Effects of leader-member exchange, job satisfaction, and organizational commitment on diagnosing employee job performance using career stage as a moderator

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Abstract

This work proposed a theoretical model for investigating the process of job performance (JP) and organizational commitment (OC) using career stage as a moderator. In the proposed model, OC and leader-member exchange (LMX) directly influence JP, while LMX and job satisfaction (JS) indirectly influence JP via the mediation of OC. The causal relationships are moderated by a career stage moderator, which combines age and employee tenure. The moderating effects were simultaneously tested using data from high-tech personnel in a large Taiwanese manufacturer. The extent to which OC affects JP is similar for the initial and mature stage groups, while the influences of LMX on both OC and JP are stronger for mature stage individuals than initial stage individuals. Finally, JS influences OC more strongly for initial stage individuals than mature stage individuals. The implications of the above findings are discussed.

Keywords: Organizational commitment; Leader-member exchange; Job satisfaction; Career stage

1. Introduction

Organizational commitment (OC) continues to receive attention from both researchers and practitioners [26, 32, 36, 52]. One of the main uses of the concept of OC derives from its relationship with its critical organizational antecedents, such as leader-member exchange (LMX), and job satisfaction (JS). Moreover, OC has been examined to influence job performance (JP), with highly committed employees performing better than less committed ones. Furthermore, studies on LMX have also begun to gather a considerable body of literature dealing with the formation of LMX within dyads and the consequences of differences among these LMX relationships [16, 19]. Some works have examined subordinate and supervisor demographics within the LMX relationship to clarify how these personal characteristics influence

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LMX quality [15, 28]. Although various works recently have examined certain aspects of OC and LMX, surprisingly, the literature contains little empirical research and few conceptual models of moderating effects on the above relationships. However, career development, LMX theory, and OC development theory [10, 16, 35] indicate that career stage may moderate the relationships between LMX and OC, between OC and JP, and so on. Therefore, this work examines the moderating effect of career stage on the relationships between JP and its primary antecedents including LMX, JS, and OC.

This investigation differs from previous works in two crucial aspects. First, previous studies [6, 10] have argued that age and tenure are theoretically interesting variables whose relation to interesting and important outcomes has been neglected. Specifically, previous studies have suggested that theoretical and methodological advances related to these two variables should be fruitful, both scientifically and practically [10, 16]. However, previous empirical investigations only explored the moderating roles of age and tenure respectively instead of combining both age and tenure as a joint moderator. Accordingly, this investigation including age and tenure as a joint moderator (career stage) is conducted. Second, in most previously quantitative studies, moderating effect was tested using the technique of exploratory analysis, and mostly was tested piece by piece instead of considering the entire model as a whole. After all, testing the moderating effect on each individual relationship partially is one thing, but testing the moderating effect on various relationships simultaneously in a model is quite another. This work attempts to complement past studies by investigating moderating effect using a model based on confirmatory analysis rather than exploratory analysis, and emphasizes the test based on the entire model as a whole.

2. Research framework

The present model, presented in Figure 1, reports the research framework and moderating effects of the model on each path.

OC not only indicates the relative strength of individual identification with and involvement in a particular organization [34], but also is assumed to influence almost all behavior that benefits the organization such as JP [41, 47]. Employees who feel attached to and identify with their organization work are assumed to work harder, and this popular assumption may provide the rationale for many organizational attempts to foster OC or identification among employees. Various studies have noted that OC is an important influence on JP, and that the relationship between the two constructs is positive.
and significant [2, 41]. Restated, employees with higher OC expend greater effort on their jobs than other employees, and thus have better performance [2]. Therefore, the following hypothesis is proposed:

\[ H_1: \text{OC positively influences JP.} \]

LMX proposes an interactionist approach to leadership, involving various social exchange relationships between supervisors and subordinates [14].
Restated, exchanges between employees and supervisors are referred to as LMX [18]. Theories such as LMX provide a logical connection with JP. For example, coping with the job stress created by management expectations and demands, employees seek a supportive environment that will help regulate and minimize the influence of stress on JP [22, 50], an environment that can only be achieved via the establishment of good LMX. Restated, LMX can help employees to create a supportive environment and gain social and emotional supports that come from a supervisor, and thus can improve JP [46]. In other words, high LMX employees are likely to receive preferential treatment and recognition, in turn leading to high JP [23, 51]. For instance, numerous studies have reported a positive relationship between high quality LMX and employee JP [15, 25, 51], including benefits such as enhanced productivity [43]. Hence, the following hypothesis is proposed:

\[ H_2: \text{LMX positively influences JP.} \]

