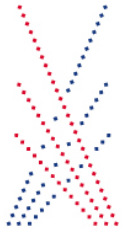

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Empowering Leadership, Employee Entrepreneurial Orientation and Innovative Performance: A Dyadic Study in China

This research examines the relationship in between empowering leadership and employee innovative performance, and tests the extent employee entrepreneurial orientation mediates on it. Supervisor-employee dyadic study was conducted among seven factories across three provinces in China. The data analysis results supported the association between empowering leadership and employee innovative performance, the mediating effect of employee entrepreneurial orientation, and also the moderating effect of employee creative self-efficacy but not the moderating effect of employee openness. These findings enable us to better understand the mechanism by which an empowering leader influences employee innovative performance. It also explains how this process of influencing is subject to employees' various individual characteristics.

Keywords: **empowering leadership; entrepreneurial orientation; innovative performance; openness; creative self-efficacy; trait activation theory.**

Track applied: Leadership (or Innovation)

Word count: 6415 words

Innovation is critical to a firm's sustainable development. It is the end result or achievement of the laborious work of enterprises, across organisational levels and through an aggregate of employees. Given the importance of firm innovation, as well as the role employees' play in creating innovation for firms, this study is designed to examine the ways in which employees can exhibit innovative behaviour and achieve innovative performance from the perspective of leadership.

Empowering Leadership only emerged in 2000 (Arnold et al., 2000; Konczak et al., 2000), since then empowering leadership and psychological empowerment have gained momentum as subjects for study. Many empirical studies of their effect on the performance of followers and organizations are launched. Empowering leadership and employee empowerment are closely related. Empowerment connotes independence and autonomy. An empowered person is self-motivated and believes in his or her own ability to cope and perform successfully (Bass, 1985; Dvir, Eden, Avolio, & Shamir, 2002). The main theme of empowering leadership is the provision of psychological empowerment to followers in such a way that leads and influences them to achieve organisational goals (Arnold et al., 2000; Avery, 2004; Avolio et al., 2004). In contrast to the broader construct of transformational leadership, which also has a component regarding follower empowerment, empowering leadership is "more clearly focused on empowerment, so that the association with empowerment is likely to be stronger" (Fong & Snape, 2015, p. 128).

Despite the potential role of empowering leadership is soliciting employee innovative behaviour, extant literature overlooks how this will happen and the research of relevant boundary conditions is absent. This research was to establish evidence for the existence of a total effect between empowering leadership and innovative performance firstly.

In this study, we propose that employee individual entrepreneurial orientation is a personal trait that can lead to innovative performance when triggered by the presence of a trait-relevant situational cue of empowering leadership (Maalouf, 2014). Traits are relatively stable patterns of behaviour, thought, and emotion; they are "stable individual-difference constructs that reflect reliable and distinct habits, consistencies, or patterns in a person's thoughts, feelings, and behaviours over time and across situations" (Oswald, Hough, & Ock, 2013, p. 11). Trait activation refers to the process whereby individuals express their traits when presented with trait-relevant situational cues. These situational cues may stem from the organisation, social context, and/or task at hand. These cues can activate traits that are related to job tasks and job performance (Chatman, 1989; Tett & Burnett, 2003). Trait Activation Theory proposes that such trait activation can lead to better job performance (Tett, Simonet, Walser, & Brown, 2013), based on the rationale that, when employees express their own traits and can be their real selves, they become intrinsically rewarded and motivated. Further, Trait Activation Theory proposes that, without trait activation, the relationship between trait and performance will be weakened (Judge & Zapata, 2015). Along the same vein, we adopt Trait Activation Theory as a backbone theory in this present study and apply it to explain the relationships between empowering leadership, employee individual entrepreneurial orientation, and innovative performance.

Figure 1 depicted our hypothesized research model, in which the various constructs and hypotheses are shown.

----- Insert Figure 1 here -----

Theoretical Background and Hypotheses

Employee Perceived Empowering Leadership and Employee Innovative Performance

Zhang and Bartol (2010) found that empowering leadership positively affects psychological empowerment and influences both intrinsic motivation and creative process engagement. Psychological empowerment consists of four dimensions: meaning, impact, self-efficacy or competence, and self-determination (Spreitzer, 1995; Thomas and Velthouse, 1990); conceptually each of the four is conducive to innovative performance. When employees perceive meaning in their jobs and that their behaviours can make a difference to their work outcomes, they are willing to immerse themselves in their jobs by searching for more information and generating a great number of creative alternatives (Gilson & Shalley, 2004). Impact represents the degree to which one believes one's behaviours can influence strategic, administrative, or operating work outcomes (Ashforth, 1989). Self-efficacy is also likely to lead to more innovation, due to the positive expectations of success involved (Amabile, 1988; Bass, l990; Redmond, Mumford, & Teach, 1993). Self-determination is important because the increased control over tasks boosts employees' intrinsic motivation, which in turn promotes creative behaviours (Amabile, 1988; Amabile, Conti, Coon, Lazenby, & Herron, 1996; Amabile & Gryskiewicz, 1987).

In the extant innovation literature, studies of creativity have revealed that individuals produce more creative work when they perceive themselves to have choices in how to go about accomplishing the tasks they are given (Amabile & Gitomer, 1984). Several researchers have concluded that creativity is fostered when individuals have relatively high levels of autonomy in the day-to-day conduct of their work, as well as a sense of ownership and control over their own work and their own ideas (Bailyn, 1985; King & West, 1985; Paolillo & Brown, 1978; Pelz & Andrews, 1966; West, 1986). Indeed, consensus among various researchers have reached that employees' levels of creativity are an important part of their innovative performance (Kanter, 1988; Patterson, 2002; Scott & Bruce, 1994; Woodman, Sawyer, & Griffin, 1993). Research studies either provided empirical support that innovation results from empowerment (Spreitzer, 1995), or found a significant connection between psychological empowerment and employee innovative performance (Singh & Sarkar, 2012). Thus, we propose that:

H1: Employees' perceived empowering leadership is positively associated with employee innovative performance.

