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Entrepreneurial leadership to foster innovative output via psychological empowerment: Role modeling is not enough

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Master in Human Resource Management and Organizational Consultancy

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BUSINESS SCHOOL

Department of Human Resources and Organizational Behavior

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Dedication

The idea of writing this paper originated from the knowledge I learned in the human resource management major and my interest in research leadership, and also referred to the topic selection suggestions given by Professor Nelson.

The paper writing cycle lasts for three months. During this period, I am especially grateful to Professor Nelson and Feng Yan for their assistance in the process of my thesis, including topic selection, suggestions for research models and helping me analyze data together, and also express my gratitude to my relatives and friends who work in Chinese companies for helping me distribute online questionnaires in their networks for collecting data resources.

There are no shortage of small obstacles and some twists and turns during the writing process, but with their help, everything is proceeding smoothly according to the normal schedule. I have gained more professional knowledge and skills, which is very helpful for my future research life for work.

I will always remember this research writing period, as I learned a lot from it and felt the enthusiasm and kindness from all walks of life.

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I would like to thank Miss Feng Yan, who kindly gave me a hand and assistance when I was in confusion in some professional fields, and also my relatives, classmates and friends, who helped me do the collection of the questionnaire among the target group in their circle of friends.

Last but not least, my gratitude also extends to my family who have been assisting, supporting, and caring for all of my life.

Resumo

Esta tese discutiu o papel mediador do empoderamento psicológico (PSE) na relação entre a liderança empreendedora (LE) e a inovação, compreendendo o papel facilitador do encorajamento da criatividade por parte dos líderes. Este modelo foi inspirado no Kaizen e na filosofia de gestão da qualidade, bem como na teoria da aprendizagem social de Bandura. Utilizando uma técnica de amostragem de bola de neve, esta investigação recolheu dados, via questionário, de 271 empregados que trabalhavam em empresas de toda a China. Os resultados mostram que a LE promove a inovação via PSE, e também, que o encorajamento da criatividade só interage neste efeito indireto. A PSE é uma variável mediadora poderosa, especialmente quando é reforçada pelo encorajamento da criatividade por parte da liderança. Ambas parecem ser necessárias para transformar a liderança empresarial em inovação.

Classificação JEL: L21; M12; M13

Palavras-chave: liderança empreendedora, capacitação psicológica, encorajamento da criatividade, inovação, empresas chinesas

Abstract

This thesis discussed the mediator role of psychological empowerment (PSE) between the relationship of entrepreneurial leadership (EL) and innovative output, comprehending the facilitating role of leaders' creativity encouragement. This model was inspired by Kaizen and quality management philosophy as well as Bandura's social learning theory. Using a snow-ball sampling technique, this research collected data from a questionnaire from 271 employees working in companies around China. Findings show EL fosters innovative output via PSE, and also, that creativity encouragement only interacts in this indirect effect. PSE is a powerful intermediate variable, especially when it is reinforced by leadership creativity encouragement. Both seem to be needed to turn entrepreneurial leadership into innovative output.

JEL classification: L21; M12; M13

Keywords: entrepreneurial leadership, psychological empowerment, creativity encouragement, innovation, Chinese enterprises

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1. Introduction

Nowadays, under the globalization phenomenon, organizations are facing the situation of digitalization and diversification in business environment. This has fostered a fiercer competition for limited customer resources. To survive, innovation becomes the effective way, placing innovation at the core of the focus of business leaders by virtue of its crucial role in maintaining a stable competitive advantage. Hence, innovation is now commonly deemed as an essential requirement to promote the sustainability, thus propelling the success of organizations (Lestari et al., 2018).

Research has long showed that employees are important sources of innovation in most organizations, being responsible for approximately 80% of new ideas for implementation (Getz, 2003). A key issue pertaining to employees is that, by definition, they must be empowered to play an active role, to be effective and creative (Kemal, 2010). Additionally, the importance of leadership is emphasized by growing research, which considered it a critical contextual factor that drives employees' innovative behavior (Hammond, 2011; Miao, 2018). Although transformational leadership (Burns, 1978) is the commonly researched concept in leadership studies aimed to focus on organizational change (Arif & Akram, 2018; Faupel & Sub, 2019; Usman, 2020), another type of leadership closely linked to innovation, is the construct of entrepreneurial leadership (EL), which is less researched. It has been defined as a style in which leaders influence and direct their subordinates to identify and explore entrepreneurial opportunities (Renko et al., 2015). Entrepreneurial leaders not only support and encourage their subordinates to experiment and innovate in the workplace but also act as role-models by engaging in entrepreneurial activity themselves.

Innovation focused research has been grasping the interplay between employees and leaders in promoting innovative outputs. The research on the relationship between entrepreneurial leadership and psychological empowerment within this context is almost inexistent (for an exception see Chen, 2015) and the entrepreneurial profile of the leader is often taken as sufficient to promote employee empowerment. We asked if such assumption

has grounds because a leader may be entrepreneurial but not necessarily someone who fosters creativity and leverages employee ability to innovate. Therefore, this research focuses on the relationship between EL and employee innovation output mediated by psychological empowerment testing for its boundary conditions due to the leader being able to encourage creativity in employees.