OC is also correlated to LMX. According to LMX theory, those employees who are considered part of a supervisor’s in-group have a high quality exchange [13]. This implies that employees perceiving high LMX will feel that they belong to an in-group, whereas others will perceive that they are members of an out-group. In-group employees receive more task-related resources such as higher amounts of information, influence, involvement, latitude, confidence, and concern from the supervisors, consequently reflect positively stronger work attitudes [17]. Restated, LMX refers to supervisor-employee dyadic transactions that have been found to affect employees’ OC [16].

\[ H_3: \text{LMX positively influences OC.} \]

Besides OC, JS is also a popular topic in the study of work-related attitudes [52]. JS is an attitudinal measure relating perceptions of past events and rewards to current impressions of a job. Previous findings clearly demonstrate that JS directly affects OC [5, 31, 53]. Employees with higher JS are expected to have higher levels of OC [49].

\[ H_4: \text{JS positively influences OC.} \]

Career stage as a moderator: Numerous theories support the notion that the relationships between LMX and OC, and OC and JP, are moderated by career stage [10, 16], combining age and tenure. It is suggested that employees, regardless of occupation or educational background, pass through
specific career stages characterized by various crucial activities and psychological adjustments [27, 48]. Employees must continuously master work skills and resolve important psychological issues during their careers. Despite some different definitions of career stage time frames [37], most career development models assume that career stage may influence the strength of the relationship between LMX and OC [16], between OC and JP [10], and so on. Age and tenure are the most common career stage indicators for OC development models. To define the first indicator of career stage, age, the samples were divided into two subgroups, namely: (1) up to and including 30 years and (2) over 30 years [11]. The former subgroup herein is termed the early career, while the latter is termed the middle and later career. In addition to the study of Cohen [11], it is also reasonable to divide career stage into two subgroups here for the Chinese society using the critical age of 30, since traditional Confucian beliefs hold that people are considered completely independent after the age of 30. The second indicator of the career stage, tenure, was also divided into two subgroups: (1) up to two years and (2) two years or more. Again, the first subgroup represents the early career stage, and the second, the middle and the later stages. Career stage was defined using two subgroups because differences across age and tenure stage categories were generally between individuals at the start of their careers and those who were in the final stages of their careers [10]. To properly use the terminology, the taxonomy of career stage was redefined and presented in Table 1.

The relationships between the above hypotheses (H1 to H4) can be expected to vary with career stage. During the initial career stage, OC vary depending on opportunities open to individuals and the availability of attractive alternatives [33, 42]. Due to a lack of social and working experience, initial stage individuals are generally unable to achieve high JP despite being high OC. Moreover, initial stage individuals generally are attempting to establish themselves in jobs which interest them, and have little hesitation in changing jobs should their current job prove inappropriate. According to career development models [27, 48], individuals in the initial stage face the contradictory task of making commitments while keeping their options open. Thus, compared with mature stage individuals, initial stage individuals are unlikely to expend much effort on their current job, and are likely to express more willingness to pursue better opportunities elsewhere than individuals in other career stage groups [37, 38]. Consequently, the following hypothesis is stated:
$H_{1a}$: The relationship between OC and JP is moderated by career stage.

Table 1 Career Stage Taxonomy

<table>
<thead>
<tr>
<th>Tenure in the current organization</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Up to and including 30 years</td>
</tr>
</tbody>
</table>
| Up to two years                   | **Initial stage**
|                                   | Little work and social experience and high expectations placed on current job in achieving career goals. |
| Over two years                    | **Intermediate stage**
|                                   | Characteristics falling somewhere between the two extremes of initial stage and mature stage individuals. |
|                                   | **Intermediate stage**
|                                   | Characteristics falling somewhere between the two extremes of initial stage and mature stage individuals. |
|                                   | **Mature stage**
|                                   | Extensive work and social experience and demand for a good quality relationship with supervisors to help in achieving career goals. |