Employee Perceived Empowering Leadership and Employee Entrepreneurial Orientation

The essence of empowering leadership is influencing employees' psychological empowerment (Arnold et al., 2000; Bass, 2008; Dewettinck & Van Ameijde, 2011; Dierendonck & Dijkstra; 2012; Raub & Robert, 2007). Leaders who practise empowering leadership typically provide employees with coaching, training, emotional support, information, and participation in making decisions (Bandura, 1986); they also act to remove conditions that foster a sense of powerlessness (Arnold et al., 2000). As such, empowering leadership serves to increase employees' autonomy, discretion, and transparency, as well as decrease bureaucracy, restrictions, and boundaries; these aspects are important in promoting employees' innovativeness, proactiveness, and risk-taking, that is, entrepreneurial orientation. Some empirical evidence of this can be found in Kör (2016).

Moreover, empowering leadership conveys confidence in the employees' abilities and emphasizes the significance of their work; as Zaleznik (1977) and Hunt (1991) argued, a high level of self-confidence or self-efficacy is a prerequisite for embracing the inherent risk of challenging the status quo. Ahearne's (2005) study provides some empirical support for this: in a pharmaceutical field study, he found that empowering behaviors in leadership have a significant positive relationship with salespeople's self-efficacy and adaptability. The self-efficacy and adaptability of those salespeople then mediates the impact of empowerment behaviour in regard to leadership on their sales performance and customer service satisfaction.

This research argues that empowering leadership can elicit employee entrepreneurial orientation, which is consistent with the Trait Activation Theory indeed (Maalouf, 2014; Tett & Guterman, 2000; Tett & Burnett, 2003; Tett, Simonet, Walser, & Brown, 2013). According to this Theory, supervisors' empowering leadership can be a relevant situational cue that activates employee entrepreneurial orientation, thereby enabling these employees to exhibit the desirable qualities of entrepreneurial orientation: innovativeness, proactiveness, and risk-taking. Therefore, by drawing on Trait Activation Theory, it makes theoretical sense that empowering leadership affects the employee entrepreneurial orientation, although empirical evidence has yet to be produced to support such an effect. Therefore, we propose:

> *H2:* Employees' perceived empowering leadership is positively associated with employee entrepreneurial orientation.

Employee Entrepreneurial Orientation and Employee Innovative Performance

Various empirical studies have tested the relationship between entrepreneurial orientation and innovation at the firm level. Atuahene-Gima and Ko (2001) revealed that entrepreneurial firms have higher new product performance than conservative firms. Matsuno et al. (2002) has shown that the positive effect of entrepreneurial proclivity on the percentage of new product sales to total sales, although indirect, is only achieved through market orientation. Wei (2013) has also drawn evidence from firms in China that entrepreneurial orientation is positively associated with the introduction of new products.

Yet, empirical studies of this relationship at the individual level have been lacking until very recently. Krauss, Frese, and Friedrich (2005) examined the relationship between entrepreneurial orientation as a psychological construct and business success among 248 South African business owners. Hierarchical regression analysis of this sample of entrepreneurs showed significant relationships between overall entrepreneurial orientation, as well as various components of entrepreneurial orientation, such as personal initiative, achievement, risk-taking, and business performance.

However, it conceptually follows from these three dimensions, which are listed and explained below, that employee entrepreneurial orientation should be closely associated with innovative performance. First, innovativeness by definition leads to innovative performance. Innovativeness represents a person who is willing to leave behind the existing practices or technologies and venture beyond the current state of things (Kimberly, 1981). Innovativeness may occur when an employee is willing to try new product lines or experiment with new advertising venues, or to passionately commit to mastering the latest new products or technological advances (Lumpkin & Dess, 1996). Second, a willingness to take risks is necessary for engaging in innovative performance. Although it can be hugely rewarding (Santiago, 2009), innovation is inherently risky and uncertain (Berglund, 2007; Knight, 1971). As noted by Loosemore (2014, p. 204), "[t]here is plenty of empirical and anecdotal evidence to illustrate that innovation is associated as much, if not more, with failure than it is with success." In case of failure, the innovator stands to lose things like capital, promotions, jobs, pay, social standing, or self-esteem (Brockhaus, 1980; MacCrimmon & Wehrung, 1986). Third, proactiveness or a willingness to take the initiative supports the extended effort needed to engage in innovative performance (Unsworth, 200l). Proactive individuals are very likely to "identify opportunities and act on them, show initiative, take action, and persevere until meaningful change occurs" (Crant, 2000, p. 439), and tend to be more innovative (Fuller & Marler, 2009). According to Gong, Cheung, Wang, and Huang (2012), proactive employees are more innovative because they have accumulated resources with which to seize future opportunities and to prepare for potential challenges. Thus, we posit that:

H3: Employee entrepreneurial orientation is positively associated with employee innovative performance.

The Mediating Role of Employee Entrepreneurial Orientation in the Relationship between Leaders' Empowerment and Employee Innovative Performance

So far, this research has posited three hypotheses that link empowering leadership to innovative performance, empowering leadership to entrepreneurial orientation, and entrepreneurial orientation to innovative performance. With further consideration of these three constructs, using the Trait Activation Theory, it makes theoretical sense to posit that organisational leaders aiming to foster innovative performance in the workplace need to lead with empowering leadership, in order to elicit employee entrepreneurial orientation, which in turn promotes these employees' innovative behaviours.

Following the explanation already provided in the previous two Sections, we provide in this paragraph a coherent set of reasons to conceptually argue for the proposed mediating role of employee entrepreneurial orientation. In accordance with Trait Activation Theory, empowering leaders who aim to promote the innovative performance of employees need to first empower these employees in such a way that these employees' entrepreneurial orientation is successfully activated. They thus become willing to take risks, be innovative, and take the initiative, which are traits deemed critical for these employees' likelihood to act and deliver innovative performance, owing to the notion that innovation is inherently risky, is based on innovativeness, and requires initiative.

Based on the aforementioned reasoning, we contend that empowering leaders can successfully affect followers' innovative performance only if and when they can first elicit these followers' entrepreneurial orientation. Simply put, we posit that employee entrepreneurial orientation mediates the effect of supervisory empowering leadership on employee innovative performance. The mediating effect is a complete rather than a partial effect in the sense that empowering leadership has no direct effect on innovative performance in the presence of employee entrepreneurial orientation. Therefore, we hypothesize that:

H4: Employee entrepreneurial orientation mediates the relationship between employee perceived empowering leadership and employee innovative performance.