Departing from a social cognitive learning theory (Bandura, 1977), this study is intended to extend Chen's (2015) model by putting emphasis on the leader's creativity encouragement as an enabler that reinforces entrepreneurial leadership style into fostering employee psychological empowerment, to finally promote employee innovative output. The remaining of this study will articulate the main conceptual and theoretical views implied in the above-mentioned constructs, to detail the methodological apparatus that was deployed to collect data and test the hypotheses depicted in the conceptual model. After this, findings are shown and discussed at the light of the theory, and conclusions drawn to acknowledge both its theoretical and applied implications as well as limitations and future research.

2. Literature review

This section will develop by introducing the concept of innovation and exploring how it has been at the core of most important management philosophies such as total quality management. It then explores how entrepreneurial leadership is related to innovation and the role psychological empowerment plays in this process. It ends by highlighting creativity as a required resource that fosters this process.

2.1. Innovation and management philosophy

For a single company, innovation can be explained as the employment of novel ideas to the company, which are expressed or presented in the company's products, services, or in the organizing, managing or marketing processes (Gibbons et al., 1994). Carnegie and Butlin (1993) added that this is done to "create added value either directly for the enterprise or indirectly for its customers" (p.3). To be effective in this endeavor, organizations have to adopt forms, operating strategies, core values and routine practices that are beneficial to consistent innovation, long-term continuous development and future blueprint (Pavitt, 1995).

As a part of company business innovation, "process innovation" relates to Kaizen management philosophy which comes from the Japanese word meaning "change for the better" or "continuous improvement". The Japanese business philosophy highlighted the importance of continuously improving processes and updating operations and production, and that changes can be made by any company staff whenever possible, so that it can make the work environment more productive (Prosic, 2011). It is considered that Kaizen signifies a Total Quality Management, as Kaizen refers to continual improvement, with everyone involved (Imai, 1997). Avoiding needless processes and costs, tuning up production, and lessening mistakes during the process of production to ensure quality, Kaizen management inspires every employee to think differently, seek out errors and offer proposals to improve production quality, therefore pushing innovation forward (Barraza, 2014).

2.2. Entrepreneurial leadership and Innovative Output

Although Kaizen philosophy is built on every single employee, empowered to think critically, and act accordingly, its effective deployment depends on how much employees are empowered, within their teams and under their leader's influence. A favorable influence of leaders may be expressed in the concept of empowering leadership (Kim et al., 2018). It includes attaching importance to employees' efforts and having faith in their competence by decentralizing power, encouraging self-direction and independent decision-making, guiding and coaching, sharing information and soliciting opinions (Kirkman & Rosen, 1999). Forethoughtful organization leaders take maximum advantage of capabilities to push their firms to deliver economic growth and develop rapidly while improving enterprise competition and ensuring sustainable development (Palalic, 2017). The path to achieve this is increasingly acknowledged to go through valuing entrepreneurial leadership (Mishra & Misra, 2017). So, more than just empowering employees, leaders are expected to add a focus on innovation, on trying novel processes, ideas, and taking risk. This is closely linked to the concept of entrepreneurship. Within entrepreneurship research business leaders' individual competencies are required to enable them to visualize a splendid prospect for their businesses and to mark out innovative visions, judge and take opportunities (Sawaean & Ali, 2020).

It is significant that firms realize entrepreneurial leadership can has a great impact on enterprise performance (Rahim et al., 2015). Entrepreneurial leaders restructure organizations to take advantage of various chances, adopt creative management ideas and thus improving enterprises' comprehensive strength to create the indispensable diversity that help improve their competitiveness in an extremely unforeseeable era (Huang et al., 2014). By taking advantage of opportunities to improve enterprise performance, settle problems with innovative methods, and exploit the resources efficiently, entrepreneurial leaders enable and promote enterprises to implement processes that reinforce organizational innovation culture (Rae, 2016).

Entrepreneurial leaders can design technologically advanced production processes via innovative practices or by manufacturing current products in creative and advanced ways (Zehir, et al., 2015). They commit themselves to adopting particularly innovative management ideas and methods to integrate knowledge, which can be applied to new

production process and business activities (Gupta & Batra, 2016). Meanwhile, entrepreneurial leaders' competencies can have an impact on stimulating all employees to surpass prescriptive performance while performing their tasks and constantly increasing their endeavor to implement entrepreneurial and innovative behaviour (Bagheri, 2017). We thus hypothesize that:

Hypothesis 1: Entrepreneurial leadership will positively associate with innovative output

To understand how this relationship operates, empowerment seems to be at a central position as e.g. it developed from the total quality management philosophy and seems to be closely linked to employees' creativity (Kemal, 2010).

2.3. Psychological empowerment, entrepreneurial leadership and innovative output

Empowerment places emphasis on the management practices aimed to make employees capable (able and willing to act). Empowerment practices can be seen by leaders' delegating decision making and opening internal organization resources and information as much as possible to secondary and lower-level employees. Employees can undertake multiple roles and duties via empowerment, gain more autonomy thereby having a greater impact at work (Pare & Tremblay, 2007). Through empowerment, employees are authorized to independently make significant decisions involving the daily activities (Jafari, Moradi, & Ahanchi, 2013).

Psychologically empowered employees are motivated internally to play an active role in their companies (Thomas & Velthouse, 1990), influenced by four dimensions: self-efficacy, influence, work meaning, and work autonomy (Spreitzer, 1995).