Career stage also moderates the relationship between LMX and OC [16], as well as between LMX and JP. Instead of keeping job options open, career models hold that willingness to commit to a job increases as employees move into the mature stage. Mature stage individuals have extensive work and social experience and prioritize a good quality relationship with supervisors to achieve their career goals. Consequently, mature stage employees are more interested in making a strong commitment to work [10], and in developing stable quality LMX because of better social skills, and can achieve high OC and JP owing to the resources made available by supervisors who are close to them. In summary, both JP and OC of the mature stage individuals shift dramatically with the different levels of LMX. More specifically, better LMX will lead to strongly positive JP and OC for the mature stage individuals. On the other hands, as initial stage individuals realize that they are too young and socially inexperienced to establish close relationship with the leader or top manager, both JP and OC of initial stage individuals is not influenced sensitively with the different levels of LMX. Therefore, the
following two hypotheses are proposed:

\( H_{2a} \): The relationship between LMX and JP is moderated by career stage.

\( H_{3a} \): The relationship between LMX and OC is moderated by career stage.

Finally, career stage also moderates the relationship between JS and OC. This moderating effect may be caused by individuals in the mature stage not being sensitive to OC regardless of JS. First, since such individuals in mature stage are familiar with their routine job tasks, they are not influenced strongly by routine job activities. Second, the job skills and experiences of mature stage individuals generally are sufficient to keep their mind with low stress and anxiety, and consequently avoid serious job dissatisfaction. Thus, JS generally does not strongly influence OC for these individuals in mature stage. In contrast, initial stage individuals generally are innocent and anticipate an ideal job that can help them to achieve their future career goals. Should they fail to obtain the anticipated ideal career or the satisfied job, such individuals exhibit low OC. In other words, OC of initial stage individuals sensitively changes with their JS. For example, Bartol [3] found that tenure was significant positively associated with satisfaction with work, and it might have been anticipated that longer tenure would be associated with greater job satisfaction and organizational commitment [12]. Another research [54] in a sample of 96 U.S. nurses showed that the contextual variables of job satisfaction, organizational commitment, and trust in management were germane for the younger participants, indicating the potentially possible moderating role of age on job attitudes. Consequently, the following hypothesis is proposed:

\( H_{4a} \): The relationship between JS and OC is moderated by career stage.

3. Methods

**Subjects:** The subjects in this study were high-tech personnel working in a large and well-known TFT manufacturer in Tainan Science Park, Taiwan. The definition of a high-tech organization was based on the following three criteria, as suggested by Baruch [4]: (1) The existence of internal research and development as a significant share of the organizational operations (more than 5%); (2) The mixture of the human resource (a high proportion of employees with university degrees and professional staff, more than the average in the labor market); (3) Area of activity is advanced technology, on the cutting edge of technology developments.

The sample included 380 high tech personnel with a college education
from a variety of departments, including mechanical design (12%), new products development (14%), liquid crystal materials (15%), electronic circuitry design (27%), and production-related fields (32%). This sample yielded some 344 valid and complete questionnaires (response rate 91%), containing 9% are managers and 33% are married. In addition to the classification of Cohen [11] and Confucian influence in Chinese society mentioned previously, it is also reasonable to divide career stage into two subgroups here using the critical age of 30, since the age distribution of the target organization consists of a nearly split between employees who were under 30 years old and over 30 years old. More specifically, regarding their personnel of the target organization, there were totally 85 employees under 20 years old, 3322 employees between the age of 21 and 30 years old, 1221 employees between the age of 31 and 40 years old, 42 employees between the age of 41 and 50 years old, and 6 employees over 51 years old. For the purpose of this analysis, mature stage employees are defined as persons above 30 years old.

Regarding the proportion for male and female staff respectively in high-tech organizations in Taiwan, the numbers generally vary from one company to another. At the time the survey was conducted, female staff occupied approximately 60% while male staff occupied approximately 40% in the target organization according to the manager of that organization. Subsequently, the survey turned out that the sample consisted of three groups, namely initial stage, mature stage, and intermediate stage individuals, as listed in Table 1. Career stage analysis identified 125 respondents as initial stage individuals (49% male and 51% female), while there were 142 mature stage individuals (45% male and 55% female), and 77 intermediate stage individuals (44% male and 56% female). Initial and mature stage individuals are taken as the main subject groups to test the moderator of career stage owing to their clearly different characteristics.