The Moderating Role of the Employee Openness in the Relationship between Leaders' Empowerment and Employee Entrepreneurial Orientation

Entrepreneurship is characterised by high levels of uncertainty, risk, and flexibility, and by low levels of routine (Douglas & Shepherd, 2002; Hmieleski & Corbett, 2006; Rauch & Frese, 2007; van Gelderen et al., 2008). Given the conceptual understanding of personal values, they being people's motivational characteristics which guide people's perceptions, attitudes, and behaviors across time and contexts (Allport, 1961; Bardi and Schwartz, 2003; Rokeach, 1973; Schwartz, 1992), entrepreneurship tends to be attractive to people who value aspects related to openness to change, such as stimulation and self-direction. Specifically, people whose value being open to change are motivated to capitalise on the given empowerment in order to nurture their entrepreneurial orientation, while people who do not value openness to change are less motivated to do so. That is to say, employees with high levels of openness are more responsive to the influence of empowering leadership on their entrepreneurial orientation.

Empirically, Eva et al. (2017) examined the interaction between personal values of self-direction (which is a component of openness) and the organisational context in regard to influencing work behaviors. As previously hypothesized, the positive effect of self-direction on innovative behavior was found to be stronger in less formalised organisations. Also studying the moderating role of openness, Seppälä et al. (2012) predicted whether or not personal values, group identification, and a sense of power interact in predicting the change-oriented Organisational Citizenship Behavior (OCB) of employees. In line with their prediction, the results of their study showed that valuing openness to change

and work unit identification interacted positively in predicting supervisor-rated change-oriented OCB in workers with a high sense of power, but not in workers with a low sense of power. Prior studies by Eva et al. and Seppälä et al. have offered useful information regarding the moderating role of openness. Therefore, I hypothesize that:

H5: Employees' openness to change positively moderates the relationship between employee perceived empowering leadership and employee entrepreneurial orientation.

The Moderating Role of Employee Creative Self-Efficacy in the Relationship between Employee Entrepreneurial Orientation and Employee Innovative Performance

Creative self-efficacy is self-efficacy in the domain of creativity. Self-efficacy refers to an individual's confidence in his or her ability to perform a specific behaviour or task (Bandura 1977). According to Bandura (1986), self-efficacy beliefs affect employee performance in a number of ways. Employees are more likely to undertake tasks for which their self-efficacy is high and avoid those where their self-efficacy is low. Low self-efficacious employees tend to believe that tasks are more difficult than they really are and thus feel more stress and depression, and have a narrower vision of how best to deal with problems. Hence, the stronger the employee's perceived self-efficacy is, the more vigorous, persistent, and resilient their efforts will be.

Bandura's (1997, p. 2) main contentions regarding the role of self-efficacy beliefs in human performance is that "people's level of motivation, affective states, and actions are based more on what they believe than on what is objectively true." Consequently, self-efficacy beliefs can significantly influence the level of performance that an employee can ultimately accomplish. As such, in the domain of creativity, it is logical to argue that even employees with high levels of entrepreneurial orientation may be hindered by their low levels of creative self-efficacy when attempting to be innovative. Specifically, it is reasonable to believe that employees with low levels of creative self-efficacy are unlikely to deliver innovative performance, even though they are indeed highly entrepreneurial oriented. Jaiswal and Dhar (2015) investigated the moderating role of creative self-efficacy and found that employees with high levels of creative-self-efficacy resorted to creative behavior when they worked in climates supportive of innovation. Using data from a dyadic sample of 424 employees and their immediate supervisors, Jaiswal and Dhar (2016) revealed the significant moderating role of creative self-efficacy on the relationship between transformational leadership and employees' creativity. In these two extant literatures, empirical evidence by Jaiswal and Dhar (2015, 2016) also sheds light on the moderating effect of creative self-efficacy. That is to say, employees' creative self-efficacy should have an important moderating effect on the relationship between their entrepreneurial orientation and their innovative performance. Therefore, we posit:

H6: Employee creative self-efficacy positively moderates the relationship between employee entrepreneurial orientation and employee innovative performance.

Method

Sample and data collection

This study aimed to investigate the dyadic relationships between leaders and followers in China. 379 paired data points were collected from seven factories in the provinces of Guangdong, Jiangxi and Zhejiang in China. Employees completed surveys assessing their perceived supervisors' empowering leadership, and their own entrepreneurial orientation, openness and creative self-efficacy. Supervisors rated two categories of the innovative performance of subordinates: their innovative behaviours and innovative outputs. The survey was administered at schedule times during working hours. The participants were briefed on the research prior to completing the questionnaire, using a top down approach to as many levels as the factories allowed: the top managers were briefed by the researchers, the managers briefed by the top managers, foremen by the managers, and so on and so forth. The participants were all assured that their responses be treated in confidence, as they completed their questionnaires individually then returned them in sealed envelopes. The questionnaire was administered in Chinese, with the English-language original having been translated into Chinese by the first author with the help of two professional translators, and pre-tested by two respondents from two prospective factories to check for accuracy.

During the site visits, 408 sets of blank questionnaires were distributed, out of which 379 sets of filled questionnaires were collected and returned, representing a response rate of 92.9%. Should there be any missing data in the questionnaire, they were dropped from the study. Following this method of data cleaning, 32 data points were removed and a total of 347 paired data points was kept for final analysis These 347 sets came from 347 followers reporting to 72 leaders. Hence, the final success rate of the usable 347 sets, compared to the distributed 408 sets of questionnaires was 85%. An overview of the demographics revealed that most participating organisations (64.8%) were engaged in the manufacture of medical items and accessories; the median total number of organizational levels was four; the responding employees were mostly at the middle low (27.7%), middle (34.9%), or middle high (30.8%) level; the supervisors participating in the survey were mostly male (63.7%) and had a tenure of more than 10 years (59.6%), while there were slightly more male (53.8%) than female employees and had a median tenure of three to five years. The frequency percentages of various demographic variables are shown in Table 1.

----- Insert Table 1 here -----

Measurement

This research consisted of five main constructs. All constructs were conceptualized as individual-level variables, although our study focused on the dyadic relationship between leaders and followers. All items used were adopted from relevant prior research. A 5-point Likert response format was used for all items (from 1 to 5). Scales were calculated as the mean of individual items.

Perceived Empowering Leadership. Perceived empowering leadership was rated by their followers and measured by the Empowering Leadership Questionnaire (ELQ) (Arnold et al., 2000): 15 items were selected from the original 38 items and these items. Five categories of leadership behaviours were included: coaching, informing, leading by example, showing

concern/interacting with the team, and participative decision-making (Ling et al., 2015; Srivastava et al., 2006). (1-never to 5-always).