Leaders have an evident role in fostering such cognitive conditions with established research finding that such is attained when they are supportive, participative, and cooperative,

which can contribute to innovation encouragement effectively (Cakar & Ertürk, 2010). As stated, the psychological feeling that employees' own autonomy to a certain extent, enables them to get less restrained by rigid rules/regulations and gain self-efficacy in performing their work schedule, which unleashes their creativity (Spreitzer, 1995) and fosters innovative output positively (Singh & Sarkar, 2012).

Over the past 30 years, scholars have been conducting various researches on the relationship between psychological empowerment and innovation capability and they have converged into the same conclusions. Lawler (1990) found that higher level innovation, excellent employee competence and efficient productivity arise from higher level of psychological empowerment, which generated from participative management. Brunetto and Farr-Wharton (2007) also found that significant indicators from psychological empowerment, namely increased collaboration and mutual trust, are conducive to organizational innovation. There are many studies reporting stronger positive relationship between psychological empowerment and employee innovative behavior in SMEs (Cakar & Erturk, 2010; Erturk, 2012; Berraies, Chaher & Benyahia, 2014; Celik et al., 2014; Madhavan, 2014). Overall, the process seems to be based on employees being more motivated in their work performance by experiencing a stronger sense of psychological empowerment, being more able to autonomously make decisions, and trying innovative behavior, which enhances organizational innovation (Amin, 2018).

Seibert et al. (2011) drew a conclusion that empowering / entrepreneurial leaders had a positive impact on psychological empowerment by conducting a meta-analysis . This was further confirmed and strengthened in various studies (e.g. Miao, 2018; Mehmood, 2019).

Entrepreneurial leadership is more about empowering than controlling employees, inspiring employees to be proactive and autonomous in searching for and capitalizing on new opportunities to innovate while they carry out a task (Renko et al., 2015).

With psychological empowerment enhanced, it is probable that entrepreneurial leadership will reinforce employees' innovation behavior. This has long been acknowledged as leadership is taken as an antecedent of employees' subjective perceptions of work, there by affecting their work outcomes, and psychological empowerment help illuminate and facilitate this process (Spreitzer, 1995). This role of a process variable given to psychological

empowerment has been observed also in Tummers and Knies (2013) study. These authors proposed and found that psychological empowerment elements can function as mediators between leadership and work output, by analyzing survey data coming from public sectors like local government, health care center, and education organizations.

In the same line of research Knol and van Linge (2009), Fernandez and Moldogaziev (2013) as well as Bysted and Hansen (2015) found psychological empowerment fostered innovative behaviors in employees of public sector. All of these come to one point: The linkage between entrepreneurial leadership and innovation is most likely mediated by psychological empowerment, entrepreneurial leadership will improve employees' innovative output via psychological empowerment (Miao, 2018). Accordingly, hypothesize that:

Hypothesis 2: Psychological empowerment will mediate the positive association between Entrepreneurial leadership and innovative output.

Although there is indication that creativity is an underlying important resource to promote employee's ability to innovate, it is not so clear that empowering leaders or those that have an entrepreneurial profile are intrinsically capable of promoting employee's creativity.

2.4. The role of leadership in creativity and innovation

When organization members trying to generate new ideas, business creativity shows the cognitive and behavioral processes from staff' s behaviour during this period, and differently, business innovation expounds the processes applied in their attempts of carrying out these new ideas. It can be seen obviously from definition that there is a marked distinction between creativity and innovation, but on the subject and successively process, they are related in constructs. Creativity is mainly an inner activity in personal connected with the occurrence of new ideas, while innovation is more related to the interpersonal activity happened in the process of one quoting and explaining novel ideas to others (these ideas can

be put forward from anyone or anyplace and are consistent with the current condition), and finally carrying out the new ideas successfully with the support from other people (Hughes et al., 2018). If not shared with team members that are relevant and influential, creative ideas seldom contribute to innovation (Lee, 2020).

An ideal leader is the one that is able to foster both creativity and innovation (Perry-Smith & Mannucci, 2017). Entrepreneurial leadership showed a strong relationship in moderating the interactive relatedness between leadership and employee creative /innovative behaviour (Lee, 2020), as it can cultivate members' traits of exploratory and inspire their potential of exploitative innovation to a large extent (Huang et al., 2014).

These leaders provide the conditions that leverage employees' performance. The leader provides a psychological secure and inspiring space, which help employees getting involved in cognitively flexible thinking, together with the leader's support and endorsement, which give them the required social influence and legitimacy (Perry-Smith & Mannucci, 2017). So, entrepreneurial leadership exhibits the features inspiring employees to discern and take advantage of entrepreneurial chances to create business value (Renko, 2018), thus motivating and promoting employees to participate in creative events (Cai et al., 2019; Chen, 2007) while accepting accountability in their daily work (Degago, 2014).

Entrepreneurial leaders are able to offer creative support and encouragement, which is constructed by setting up and continuously adjusting achievable goals to inspire staff' s morale and enhance their stamina, and moreover, by creating an atmosphere of collaborating with employees, working together with them to deal with things in various ways and perspectives. Employees can then be inspired to focus on innovation and own the traits of persistence to confront problems inherent in the innovation process under such empowering and supportive atmosphere (Karol, 2015).