**Measures:** The following scales with 5-point items are all Likert type scales. Employees responded on five-point scales with anchors of “strongly disagree” (1) and “strongly agree” (5), except the measurement of JP using a comparative five-point rating scale as follows:

**Job Performance (JP):** Employees responded to four items designed to assess their personal performance. Those items were originally from Singh [46]: “Productivity meeting your quotas and targets” (V1); “Overall performance in reaching objectives” (V2) and “Keeping abreast of your company’s policies” (V3); “Providing accurate and complete paperwork” (V4). Each item was asked on a comparative five-point rating scale (i.e., compared with
an average employee in the department) with the endpoints “bottom 20%” and “top 5%”. The measurement of self-reports is confirmed by Singh [46] to have validity and be significantly correlated with judgments made by other observers external to the companies (e.g., consumers). It is also supported to have less restriction of range and less error than various purportedly objective measures.

**Organizational Commitment (OC):** A nine-item measure developed by Porter et al. [39] was adopted measuring affective OC. 6 items were actually used according to the factor loadings of test results of principal components analysis by Wayne et al. [55]. “I am willing to put in a general deal of effort beyond that normally expected in order to help my company be successful” (V5); “I am extremely glad that chose this company for which to work, over others I am considering at the time I joined” (V6); “I talk up this company to my friends as a great organization for which to work” (V7); “I am proud to tell others that I am part of this company” (V8); “I don’t really care about the fate of my company” (V9); “I find that my values and the company’s values are very different” (V10). The items of V9 and V10 require reverse scoring.

**Leader-Member Exchange (LMX):** Six items drawn from Scandura & Graen [43] were used to measure LMX. “I usually know where I stand with my manager” (V11); “My manager has enough confidence in me that he/she would defend and justify my decisions if I was not present to do so” (V12); “My working relationship with my manager is effective” (V13); “My manager understands my problems and needs” (V14); “I can count on my manager to bail me out, even at his or her own expense, when I really need it” (V15).

**Job Satisfaction (JS):** JS was measured using four items. The first three items were drawn from Rich [40] and the last item was from Hackman & Oldham [20]. “All in all, I’m satisfied with my job” (V16); “In general, I like working at my company” (V17); “In general, I don’t like my job” (V18); “I’m generally not satisfied with the kind of work I do in this job” (V19). The item of V19 requires reverse scoring.

4. Data Analysis

After data collection, SEM (Structural Equation Modeling) is used to perform data analysis. SEM is a multivariate statistical technique applied to confirm the model relations among latent variables. This investigation follows a two-step procedure proposed by Anderson & Gerbing [1]. The first step involves developing an effective measurement model with confirmatory
factor analysis, while the second step analyzing the structural model [29, 30]. Both SAS and AMOS are used as the research tools for analyzing the data for the purpose of double checks.

MI (modification index) is the index adopted to choose indicator variables [24]. Through repeated filtering, a total of 10 indicator variables were deleted. The indicators retained in the models of initial stage group and mature stage group are identical to meet the requirement of measurement equivalence [45]. Every construct in the final measurement models is measured using at least two indicator variables as Table 2. The overall goodness-of-fit indices shown in Table 3 (chi-square/d.f. smaller than 2.0, CFI, NFI, NNFI, GFI, and AGFI all greater than 0.9 except one value of AGFI slightly lower than 0.9) indicated that the fits of the models were both satisfactory [7, 8].

Table 2 Overall Reliabilities of the Constructs for Pooled Sample of both Groups

<table>
<thead>
<tr>
<th>Construct</th>
<th>Indicators retained in the measurement model</th>
<th>Reliability (Cronbach’s alpha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job performance (JP)</td>
<td>V1, V2, V3</td>
<td>.95</td>
</tr>
<tr>
<td>Organizational commitment (OC)</td>
<td>V5, V6,</td>
<td>.93</td>
</tr>
<tr>
<td>Leader-member exchange (LMX)</td>
<td>V11, V13</td>
<td>.88</td>
</tr>
<tr>
<td>Job satisfaction (JS)</td>
<td>V16, V19*</td>
<td>.78</td>
</tr>
</tbody>
</table>