Entrepreneurial Orientation. Employees were asked to rate their own tendency to behave using 10 items of individual entrepreneurial orientation (IEO). Three dimensions were included: risk-taking, innovative performance, and proactiveness (Bolton and Lane, 2012). (1-strongly disagree to 5-strongly agree).

Openness. Employees were asked to rate their openness across six items from the Work Values Survey (WVS), which measured their preferences in regard to variety and autonomy (Cable & Edwards, 2004). (1-not important at all/none to 5-extremely important/a great amount).

Creative Self-efficacy. Employees were asked to rate their own self-efficacy across three items (Tierney & Farmer, 2002, 2004; Farmer, Tierney, & Kung-McIntyre, 2003). (1-strongly disagree to 5-strongly agree).

Employee Innovative Performance. Employee innovative performance was rated by their supervisors in two categories: their innovative behavior and their innovative output. The former was measured using six items of individual innovative work behavior (Yuan & Woodman, 2010) and the latter was measured using six items of innovative output (de Jong & den Hartog, 2008). (1-never to 5-always).

Descriptive Statistics and Correlations

Table 2 below presents the means, standard deviations, and Pearson correlations of all the variables. On average, for the surveyed sample, employees perceived that their supervisors often exhibited empowering leadership (M = 3.98, SD = 0.65), considered openness to be important (M = 3.89, SD = 0.55), agreed that they were entrepreneurially oriented (M = 3.74, SD = 0.54), and possessed creative self-efficacy (M = 3.63, SD = 0.73), while their supervisors rated them as sometimes performing innovatively (M = 3.22, SD = 0.90).

As seen in Table 2 below, Pearson correlations were computed for each pair of variables. An examination of the correlations provided some useful information. Entrepreneurial orientation and creative self-efficacy varied with industry type. All five study variables showed positive associations with the total number of levels in an organization and with the provinces where the organizations were located, except entrepreneurial orientation. Employees' innovative performance was positively related with company age and supervisor age. All five study variables were positively associated with supervisor education level. Employees' creative self-efficacy and innovative performance showed positive associations with supervisor tenure. Employees' perceived empowering leadership, openness, creative self-efficacy, and innovative performance showed positive associations with their education level. Employees' creative self-efficacy and innovative performance were associated positively with their own tenure. Further examination of the Pearson correlations showed that all five study variables were positively associated with each other (r ranged from .16 to .59, $p < .01$).

----- Insert Table 2 here -----

Construct Validation

In the construct validation process, an overall CFA measurement model was constructed, in which all six study variables (i.e., empowering leadership, entrepreneurial orientation, openness, creative self-efficacy, and innovative performance) were pooled together and correlated. Utilizing the statistical software Amos, CFA was first conducted on the measurement model to purify the measurement items, as suggested by Hair, Black, Babin, and Anderson (2010). The CFA results revealed that three items had low factor loadings; they were dropped accordingly: two items from the entrepreneurial orientation measure and one item from the openness measure were deleted.

Upon removing these three items, Cronbach's alphas for each of the measures were also determined, using the statistical software. The Cronbach's alpha of the measure for empowering leadership (15 items) was .95, entrepreneurial orientation (eight items) was .82, openness (five items) was .78, creative self-efficacy (three items) was .86, and innovative performance (12 items) was .95, which were all above the threshold of .70 suggested by Nunnally (1978) and Hair et al. (2010).

Construct validation was used to evaluate the goodness-of-fit of the resultant measurement model with the data on hand. Upon re-running CFA, the various fit indices generated (χ^2 = 8120.35, df = 1682, p = .000, χ^2/df = 4.828, RMSEA = .105; SRMR = .061; TLI = .602; CFI = .622) did not meet the cutoff values suggested by Hair et al. (2010). Hair et al. suggested the following values: $\chi^2/df \leq 3.0$, RMSEA < .07 (with a CFI of .90 or higher), SRMR ≤ .08 (with a CFI above .92), TLI > .90, and CFI > .90.

Following the recommendation of Little, Cummingham, Shahar, and Widaman (2002), the method of parceling was then adopted in an attempt to evaluate and improve the model fit. CFA of the parceled model yielded favorable results. All the factor loadings were significant, in the right positive direction, ranging from .66 to .96. The parceled measurement model showed an acceptable good fit with the data, with fit indices that met all the cutoff values, as per the guidelines provided by Hair et al. (2010): $\chi 2$ = 298.76, df = 120, p = .000, $\chi 2$/df = 2.490, RMSEA = .066; SRMR = .046; TLI = .946; CFI = .957.

The construct validation process was completed by calculating the composite reliability (CR), average variance extracted (AVE), maximum shared variance (MSV), and average shared variance (ASV). Satisfactory results were obtained, with CR > .7, AVE > .5, CR > AVE, AVE > MSV, and AVE > ASV, in accordance with the criteria suggested by Fornell and Larcker (1981). Table 3 shows the results of the computation of CR, AVE, MSV, and ASV for all five study variables.

As shown in Table 3 below, there were correlations between some study variables that might cause problems in the regression analysis. As such, before conducting multiple regression analysis, a collinearity diagnosis was carried out on all the independent and control variables, and their variance inflation factor (VIF) values were computed using simultaneous multiple regressions. The results revealed that none of the VIF values were more than 3.1. Since the criterion is regarded as an indication of a multicollinearity problem, ranging from five (Tabachnick & Fidell, 2013) to 10 (Hair et al., 2010), it was safe to infer that no multicollinearity issue existed to hamper the validity of any subsequent testing of the hypotheses.

----- Insert Table 3 here -----

Analysis

Multiple Regression Analyses

Testing of Hypotheses 1 to 4. The testing of Hypothesis 2 is presented first for the sake of convenience. As shown in Table 4 below, to test the effect of empowering leadership on entrepreneurial orientation, two multiple regression models were constructed, with the latter as the dependent variable. Adopting a hierarchical regression approach, a set of 13 control variables (including industry type, total number of levels in the organisation, company age, province, group level, supervisor gender, supervisor age, supervisor education, supervisor tenure, employee gender, employee age, employee education, and employee tenure) were entered in the first step for Model 1, while empowering leadership was entered for Model 2 in the second step.