This process has been explained based on the social cognitive learning theory (Bandura, 1977), which emphasizes the importance of continuous reciprocal interaction among behavioral, environmental, and individual (cognitive) factors in the learning process (Hjelle & Ziegler, 1992). It includes four interrelated components: attentional process, retention process, motor reproduction process, and motivational process (Bandura, 1977), which revealed the importance of enabling people to pay attention to a high competence

model (e.g. a leader), motivating them to imitate the model's behavior, giving encouragement and motivation to stimulate them to maintain and repeat this process, thus gaining learning ability. Thus, individuals that are exposed to an entrepreneurial environment, will receive enough physical and psychological stimulation, so that they can follow the footsteps of their entrepreneurial model (Harinie, 2017).

The social cognitive / learning theory (Bandura, 1977) applied to the entrepreneurial leadership phenomenon, states that entrepreneurial leaders train employees' creativity and innovation ability in three major pathways: role modelling entrepreneurial behaviors, inspiration and guidance for employees to get involved in entrepreneurial activities, and space for followers gain entrepreneurial opportunities (Newman, et al., 2018; Renko et al., 2015).

Role model has received much attention in research because by showing entrepreneurial behaviors to their subordinates, leaders may directly inspire employees to carry out creative thoughts at work (Newman et al., 2018). Alexander (2018) also demonstrated that when entrepreneurial leaders playing an entrepreneurial role model and cultivating employees' entrepreneurial potential, their followers own the excellent encouragement environment to conduct innovative behavior.

However, role modelling may not suffice. There is a standpoint that leaders can empower, and moreover, stimulate their followers thus enhancing their self-efficacy and competence feeling by proceeding with mental encouragement (e.g goals, praise, prospect expressed by inspirational language) (Ozaralli, 2003; Mayfield & Mayfield, 2012).

Additionally, leaders should encourage subordinates to cope with complex situation in creative ways, so to cultivate their critical thinking capability. Besides, employees' capabilities to conceptualize, analyze, and solve problems can be boosted by the rotative intellectual stimulation process, thus enhancing their sense of efficacy and competence (Bass,1985; Gong et al., 2009). Business leaders will help increase team members' self-confidence when supplying them a meaningful sense of accomplishment of organizational goals and constantly encourage them to think creatively (Bono & Judge, 2003).

Motivational words used from superior in the communication of subordinates'

thinking is positively linked with all the aspects of psychological empowerment (Madlock, 2008).

The connection between psychological empowerment and creative encouragement is particularly important to both public and private department (Rainey, 2009).

Entrepreneurial leaders are usually full of creative capacity and concentrate on encouraging employees to try and challenge the present situation (Renko et al., 2015), thereby enhancing psychological empowerment. As its scale assesses how much the leader themselves innovates or clearly encourages innovative behavior, entrepreneurial leadership is a key factor to predict employees' innovative behavior and output (Lee, 2020).

In doing so, literature strongly suggests that the influence of entrepreneurial behavior on employees' innovative behavior will be stronger for when the leader is both a role model of entrepreneurship and strongly encourages employees to be creative. We thus expect that a leader that simultaneously is entrepreneurial and encourages his or her team to be creative, will boost the positive effects that lead both to innovative outputs, and to psychological empowerment. We thus hypothesize that:

Hypothesis 3: There is an interaction effect between the leadership creativity encouragement and entrepreneurial leadership in explaining innovative output in such a way that higher leadership creativity encouragement will make this relation stronger.

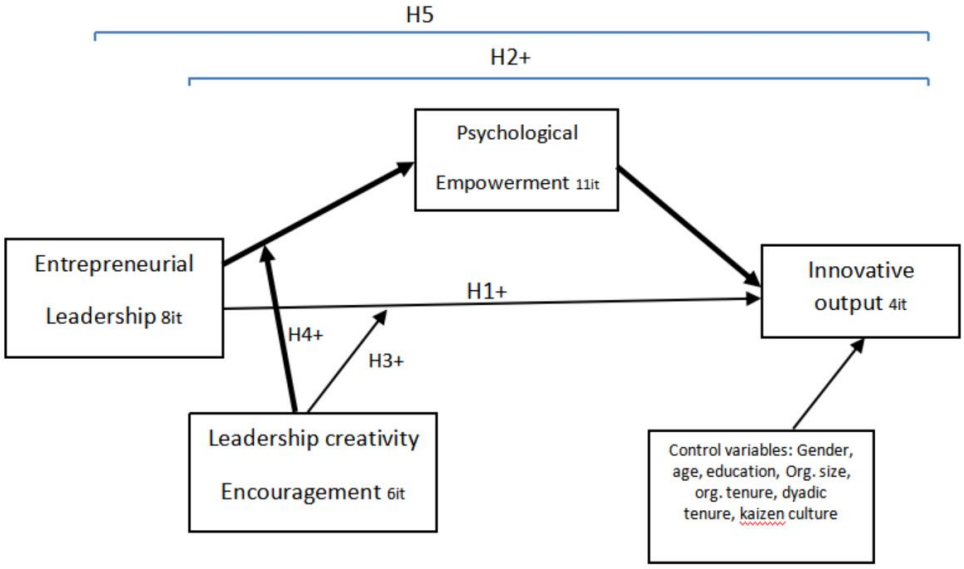
Hypothesis 4: There is an interaction effect between the leadership creativity encouragement and entrepreneurial leadership in explaining psychological empowerment in such a way that higher leadership creativity encouragement will make this relation stronger.

Overall, being true, the previous hypotheses will come together into a moderated mediation model:

Hypothesis 5: There is an interaction effect between the leadership creativity encouragement and the indirect effect between entrepreneurial leadership and innovative output through psychological empowerment in such a way that higher leadership creativity encouragement will make this indirect effect relation stronger.