* Denotes items requiring reverse scoring

Table 3 Goodness-of-Fit Indices for the Final Measurement Model

<table>
<thead>
<tr>
<th>Group</th>
<th>χ²</th>
<th>df</th>
<th>p-value</th>
<th>NFI</th>
<th>NNFI</th>
<th>CFI</th>
<th>GFI</th>
<th>AGFI</th>
<th>RMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>27.19</td>
<td>21</td>
<td>0.16</td>
<td>.96</td>
<td>.98</td>
<td>.99</td>
<td>.96</td>
<td>.91</td>
<td>.03</td>
</tr>
<tr>
<td>Mature</td>
<td>35.50</td>
<td>21</td>
<td>0.02</td>
<td>.97</td>
<td>.98</td>
<td>.99</td>
<td>.95</td>
<td>.88</td>
<td>.02</td>
</tr>
</tbody>
</table>

Note: Initial = Initial stage group; Mature = Mature stage group

Reliability can reflect the internal consistency of the indicators measuring a given factor. As shown in Table 2, reliabilities for all constructs exceed 0.7 for pooled sample of both groups, satisfying the general requirement of reliability for research instruments.
Convergent validity is achieved if different indicators used to measure the same construct obtain strongly correlated scores. In SEM, convergent validity can be assessed by reviewing the t tests for the factor loadings [21]. Here, for both initial stage and mature stage groups, all factor loadings for indicators measuring the same construct are statistically significant, showing that all indicators effectively measure their corresponding construct [1] and supporting convergent validity.

Discriminant validity is achieved if the correlations between different constructs, measured with their respective indicators, are relatively weak. The chi-square difference test can be used to assess the discriminant validity of two constructs by calculating the difference of the chi-square statistics for the constrained and unconstrained measurement models [21]. The constrained model is identical to the unconstrained model, in which all constructs are allowed to covary, except that the correlation between the two constructs of interest is fixed at 1. Discriminant validity is demonstrated if the chi-square difference (with 1 df) is significant, meaning that the model in which the two constructs were viewed as distinct (but correlated) factors is superior. Since we need to test the discriminant validity for every pair of four constructs, we should control the experimentwise error rate (the overall significance level). By using the Bonferroni method under the overall 0.05 and 0.01 levels, the critical values of the chi-square test are, respectively, \( \chi^2(1, 0.05/6) = 7.88 \) and \( \chi^2(1, 0.01/6) = 10.83 \). Since the chi-square difference statistics for every two constructs all exceed 10.83 for both internals and externals (see Table 4), discriminant validity is successfully achieved.

5. Results

This study uses the analytical strategy of Singh [45] to examine the existence of moderating effect on the structural model. First, an “unconstrained” model is estimated, in which path coefficients are allowed to vary across the cross-group datasets. Next, a “fully constrained” model is estimated by requiring that each path coefficient is constrained equally for cross-group datasets. The “fully constrained” model is thus based on the notion of variance of model relationships in cross-group settings. Comparing the goodness-of-fit statistics for the “unconstrained” and “fully constrained” models – based on a \( \chi^2 \) difference test – yields evidence for examining our hypothesis. The \( \chi^2 \) statistics for unconstrained model and constrained model are, respectively, 70.08 (df = 44) and 83.05 (df = 48). Their difference is 12.97 with 4 degrees of freedom. The significant difference (at the 5% level) indicates that the moderating effects do exist. To test for the moderating ef-
fects for individual path is Figure 1, the χ² difference test is used again. However, the χ² statistics for the unconstrained model and the “partially constrained” model (The target path coefficient is constrained equally for cross-group datasets) are computed.

Table 4 Chi-Square Difference Tests for Testing Discriminant Validity

<table>
<thead>
<tr>
<th>Construct Pair</th>
<th>Initial stage group (Unconstrained χ²(21) = 27.19)</th>
<th>Mature stage group (Unconstrained χ²(21) = 35.50)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Constrained χ² (df = 22)</td>
<td>χ² difference</td>
</tr>
<tr>
<td>(F1, F2)</td>
<td>125.70</td>
<td>98.51**</td>
</tr>
<tr>
<td>(F1, F3)</td>
<td>127.29</td>
<td>100.10**</td>
</tr>
<tr>
<td>(F1, F4)</td>
<td>53.00</td>
<td>25.81**</td>
</tr>
<tr>
<td>(F2, F3)</td>
<td>111.93</td>
<td>84.74**</td>
</tr>
<tr>
<td>(F2, F4)</td>
<td>51.62</td>
<td>24.43**</td>
</tr>
<tr>
<td>(F3, F4)</td>
<td>54.70</td>
<td>27.51**</td>
</tr>
</tbody>
</table>

** Significant at the 0.05 overall significance level by using the Bonferroni method.

Note: F1 = Job performance; F2 = Organizational commitment; F3 = Leader-member exchange; F4 = Job satisfaction.