As shown in Model 2, empowering leadership was found to have a significant effect on entrepreneurial orientation ($\beta = .28$, $p < .001$), above and beyond that of the control variables ($\Delta R^2 = .07$, $p < .001$). This result provided evidence that empowering leadership was a positive significant predictor of entrepreneurial orientation. Hypothesis 2 was thus supported.

----- Insert Table 4 here -----

To test the effects of empowering leadership and entrepreneurial orientation on innovative performance, four multiple regression models, with innovative performance as the dependent variable, were built, following the hierarchical regression approach (see Table 5). First, Model 3 was constructed to include only the control variables. Then, Model 4 added the variable of empowering leadership to Model 3; Model 5 added the variable of entrepreneurial orientation to Model 3; and Model 6 added the variables of empowering leadership and entrepreneurial orientation to Model 3. As shown in Model 3, the control variables accounted for 41% ($R^2 = .41$, $p < .001$) of the variation in innovative performance. Model 4 shows that empowering leadership exerted a (marginally) significant effect on innovative performance ($\beta = .10$, $p < .10$), above and beyond that of the control variables ($\Delta R^2 = .01$, $p < .10$). This finding provided support for the notion that empowering leadership was a (marginally) positive significant predictor of innovative performance. Hypothesis 1 was thus supported.

As indicated in Model 5, entrepreneurial orientation significantly affected innovative performance ($\beta = .17$, $p < .01$), above and beyond that of the control variables ($\Delta R^2 = .03$, $p < .01$). This finding fits the prediction of the third hypothesis that “employees’

entrepreneurial orientation will positively relate to employees' innovative performance." Hypothesis 3 was thus supported.

In testing Hypothesis 4 (that is, the mediating effect of entrepreneurial orientation on the relationship between empowering leadership and innovative performance), Baron and Kenny's (1986) four-step procedure was followed. The procedure's first three steps required the confirmation of the existence of three links, with one link in each step (i.e., empowering leadership-innovative performance, empowering leadership-entrepreneurial orientation, and entrepreneurial orientation-innovative performance). As shown above, this study actually performed these three steps via the testing of Hypotheses 1, 2, and 3 respectively, and confirmed that these three links indeed existed. This study then proceeded by examining Model 6, which revealed that entrepreneurial orientation had a significant effect on innovative performance ($\beta = .15$, $p < .01$), above and beyond that of both the control variables and empowering leadership ($\Delta R^2 = .03$, $p < .01$). This finding thus fulfilled the fourth step, which required the effect of entrepreneurial orientation on innovative performance (upon controlling for empowering leadership). When further checking the significance of empowering leadership in Model 6, it was found that empowering leadership, which was previously (marginally) significant ($\beta = .10$, $p < .10$) in Model 4, became nonsignificant ($\beta = .06$, *ns*) in Model 6. As such, in accordance to Baron and Kenny's criteria for a mediating effect, this study offered evidence that entrepreneurial orientation completely mediated the relationship between empowering leadership and innovative performance. Hypothesis 4 was thus supported.

----- Insert Table 5 here -----

Testing Hypothesis 5. Baron and Kenny's (1986) procedure regarding moderating effects was followed in testing Hypothesis 5. As seen in Table 6, four hierarchical regression models were fitted with entrepreneurial orientation as the dependent variable. The moderating effect of openness was tested by entering the interaction term of this moderating variable with empowering leadership in Model 10, in the third step of the hierarchical regression analysis. Prior to entering the interaction term, control variables were entered in Model 7 in the first step, openness was entered in Model 8 in the second step, and empowering leadership was entered in Model 9 in the third step.

An examination of Model 10 in Table 6 revealed that the interaction term did not account for any significant amount of variance in entrepreneurial orientation ($\Delta R^2 = .00$, *ns*) above and beyond that of the control variables, empowering leadership, and openness in Model 9, indicating no moderating effect of openness on the relationship between empowering leadership and entrepreneurial orientation ($\beta = -.06$, *ns*). Hypothesis 5 was thus not supported.

----- Insert Table 6 here -----

Testing Hypothesis 6. Testing of Hypothesis 6 was also carried out in accordance with Baron and Kenny's (1986) relevant statistical procedure. Four regression models with innovative performance as the dependent variable were built to test the moderating effect of creative self-efficacy (see Table 7). As per the hierarchical regression approach, Model 11 included only the control variables, Model 12 added the variable of creative self-efficacy to Model 11, Model 13 added the variable of entrepreneurial orientation to Model 12, and Model 14 added the interaction term between entrepreneurial orientation and creative self-efficacy to Model 13.

As shown in Model 14, the interaction term explained a significant portion of variation in innovative performance ($\Delta R^2 = .02$, $p < .001$), above and beyond that explained by the control variables, entrepreneurial orientation, and creative self-efficacy in Model 13, showing a positive moderating effect of creative self-efficacy on the relationship between entrepreneurial orientation and innovative performance ($\beta = .16$, $p < .001$). Hypothesis 6 was thus supported.

----- Insert Table 7 here -----

Results

This study set out to study the relationships between empowering leadership, the value of openness, entrepreneurial orientation, creative self-efficacy, and innovative performance. Analyses of the collected data found significant relationships between some of the study variables. Table 8 provides a summary of the results of the hypotheses testing.

----- Insert Table 8 here -----

Discussion

The results showed a relationship between empowering leadership and entrepreneurial orientation, and that entrepreneurial orientation plays a significant role in contributing to innovative performance. In particular, along with the support of Hypothesis 4, this study established the mediating role of entrepreneurial orientation in the relationship between empowering leadership and innovative performance, in accordance with Baron and Kenny's (1986) criteria, which was another primary purpose of this study. This study's findings offered empirical evidence of a mediation process in which increased employee entrepreneurial orientation explains the relationship between an increase in employees

perceiving empowering leadership and increased employees' innovative performance. Furthermore, with the support of Hypothesis 4, this study suggested that entrepreneurial orientation entirely accounts for the effect of empowering leadership on innovative performance. That said, entrepreneurial orientation completely mediates the effect of empowering leadership on innovative performance.

Based on the results of the analysis, the positive moderating effect of openness on the relationship between empowering leadership and entrepreneurial orientation was not supported. That said, while both empowering leadership and openness can act independently to increase entrepreneurial orientation, they do not interact with each other in doing so.[1] One plausible explanation for the lack of support for the hypothesized moderating effect of personal values of openness is that it is overridden by the way in which power distance is valued in the national culture. In China, employees rarely challenge their supervisors' formal authority (Hofstede, 2001). Chinese employees tend to act according to what their supervisors consider important, without resorting to their own values to guide their behaviours. As such, the employees' value of openness may not play a role in affecting how they respond to the empowering leadership of their supervisors, contrary to what was originally hypothesized in this study.