The conceptual model is depicted in the Figure 1, which represents all the stated hypotheses.

Figure 1 - Conceptual model



3. Method

3.1. Data analysis strategy

Data analysis started by checking the quality of the measures based on validity and reliability analyses. For validity analysis, we ran confirmatory factor analysis with IBM AMOS 26 software, adopting the fit indices proposed by Hair et al. (2019). Namely, we will take as good models that respect the following conditions: CFI of .94 or more, TLI of .94 or more, RMSEA below .07, and SRMR below .08. The chi-square test is usually significant when analyzing samples with over 250 individuals and including over 12 observed items (Hair et al., 2019). These analyses were conducted to each construct individually and whenever the fit indices were not acceptable, we used Lagrange Multipliers to identify items that were harming the measure quality. Lastly, we tested for the overall measurement model that includes all latent constructs depicted in the conceptual model and judged its fit with the same criteria. Additionally, to this construct validity test, we tested for convergent validity using average extracted variance (AVE) which must have achieved at least .500 (Fornell & Larcker, 1981). In the cases where a construct comprehends more than one single factor, we also ran discriminant validity test based on Henseler et al. (2015) HTMT, which should not reach .85 value to be taken as strictly valid, but can be acceptable still at a level below .90.

3.2. Procedure

The data was collected with a snow-ball procedure in March 2021 via an online questionnaire made available in the Wechat network. The questionnaire was designed in WJX which is a suitable tool to conduct this quantitative survey-based data collection. Individuals in the personal network of the research were invited to voluntarily participate in the study. Guarantees of anonymity and voluntary nature of the participation were given together with the brief description of the research in the invitation. After informed consent, participants had access to all the questions. It was also asked to forward the invitation to their own personal network so to reach more potential participants.

As a matter of cautious, we opted to send the first invitations to very different

individuals in the primary network of contacts. This was done so to mobilize the most possible different profiles (age, gender, profession, education) so to avoid a consistent bias which is not rarely observed in this sort of data collection strategy (Biernacky & Waldorf, 1981). Still, this is a non-random sampling method and as such always require some care into making general conclusions and also should always be careful into controlling for variables that can bias findings.

3.3. Sample

The sample comprises 271 individuals from various Chinese enterprises, mostly male (63.1%), with the higher incidence of age ranges observed in the 25 to 54 years old (91.5%) where the largest segment falls in the 35-44 years old (38%) which is close to the average age in China (38.4 years old, Statista, 2021). The participants are mostly educated (74.5% have at least a college degree). The respondents are on the average with a stable relation with their organization having an average organizational tenure of 10.5 years (SD=9.09).

3.4. Measures

Entrepreneurial leadership was measured with Renko et al. (2015) 8-item scale organized into a single factor (e.g. "My direct leader Often comes up with ideas of completely new products/services that we could sell.", "My direct leader Challenges and pushes me to act in a more innovative way"). Initial CFA showed some items had issues and thus we kept five for further analyses, which showed good reliability (CR=.939) and convergent validity (AVE=.755).

Leadership creativity encouragement was measured with Scott and Bruce (1994) 6-item scale organized into a single factor (e.g. "My manager respects employees' ability to function creatively.", "My manager will reward employees who are creative in doing their job"). Initial CFA showed two items had issues and thus we kept four for further analyses, which showed good reliability (CR=.937) and convergent validity (AVE=.789).

Psychological empowerment was measured with Spreitzer (1995) 12-item scale organized in four factors as follows: meaning (3 items, e.g. "My work activities are personally meaningful to me."), competence (3 items, e.g. "I am self-assured about my capabilities to perform my work activities."), self-determination (3 items, e.g. "I have significant autonomy in determining how I do my job."), and impact (3 items, e.g. "I have significant influence over what happens in my department."). Initial CFA showed one item per factor lowered the model fit and thus two items per factor were retained totaling 8 items. All the factors had good reliabilities ($CR_{meaning}$=.849; $CR_{competence}$=.893; $CR_{self\text{-}determination}$=.927; CR_{impact}=.901) as well as convergent validity ($AVE_{meaning}$=.737; $AVE_{competence}$=.806; $AVE_{self\text{-}determination}$=.864; AVE_{impact}=.820). This factor solution has liminal acceptable discriminant validity (one of the HTMT values reached .85, Henseler et al., 2015). Considering the shared variance among the four dimensions, we ran a second order factor that brings them together and all the reliability ($CR_{psyempowerment}$=.929) as well as convergent validity (AVE=.767) are good. Likewise, we checked the construct validity for this measure under a 2nd order factor and found it to be good ($X^2(20)$=43.728, p=.002; CFI=.988; TLI=.983; RMSEA=.065 CI90 [.039; .092] PClose<.157; SRMR=.029).

Leadership creativity encouragement was measured with Scott and Bruce (1994) 6-item scale organized into a single factor (e.g. "My manager respects employees' ability to function creatively.", "My manager will reward employees who are creative in doing their job"). Initial CFA showed two items had issues and thus we kept four for further analyses, which showed good reliability (CR=.937) and convergent validity (AVE=.789).

Innovation output was measured with De Jong and Den Hartog (2010) 6-item scale organized into a single factor (e.g. "In your job, how often do you actively contribute to the development of new products or services?.", "In your job, how often do you optimize the organization of work?"). Initial CFA showed one item had issues and thus we kept five for further analyses, which showed good reliability (CR=.900) and convergent validity (AVE=.644).