Fig. 2 illustrates the result of analysis. Except one path partially supported (H1), the remaining paths are all significant for both groups (H2, H3, H4). Therefore, the test results successfully achieve the goal of confirmatory analysis for this study.

Table 5 lists other tests of moderating effect for individual paths. From Table 5, the influence of OC on JP is similar for both groups (H1a is not supported), while the influence of LMX on both OC and JP is stronger for mature stage individuals than initial stage individuals (H2a and H3a are supported). Finally, the influence of JS on OC is stronger for initial stage individuals than mature stage individuals (H4a is supported).

The failure of H1a may occur because the influence of OC on JP is neither age nor tenure specific, especially in high-tech organizations. Furthermore, the test result for H1a seems consistent with the perspective of career
planning since it seems that the organization may benefit from increasing OC across all career stages [10]. In conclusion, regardless of employee career stage, supervisors in high-tech organizations can easily achieve high JP by stimulating OC.

Figure 2 Results of Analysis for Structural Models

** p < .05
### Table 5 Hypothesis Results

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Unconstrained model</th>
<th>Constrained model&lt;sup&gt;a&lt;/sup&gt;</th>
<th>$\chi^2$ difference</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_{1a}$</td>
<td>$\chi^2 = 70.08$</td>
<td>$\chi^2 = 71.38$</td>
<td>1.30 (d.f. = 1)</td>
<td>Initial = Mature</td>
</tr>
<tr>
<td></td>
<td>(d.f. = 44)</td>
<td>(d.f. = 45)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$H_{2a}$</td>
<td>$\chi^2 = 70.08$</td>
<td>$\chi^2 = 75.63$</td>
<td>5.55** (d.f. = 1)</td>
<td>Initial &lt; Mature</td>
</tr>
<tr>
<td></td>
<td>(d.f. = 44)</td>
<td>(d.f. = 45)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$H_{3a}$</td>
<td>$\chi^2 = 70.08$</td>
<td>$\chi^2 = 77.12$</td>
<td>7.04** (d.f. = 1)</td>
<td>Initial &lt; Mature</td>
</tr>
<tr>
<td></td>
<td>(d.f. = 44)</td>
<td>(d.f. = 45)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$H_{4a}$</td>
<td>$\chi^2 = 70.08$</td>
<td>$\chi^2 = 73.19$</td>
<td>3.11* (d.f. = 1)</td>
<td>Initial &gt; Mature</td>
</tr>
<tr>
<td></td>
<td>(d.f. = 44)</td>
<td>(d.f. = 45)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>The subjective path coefficient is constrained equally for cross-group datasets.

Note: F1 = Job performance; F2 = Organizational commitment; F3 = Leader-member exchange; F4 = Job satisfaction; Initial = Initial stage group; Mature = Mature stage group.

### 6. Discussion and Managerial Implication

This work mainly aimed to determine the applicability of career stage as a moderator of the forecasting of OC and JP. Notably, most of the moderating effects in the theoretical model are confirmed here. The present findings were consistent with previous studies on the relationships among LMX, JS, OC, and JP. The evidence supporting the significant relationships in the proposed model can encourage high-tech business supervisors to create stable and high JP to benefit both employees and organizations. First, employees enjoying higher quality exchanges with their supervisors displayed enhanced OC and JP. This phenomenon indicates that although both supervisors and employees may be constrained by work context, their ability to cultivate dyadic high-quality exchanges can significantly enhance OC and performance. Second, creating improved job content and system that streng-
then employee JS is essential for fostering OC and thus indirectly boosting JP. This pattern suggests that employees expect an organization to create a satisfying working environment, ultimately allowing all group members to achieve satisfaction through their membership of the group, thus promoting OC. In short, employees who perceive high LMX and JS, tend to respond with higher OC and JP than other employees. Although this study provides a guide for creating effective work environments, the approach described requires a transformation in understanding the difference between initial and mature career stage individuals.