In addition to the moderating effects of openness, this study also tested the role of creative self-efficacy as a moderator enhancing the effect of entrepreneurial orientation on innovative performance. The findings of this study revealed that creative self-efficacy is a significant moderator with a strong impact on the relationship between entrepreneurial orientation and innovative performance. Entrepreneurial orientation is more effective in influencing innovative performance with the presence of creative self-efficacy. That said, the effect of entrepreneurial orientation on innovative performance is conditional on the level of creative self-efficacy. Specifically, the higher the level of creative self-efficacy, the stronger the effect of entrepreneurial orientation on innovative performance.

Theoretical Contributions. Wales et al. (2011, p. 297) appealed for more research to "advance our understanding of how entrepreneurial orientation is typically manifested within organizations that will, in turn, help to inform how entrepreneurship can be managed more successfully inside the firm for both the firm and its employees." This proposed research responded to Wale et al.'s appeal and investigated entrepreneurial orientation at the employee level.

Despite corporate entrepreneurship, being a contemporary research area, there has been a lack of empirical studies testifying to the link between empowering leadership and entrepreneurial orientation, as well as that between entrepreneurial orientation and innovative performance. As such, this research contributes academically to the existing literature.

[1] As revealed in Model 10, empowering leadership ($\beta = .10$, $p < .10$) and openness ($\beta = .53$, $p < .001$) acted independently to increase entrepreneurial orientation.

Indeed, the combination of empowering leadership, entrepreneurship orientation, and innovative performance in a single piece of research is rare in the extant literature. No empirical study, as far as I know, has focused on an understanding of the ways in which empowering leadership affects followers' innovative performance through employee entrepreneurial orientation as a mediator.

While the majority of research studies on corporate entrepreneurship have focused on the firm level, this research made practical contributions to effective business management by examining this important topic at the employee level. Corporate entrepreneurship is widely recognized as a competitive advantage. This study sheds light on how to acquire such an important advantage. In line with the resource-based view of firms (Barney, 1991; Werner, 1984; Wright et al., 1994), this research suggested ways in which a firm's human resources could be developed as an important source of sustainable competitive advantage by examining the role of leadership in creating or inducing employee entrepreneurial orientation.

Practical Implications. This proposed research can provide practical implications for organizational leaders in their attempts to promote innovation in their organizations. By showing the link between employees' perceived empowering leadership in regard to their supervisors and these employees' innovative performance, this study suggested that organizational leaders aiming to promote employees' innovative performance should pay attention to their style of leadership, as well as to their employees' creative self-efficacy.

Specifically, as revealed by this study, leaders (at all levels) helping their followers to achieve innovative performance in the workplace should nurture their employee entrepreneurial orientation, which concerns these employees' innovativeness, risk-taking, and proactiveness, by consistently practicing empowering leadership. Moreover, leaders should also attempt to boost employees' creative self-efficacy, which, as per the findings of this research study, can enhance the effect of entrepreneurial orientation on innovative performance. According to Bandura (1986), there are four strategies for the development of self-efficacy: enactive mastery, vicarious experience, verbal persuasion, and physiological arousal.

Admittedly, regarding the role of personal values, this study failed to gain support for its prediction that such personal values would strengthen or weaken leaders' influence on their employee entrepreneurial orientation. However, organizational leaders should note that personal values can affect entrepreneurial orientation directly. As such, organizational leaders may wish to pay attention to the personal values of potential and current employees when identifying corporate entrepreneurs, in order to better ensure the right resources are dedicated to the right people.

This present study focused on manufacturing employees. Therefore, the pertinent question regarding whether or not the findings are indeed important to the manufacturing industry may need to be addressed explicitly; the answer to this question is a definite "yes." Similar to this present study, Psoinos and Smithson (2002) also focused their study on

employee empowerment in manufacturing organizations. They observed that empowerment practices in manufacturing firms are even more common and have a stronger impact than in service firms. According to Psoinos and Smithson's explanation, in global competition and turbulent business environments, manufacturing companies need to constantly improve their efficiency and effectiveness. In order to meet such challenges, manufacturing companies are often involved in such change programs as total quality management, business process reengineering, delayering, and downsizing. Intentionally or unintentionally, these change programs often entail substantial employee empowerment, wherein decision-making authority is pushed down to the shop-floor levels in manufacturing organizations. As contended by Hammer and Champy, the fathers of business process reengineering, "[p]rocesses can't be re-engineered without empowering process workers" (Hammer & Champy, 1993, p. 71).