Control variables include sociodemographics namely gender (1=M, 2=F), age (1=18-24, 2=25-34, 3=35-44, 4=45-54, 5=55-64, 6= 65 or above), education (1=up to high school, 2=high school or equivalent, 3=junior college, 4=bachelor, 5=master, 6=PhD),

organizational tenure (in years), and dyadic tenure (in years). Additionally, we have controlled for continuous improvement culture. This variable was measured with De Waal et al. (2015) 4-item scale organized into a single factor (e.g. “Management is continuously coaching their employees to improve results.”, “The reported results are consistently used to evaluate previously specified standards and targets.”). Initial CFA showed good fit for the original scale and so all items were kept for further analyses. This solution showed good reliability (CR=.904) and convergent validity (AVE=.703).

3.5. Measurement model

The measurement model comprehending eight latent constructs (four are dimensions of the psychological empowerment) showed unacceptable fit ($X^2(566)=1751.427$, $p<.001$; CFI=.893; TLI=.881; RMSEA=.087 CI90 [.082; .091] PClose<.001; SRMR=.044). After excluding items based on Lagrange Multipliers, the model fit improved into acceptable levels ($X^2(275)=591.039$, $p<.001$; CFI=.952; TLI=.944; RMSEA=.065 CI90 [.058; .072] PClose<.001; SRMR=.043).

4. Results

This section will start by showing the descriptive and bivariate statistics (Table 1) and then the findings from the hypotheses testing.

The sample reported on the average a moderately high perceived entrepreneurial leadership style although with a substantial dispersion (M=3.79, SD=1.03) meaning there are many cases where a high and low entrepreneurial leadership is reported. Simultaneously, innovation output seems to be leaning to the second highest value (M=3.97, SD=.90) with equivalent value for psychological empowerment (M=3.94, SD=.85) as well as for leader creativity encouragement (M=4.0, SD=.97). This is consistent with the more educated nature of the sample. Still the standard deviations found are considerable, showing the sample comprises contrasting realities.

As regards the associations between sociodemographic and other control variables with the conceptual model variables, the most striking case, as expectable, is found between Kaizen and all of these variables. As explained in the literature review, Kaizen is a key driver of innovation and is comprehends processes that match the entrepreneurial philosophy. Therefore, it is no surprise to see the positive correlations. This indicated it was important to include this variable as a control variable in this model. As to the remaining sociodemographic variables, gender has no significant correlation at all, and age and organizational tenure shows only to minor positive correlations with psychological empowerment and innovation output. Most interestingly, more educated participants seem to perceive lower levels of entrepreneurial leadership, leader creativity encouragement, and psychological empowerment. This can be explained by more educated people having higher expectations as regards these behaviors from leaders.

The conceptual model variables are strongly and positively associated with each other. This encourages the overall model namely the strong possibility the mediation will be found. However, it is worth noticing that the moderator is also strongly associated with the other variables which suggests it can operate empirically with another status that a moderator. Still, theoretically it makes sense to keep its current status.

Table 1 - Descriptive and bivariate statistics

	Range	Mean	SD	1	2	3	4	5	6	7	8
1. Gender	1-2	63% M	-	1							
2. Age	1-6	2.81	.93	-.138*	1						
3. Educ	1-6	3.17	1.07	.003	-.092	1					
4. Org Tenure	1-41	10.5	9.09	-.166**	.661**	.086	1				
5. Kaizen	1-5	3.79	1.03	.118	.124*	-.281**	.072	1			
6. Entrepren_Leadership	1-5	3.86	.96	.073	.110	-.191**	.042	.602**	1		
7. Psy_Empowerment global	1-5	3.94	.85	-.028	.146*	-.152*	.171**	.518**	.696**	1	
8. Innovation output	1-5	3.97	.90	-.038	.156**	-.114	.203**	.605**	.590**	.775**	1
9. Leader_Creativity_Encour.	1-5	4.00	.97	.053	.063	-.218**	.024	.616**	.771**	.641**	.604**

Hypotheses testing

The findings from applying the Process Macro (Hayes, 2015) are shown in Table 2.

Table 2 – Hypotheses testing

IV		Med		DV	B	BootSe	P value	CI95 LB	CI95 UB	Hypothesis
EntLead		->		InnovOut	-.0688	.0592	.2460	-.1853	.0477	H1 KO
EntLead	->	PsyEmp			.4303	.0594	.0000	.3133	.5472	-
		PsyEmp	->	InnovOut	.6315	.0562	.0000	.5209	.7422	-
EntLead	->	PsyEmp	->	InnovOut	.2717	.0454		.1768	.3557	H2 OK
EntLead*LCE		->		InnovOut	.0133	.0319	.6782	-.0496	.0762	H3 KO
EntLead*LCE	->	PsyEmp			.1127	.0344	.0012	.0449	.1805	H4 OK
EntLead*LCE	->	PsyEmp	->	InnovOut	.0712	.0330		.0022	.1311	H5 OK

Legend: IV=Independent variable; Med=Mediator; DV=Dependent variable, LCE=Leadership creativity encouragement

The direct effect between entrepreneurial leadership and innovation output is not significant (B=-0.688, SE=.0592, p=.246, CI95 [-.1853; .0477]) which rejects Hypothesis 1. However the direct effects between entrepreneurial leadership and psychological empowerment as well as between psychological empowerment and innovation output are significant which are in line with the indirect effect found of entrepreneurial leadership in innovation output through psychological empowerment (B=.2717, SE=.0454, CI95 [.1768; .3557]). This fully supports Hypothesis 2.

