied with the quality of feedback (both oral and written comments) I received from my reporting officer (principal). | 1 | 2 | 3 | 4 | 5 |
| There are many ways in which I would have liked the evaluation to be different" (reversed). | 1 | 2 | 3 | 4 | 5 |
| Effectiveness of Performance Appraisal System | | | | | |
| I clearly understand why Performance Evaluation Report System (ACR) is conducted (PERS). | 1 | 2 | 3 | 4 | 5 |
| Reporting officer (principal) using PERS (ACR) treats employees (teachers) fairly. | 1 | 2 | 3 | 4 | 5 |
| Reporting officer (principal) using PERS (ACR) is honest in his evaluations with employees (teachers). | 1 | 2 | 3 | 4 | 5 |

(Continued)

| Leader Member Exchange (LMX) | Strongly Disagreed | Disagreed | Neutral | Agreed | Strongly Agreed |
|---|---------------------------|------------------|----------------|---------------|------------------------|
| PERS (ACR) allows employees (teachers) to be candid and open when discussing their performance. | 1 | 2 | 3 | 4 | 5 |
| PERS (ACR) is not too subjective. | 1 | 2 | 3 | 4 | 5 |
| Reporting officer (principal) puts enough time into PERS (ACR). | 1 | 2 | 3 | 4 | 5 |
| PERS (ACR) is conducted in a professional manner. | 1 | 2 | 3 | 4 | 5 |

Demographic Information

(1) **Gender:** 1= male and 2= female

(2) **Age:** 1 = 20 to 25, 2 = 26 to 30 years, 3 = 31 to 35 years, 4 = 36 to 40 years, 5 = 41 to 45 years, 6 = 46 to 50 years, 7 = 51 to 55 years, 8= Over 55 years.

(3) **Experience:** 1 = 1-3 years, 2 = 4-6 years, 3 = 7-10 years, 4 = 11-13 years, 5 = 14-16 years, 6 = 17-20 years, 7 = 21-25 years, 8= over 25 years.