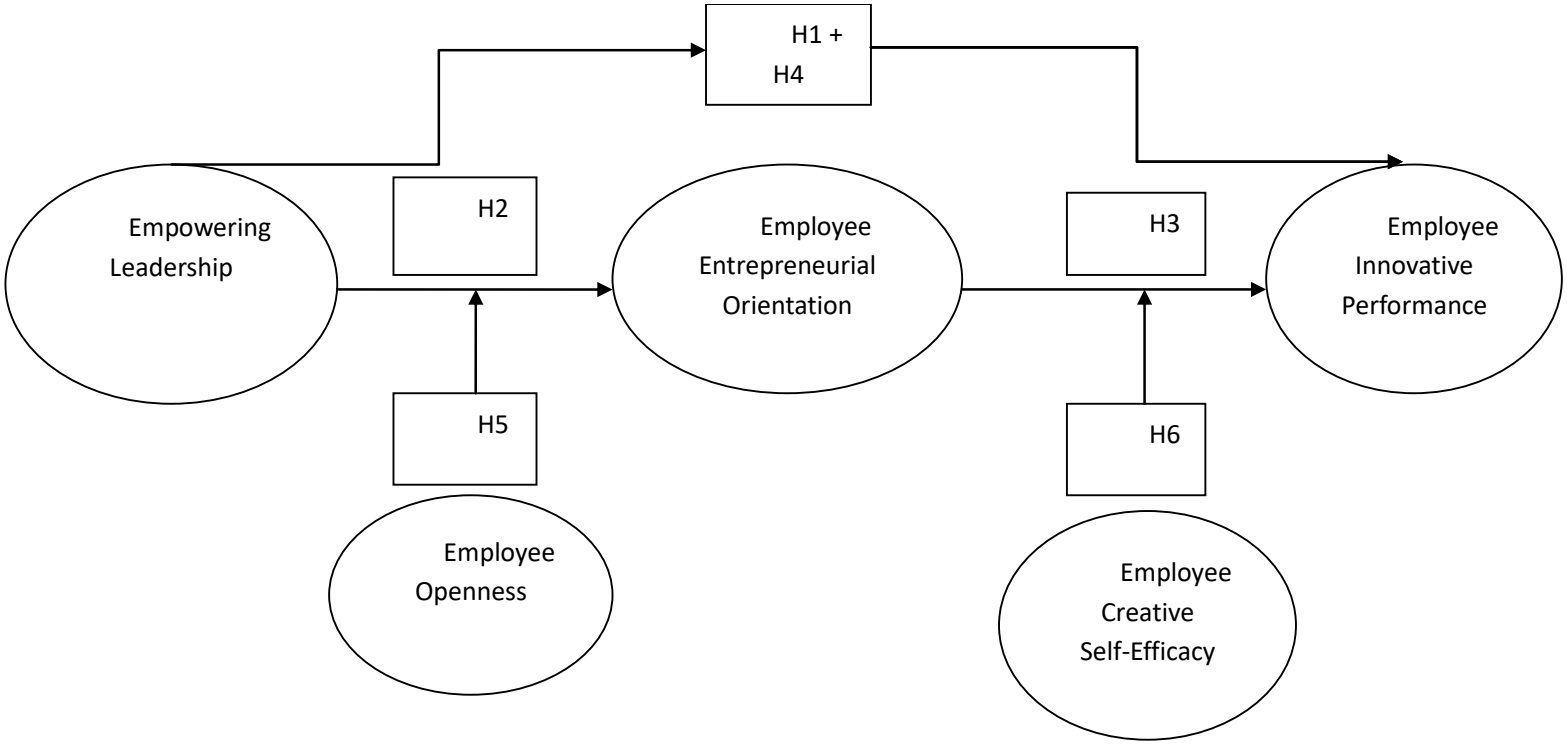

Figure 1: How Empowering Leadership Affects Employee Innovative Performance: The Role of Employee Entrepreneurial Orientation, Openness, and Creative Self-Efficacy (with hypotheses denoted).

Table 1

Frequency Percentages

Demographic variable	Percentage
Industry type	
Hardware products	3.5
Watches, electronics, and lighting	6.3
Medical items and accessories	64.8
Paper and packaging	17.6
Other	7.8
Total number of levels in organization	
Two	6.3
Three	21.0
Four	64.8
Five	7.8
Company age	
Six to 10 years	27.7
Over 15 years	72.3
Province	
One (Guangdong)	24.5
Two (Jiangxi)	19.9
Three (Zhejiang)	55.6
Group level	
Low	5.8
Middle low	27.2
Middle	34.9
Middle high	30.8
High	0.9
Supervisor gender	
Male	63.7
Female	36.3
Supervisor age	
Under 25 years	7.0
25-35 years	25.3
36-45 years	50.6
46-55 years	14.3
Over 55 years	2.7
Supervisor education	
Junior high school	28.7
Vocational secondary school	6.0

Senior high school	34.1
College	28.7
University or above	2.4
Supervisor tenure	
Less than one year	1.2
One to two years	15.1
Three to five years	10.2
Six to 10 years	13.9
More than 10 years	59.6
Employee gender	
Male	53.8
Female	46.2
Employee age	
Under 25 years	17.1
25-35 years	40.7
36-45 years	27.2
46-55 years	14.4
Over 55 years	0.6
Employee education	
Junior high school	36.8
Vocational secondary school	9.7
Senior high school	21.2
College	24.8
University or above	5.5
Employee tenure	
Less than one year	9.5
One to two years	25.7
Three to five years	17.8
Six to 10 ears	19.8
More than 10-years	27.2

Table 2. *Means, Standard Deviations, and Correlations*

Means, Standard Deviations, and Correlations

Variables	Mean	SD	Correlations																
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Industry type	4.86	2.14																	
2 Total levels in organization	3.74	0.69	.204**																
3 Company age	4.45	0.90	-.157**	-.485**															
4 Province	2.31	0.84	-.260**	.658**	.022														
5 Group level	2.93	0.92	.036	.487**	-.248**	.329**													
6 Supervisor gender	1.36	0.48	-.234**	.170**	-.113*	.177**	.485**												
7 Supervisor age	2.80	0.87	.004	-.135*	.586**	.097	-.283**	-.185**											
8 Supervisor education	2.70	1.23	-.068	.245**	.374**	.489**	-.300**	-.159**	.338**										
9 Supervisor tenure	4.15	1.18	-.073	-.084	.761**	.167**	-.198**	-.200**	.721**	.478**									
10 Employee gender	1.46	0.50	-.274**	.074	-.099	.134*	.242**	.332**	-.128*	-.062	-.194**								
11 Employee age	2.41	0.95	.118*	-.038	.144**	.012	-.210**	-.043	.169**	.186**	.173**	-.202**							
12 Employee education	2.48	1.36	-.114*	.263**	.346**	.496**	-.219**	-.165**	.298**	.687**	.419**	-.150**	.099						
13 Employee tenure	3.30	1.36	.049	-.104	.394**	.035	-.304**	-.127*	.348**	.258**	.476**	-.329**	.575**	.233**					
14 Empowering leadership	3.98	0.65	-.009	.118*	.032	.158**	-.059	-.032	.048	.180**	.095	-.110	-.082	.146**	-.060				
15 Openness	3.89	0.55	-.104	.185**	-.016	.223**	-.066	-.011	.044	.312**	.067	-.019	-.007	.170**	.037	.478**			
16 Entrepreneurial orientation	3.74	0.54	-.129*	.064	-.010	.078	-.063	-.027	-.014	.182**	.034	-.029	-.026	.019	0.004	.377**	.584**		
17 Creative self efficacy	3.63	0.73	-.171**	.224**	.038	.335**	-.003	-.054	.043	.334**	.139*	-.075	.097	.213**	.122*	.321**	.589**	.488**	
18 Innovative performance	3.22	0.90	-.088	.374**	.181**	.506**	.064	-.062	.168**	.459**	.277**	.026	-.039	.448**	.189**	.155**	.213**	.199**	.257**

N (listwise) = 347

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 3
Computation of CR, AVE, MSV, and ASV