When testing for the interaction effect of leadership creativity encouragement on the direct effect between entrepreneurial leadership and innovation ouput, findings did not corroborate this moderation (B=.0133, SE=.0319, p=.678, CI95 [-.0496; .0762) which rejects Hypothesis 3.

Conversely, the same interaction but on the relationship between entrepreneurial leadership and psychological empowerment did show a significant moderation (B=.1127, SE=.0344, p=.001, CI95 [.0449; .1805]). This renders support to Hypothesis 4.

Lastly, when testing the integrated moderated mediation effect, findings show that it is significant (B=.0712, SE=.0330, CI95 [.0022; .1311]), meaning the moderation effect on the first path of the model (between entrepreneurial leadership and psychological empowerment) is sufficiently strong to interfere with the mediation effect found. This supports Hypothesis 5.

5. Discussion and Conclusion

This research was driven by understanding of closely entrepreneurial leadership and leaders' creativity encouragement operate into promoting innovative behavior in employees via their psychological empowerment. This intention originated from the understanding that measures of entrepreneurial leadership are not sufficiently including the role of leaders' creativity encouragement. Likewise, leadership influence, judged on the Social Learning Theory (Bandura, 1977) will hardly be effective only by giving the example on how employees should behave. Leaders will be expected to have a more explicit action into creating the psychological leeway to foster employees' willingness to go creative, take risks and accept the cognitive burden of abandoning routines.

Accordingly, the conceptual model under analysis is a moderated mediation where the expected dependent variable is innovative output, fostered by entrepreneurial leadership via psychological empowerment but under the condition that the leader also explicitly encourages creativity in employees.

The overall findings offer support to this conceptual model. The inexistence of the direct effect between entrepreneurial leadership and innovation output (hypothesis 1) corroborates our original expectation that such relationship would not be direct because there was an explanatory psychological mechanism missing. The option for selecting psychological empowerment was found to be accurate as its mediation effect was supported by the findings (Hypothesis 2 supported), Tummers and Knies (2013) proved that components of psychological empowerment can be the mediator between entrepreneurial leadership and innovation outcomes, and many other studies supported that entrepreneurial leadership affects psychological empowerment strongly and positively (Zhang & Bartol, 2010; Seibert, 2011; Mehmood, 2019) while entrepreneurial leadership enhances the elements of psychological empowerment in different ways (Miao, 2018). It shows that both participatory management including psychological empowerment and the effects of psychological empowerment are important factors in promoting organizational innovation (Lawler, 1990; Brunetto & Farr-Wharton, 2007; Singh & Sarkar, 2012), there is a positive correlation between empowerment and enterprises innovation capability (Cakar & Erturk, 2010; Erturk, 2012; Berraies, Chaher & Benyahia, 2014; Amin, 2018). Our findings are in line

with this literature and bridge all previous results.

The modulating role of leadership creativity encouragement that was hypothesized to occur both in the direct effect between entrepreneurial leadership and innovation output, and in the indirect effect through psychological empowerment, was partially supported because hypothesis 3 was rejected but hypothesis 4 was supported. Judging on the fact that the direct effect of entrepreneurial leadership on innovation output was not found, it is truly not a surprise to see that the interaction effect is also absent. So, we think the absence of this interaction does not compromise the rationale that sustained the conceptual model. It was hypothesized as a caveat to account for the possibility that such missing direct effect could be disguised by a symmetrical moderation effect, i.e. one that showed a negative slope until a certain level of the moderator and then turning into a positive one. This was more driven by methodological care than theoretical indication. This is especially true because the interaction effect between the independent and mediator variables is significant and positive.

The mediation found is the probable result of entrepreneurial leaders giving employees conditions, and enough support and encouragement to make them gain motivating spaces and legitimacy (Perry-Smith & Mannucci, 2017) which we have not measured. Up to this moment, the conceptual model aligns well with extant research. However, we reasoned that Newman et al. (2018) asserted that entrepreneurial leaders directly encourage the implementation of employees' creative ideas at work is a possibility but not a certainty. Although social learning theory (Bandura, 1977) states role modelling as a powerful force into changing behavior, we think being an entrepreneurial leader may not be sufficiently encouraging for employees if that leader is more focused on him or herself and not so focused on employees. It is known that entrepreneurial leaders are often creative and concentrate on promoting followers to challenge the current situation but Renko's et al. (2015) measure does not give a strong measure of this "creativity encouragement" function. This is suggested by the lowest cross-loading that the two items from Renko's et al. (2015) EL scale have when factor analyzed jointly with a scale measuring leader's creativity encouragement behavior. Although the specific factor loadings are not showed, we must assume they were too low to be noted, and therefore, this suggests the EL scale is mostly focused on the leader acting as a role model. Although we agree that EL may create supportive encouragement

environment for employees by empowering them and inspiring their full innovative potential (van Dierendonck, 2011; Chan & Mak, 2014; Neubert et al., 2016), we think this is not sufficiently addressed in extant measures of EL.