Traditionally, supervisors have applied a uniform approach to all employees, but the analytical results presented here suggest that employees differ in their perceptions of LMX and JS depending on career stage. More specifically, the test results of this investigation support the conjecture that career stage is an important moderator of employee OC and JP. The influences of LMX on both OC and JP are stronger for mature stage individuals than initial stage individuals \( (H_{2a} \text{ and } H_{3a}) \). Accordingly, supervisors trying to maintain relationships with mature stage individuals should focus on long-term relationships rather than superficial ones, thus allowing mature stage individuals to achieve significantly higher OC and JP. Restated, the present findings may cause supervisors to give more careful consideration to mature stage individuals than initial stage individuals. This more careful consideration of establishing mutual trust relationships with subordinates then may benefit the organization due to increased OC and JP. Besides, mature stage individuals tend to have better working experience and social skills, and thus helping the establishment of good LMX, which in turn boosts their confidence and increases OC and JP. On the other hand, initial stage individuals tend to view themselves as powerless to establish close LMX (or may be too naïve to think of this), and thus LMX has little effect on improving OC in the initial stage group. This phenomenon is partially supportive to the exploratory study of Epitropaki & Martin [16] in which they found that when LMX was low, staff with high tenure scored lower OC than those with low tenure.

Since the relationship between JS and OC is stronger for initial career stage individuals than mature career stage individuals \( (H_{4a}) \), initial stage employees may be highly sensitive to JS, significantly influencing OC. This sensitivity then may influence motivation to perform higher JP indirectly. In other words, whenever initial stage individuals are found to perceive low JS, supervisors should consult them and attempt to prioritize their complaints to eliminate the causes of their job dissatisfaction. Should management neglect
their JS, initial stage individuals might react with low OC and low JP. Consulting with employees and listening to their constructive suggestions can help to improve employee JP. Alternatively, high-tech organizations can establish formal mechanisms for dealing with job dissatisfaction as it occurs. Such mechanisms could formalize a consultation channel especially for initial stage individuals, providing them the opportunity to express their complaints about the job and give suggestions for improvement. More specifically, mechanisms such as internet “hotlines” and formal “responding procedures” are likely to encourage individuals to express their dissatisfaction about the job. At any rate, offering various consulting channels would particularly benefit the job attitude formation of initial stage individuals, who are influenced by job perceptions in their OC development. Restated, if supervisors can understand the sensitivity of initial stage individuals towards JS and help reduce their dissatisfaction, initial stage individuals will promptly respond with markedly increased OC. Alternatively, organizations should maintain more transparency regarding any new job related policies, which may be critical for initial stage individuals. Detailed communication of information on new job policies offers clear job security and guidance for initial stage individuals, and can also eliminate unnecessary doubts and job dissatisfaction. Supervisors thus would be well advised to reinforce the OC of initial stage individuals through ad hoc reminders of policy whenever the topic comes up.

In conclusion, it is very hard to develop specific regulations and rules to cover all conceivable conditions in a rapidly globalizing economy [44], and thus supervisors must consider the importance of generating a positive organizational culture in which perceptions of JS and LMX are carefully developed.

7. Limitation and Future Research

It is important to note some limitations of this study. First, the feature of the model could be modified. That is, it might be good to apply other antecedents of the OC models, such as procedural justice, perceived job stress, perceived organizational support, and so on. Another threat to validity is the use of only one company in this study. However, sampling representativeness from several companies may create additional problems. For example, Churchill & Peter [9] conducted a meta-analysis of 116 sales force studies and found that pooling samples from several organizations can attenuate relationships among constructs because of organizational idiosyncrasies. Third, although the present investigation found that career stage is an important
moderator for the proposed model when applied to high-tech personnel, more research needs to be carried out to test the validity of the present model across different occupational fields. Fourth, while the findings of this study support the view that these relationships vary across career stage, longitudinal research designs that measure the focal variables at multiple points in time are essential for complementary study. Some of the arguments and findings of this study may be a good starting point for future related research. Fifth, the failure of $H_{1a}$ might be caused by the ignorance of other important variables, such as gender, educational background, personality, and so on. However, in order not to overstate the possible explanations behind the failure of $H_{1a}$, further research for possible critical variables would be necessary. Last, there are possibly other moderators that influence these relationships, such as gender, marriage status, company policy and welfare, etc. Research should continue, but with some shift in its focus in the future.

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