	Variables	CR	AVE	MSV	ASV	Correlations 1	2	3	4
1	Empowering leadership	.93	.83	.22	.13				
2	Openness	.77	.53	.49	.26	.48			
3	Entrepreneurial orientation	.81	.59	.34	.18	.38	.58		
4	Creative self-efficacy	.86	.67	.35	.18	.32	.59	.49	
5	Innovative performance	.95	.86	.06	.04	.16	.21	.20	.26

Table 4
Results of the Hierarchical Regression Analysis of the Relationship between Empowering Leadership and Entrepreneurial Orientation

	Entrepreneurial Orientation	
	Model 1	Model 2
Control variable(s)		
Industry type	-.20*	-.21*
Total number of levels in organization	.06	.07
Company age	-.22	-.17
Province	-.22	-.22
Group level	.12	.11
Supervisor gender	-.04	-.05
Supervisor age	-.06	-.04
Supervisor education	.42***	.39**
Supervisor tenure	.12	.04
Employee gender	-.05	-.02
Employee age	.04	.04
Employee education	-.07	-.11
Employee tenure	.04	.07
Independent variable(s)		
Empowering leadership		.28***
R^2	.10*	.17***
ΔR^2		.07***

*** $p < .001$; ** $p < .01$; * $p < .05$; † $p < .10$ (two-tailed).

Table 5

Results of the Hierarchical Regression Analysis of the Relationship between Empowering Leadership and Innovative Performance, as well as the Mediating Effect of Entrepreneurial Orientation

	Innovative Performance			
	Model 3	Model 4	Model 5	Model 6
Control variable(s)				
Industry type	-.27***	-.28***	-.24**	-.24**
Total number of levels in organization	.57***	.57***	.56***	.56***
Company age	.38**	.40**	.42**	.42**
Province	-.04	-.05	-.01	-.01
Group level	-.04	-.05	-.06	-.06
Supervisor gender	-.17**	-.17**	-.16**	-.16**
Supervisor age	.05	.06	.06	.07
Supervisor education	.16†	.14	.08	.08
Supervisor tenure	-.19†	-.22†	-.21†	-.22*
Employee gender	-.00	-.01	-.01	.01
Employee age	-.15*	-.15*	-.16**	-.16**
Employee education	.04	.03	.06	.05
Employee tenure	.13†	.14*	.13†	.13†
Independent variable(s)				
Empowering leadership		.10†		.06
Mediating variable(s)				
Entrepreneurial orientation			.17**	.15**
R^2	.41***	.42***	.43***	.44***
ΔR^2		.01†	.03**	.03**

*** $p < .001$; ** $p < .01$; * $p < .05$; † $p < .10$ (two-tailed).

Table 6

Results of the Hierarchical Regression Analysis of the Moderating Effect of Openness

	Entrepreneurial Orientation				
	Model 7	Model 8	Model 9	Model 10	
Control variable(s)					
Industry type	-.20*	-.09	-.10	-.10	
Total number of levels in organization	.06	-.09	-.08	-.08	
Company age	-.22	-.14	-.12	-.12	
Province	-.22	-.09	-.10	-.10	
Group level	-.12	.08	.08	.09	
Supervisor gender	-.04	.00	.01	-.01	
Supervisor age	-.06	-.07	-.06	-.06	
Supervisor education	.42***	.18†	.18†	.19†	
Supervisor tenure	-.12	.09	.07	.07	
Employee gender	-.05	-.03	-.02	-.03	
Employee age	.04	.05	.05	.05	
Employee education	-.07	-.06	-.08	-.08	
Employee tenure	.04	.01	.03	.03	
Moderating variable(s)					
Openness		.57***	.53***	.53***	.53***
Independent variable(s)					
Empowering leadership			.10†	.10†	
Interaction(s)					
ELxOP[a,b]				-.06	
R^2	.10*	.37***	.38***	.38***	
ΔR^2		.27***	.01†	.00	

Notes: [a] The interaction term between empowering leadership and openness. [b] Computed as the product of centered empowering leadership and centered openness.

*** $p < .001$; ** $p < .01$; * $p < .05$; † $p < .10$ (two-tailed).

Table 7
Results of the Hierarchical Regression Analysis of the Moderating Effect of Creative Self-Efficacy

	Innovative Performance			
	Model 11	Model 12	Model 13	Model 14
Control variable(s)				
Industry type	-.11†	-.10	-.08	-.10†
Total number of levels in organization	.58***	.57***	.54***	.53***
Company age	.46***	.46***	.44***	.41***
Province	.10	.09	.12	.10
Group level	-.06	-.06	-.05	-.06
Supervisor gender	-.13*	-.13*	-.13*	-.11*
Supervisor age	-.01	-.01	-.01	.00
Supervisor education	.07	.06	.03	.03
Supervisor tenure	-.19*	-.19*	-.18*	-.18*
Employee gender	.04	.05	.05	.07
Employee age	-.18**	-.19***	-.18**	-.18***
Employee education	.05	.06	.08	.08
Employee tenure	.21**	.21**	.21**	.22***
Moderating variable(s)				
Creative self-efficacy		.06	-.02	-.00
Independent variable(s)				
Entrepreneurial orientation			.15**	.14**
Interaction(s)				
EOxCS[a,b]				.16***
R^2	.41***	.41***	.42***	.45***
ΔR^2		.00	.02**	.02***

Notes: [a] The interaction term between entrepreneurial orientation and creative self-efficacy. [b] Computed as the product of centered entrepreneurial orientation and centered creative self-efficacy.
*** $p < .001$; ** $p < .01$; * $p < .05$; † $p < .10$ (two-tailed)

Table 8
A Summary of the Results of the Hypotheses Testing

Hypothesis	Test Result
H1. Employee perceived empowering leadership positively relates to employee innovative performance.	Supported
H2. Employee perceived empowering leadership positively relates to employee entrepreneurial orientation.	Supported
H3. Employee entrepreneurial orientation positively relates to employee innovative performance.	Supported
H4. Employees entrepreneurial orientation mediates the relationship between employee perceived empowering leadership and employee innovative performance.	Supported
H5. Employees' openness positively moderates the relationship between employees' perceived empowering leadership and employee entrepreneurial orientation.	Not supported
H6. Employees' creative self-efficacy positively moderates the relationship between employee entrepreneurial orientation and employees' innovative performance.	Supported

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