To reflect this, the most demanding test to the conceptual model is depicted in the last hypothesis (hypothesis 5) which offers conclusion about not only the existence of mediation and moderation effects but its sufficiency in magnitude to create a moderated mediation effect. When such effect is significant that means that the model has an integrated logic and we can only understand reality by taking into consideration both the indirect effect and the interaction effect. Such was the case for this empirical study, which gave full support to the conceptual model focusing on the interaction between entrepreneurial leadership and innovation output. We thus trust that to fully measure the true theoretical role of entrepreneurial leaders into fostering employee innovative output, we need not only to take into consideration EL but also leadership creativity encouragement as a joint factor.

These findings have theoretical relevance because, to our knowledge, this is the first study, especially in China, to have tested such a model. It has many implications as regards theory. Firstly, it implies that the processes that link entrepreneurial leadership to innovation output have to be uncovered, which based on this study, psychological empowerment is a suitable option. Other processes that could psychologically empower employees could be theoretically driven to fine tune this model by adding more predictors, e.g. HRM policies targeting how innovative behavior is rewarded. For practical purposes these findings are also important. They show that in an economy that is shifting towards innovation, organizations must put pressure to shift also from the traditional leadership style into another style more in line with the entrepreneurial leadership. This is a total change from seeking stable operations to seeking risky operations, because innovation always entails a higher level of risk taking associated. Also, the interaction found has huge implications for HRM. Namely, although EL will benefit the organizations by increasing employee psychological empowerment and thus, innovation output, it is leveraged by the leaders having also attention to encouraging employees' creativity. That is, having an entrepreneurial leader is good, but having an entrepreneurial leader that also makes employees feel comfortable with testing new ideas, suggesting creative solutions and probably, taking some risk, is much better. Innovation is not a one-person phenomenon. It is collective, and so having a creative staff with an entrepreneurial leader is a much better situation.

These findings and respective conclusions must be embedded in the limitations of the study. The first limitation pertains to the sampling method. Although snowball sampling in a common procedure and accepted for publication in peer reviewed journals, it is also prone to bias in the sense that the participants are always invited within a certain network of contacts. To minimize this, we have made the first contacts with contrasting individuals, from different occupations and age range. The sample profile is clearly not random as, e.g. seen in the gender distribution where males are overrepresented. Still, looking at the associations between sociodemographic variables and the conceptual model, there is nothing that would be taken as serious bias. Additionally, all sociodemographic variables were included in the models as covariates.

Although this study took care to control from a very important variable (Kaizen) and results showed clearly that we were right to do so, it is possible that other variables (e.g. industry; services vs. manufacture) play a role. This is a promising suggestion for future research that could focus on this model in a single industry or even move to a more complex model and test for the moderation of industry over this model. Likewise, future research may benefit from introducing more variables, plausible predictors of psychological empowerment and even other possible mediators. It could also benefit from considering the organizational culture because some cultures are prone to innovation while others reinforce stability and norms.

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Annex A

Questionnaire

My name is Zhang Xinyi and I am doing a Master dissertation on innovation at work in ISCTE – University Institute of Lisbon in Human Resources Management. Innovation at work concern both process innovation (how work processes can be improved) and output innovation (new or improved products or services). I would like to invite you to fill my questionnaire. It is anonymous and confidential and used only for research purposes. It will take only 4 minutes. Your contribution is very valuable. Thank you.

Continuous improvement (Kaizen) (1-strongly disagree, 5-strongly agree)

1. Management is continuously coaching their employees to improve results.
2. The reported results are consistently used to evaluate previously specified standards and targets.
3. Management and employees provide performance feedback to each other.
4. The organization is performance oriented

Innovative output

In your job, how often do you . . . (1-never, 5-always)

1. . . . make suggestions to improve current products or services?
2. . . . produce ideas to improve work practices?
3. . . . acquire new knowledge?
4. . . . actively contribute to the development of new products or services?
5. . . . acquire new groups of customers?
6. . . . optimize the organization of work?

Psychological Empowerment (1-strongly disagree, 5-strongly agree)

1. The work I do is very important to me.
2. My work activities are personally meaningful to me.
3. The work I do is meaningful to me.

4. I am confident about my ability to do my job.
5. I am self-assured about my capabilities to perform my work activities.
6. I have mastered the skills necessary for my job.

Self-determination items:

7. I have significant autonomy in determining how I do my job.
8. I can decide on my own how to go about doing my work.
9. I have considerable opportunity for independence and freedom in how I do my job.
10. My impact on what happens in my department is large.
11. I have a great deal of control over what happens in my department.
12. I have significant influence over what happens in my department.

Entrepreneurial Leadership

My direct leader … (1-strongly disagree, 5-strongly agree)

1. Often comes up with radical improvement ideas for the products/services we are selling.
2. Often comes up with ideas of completely new products/services that we could sell.
3. Takes risks.
4. Has creative solutions to problems.
5. Demonstrates passion for his/her work.
6. Has a vision of the future of our business.
7. Challenges and pushes me to act in a more innovative way.
8. Wants me to challenge the current ways we do business.

Leadership creativity encouragement

(1-never, 5-always)

1. My manager encourages and emphasizes or reinforces creativity by employees.
2. My manager respects employees' ability to function creatively.
3. My manager allows employees to try to solve the same problems in different ways.
4. My manager expects employees to deal with problems in different ways.
5. My manager will reward employees who are creative in doing their job.
6. My manager will publicly recognize those who are creative.

Gender: F / M

Age: 18-24, 25-34, 35-44, 45-54, 55-64, 65 or over

Education: 1 (below high school, 9 years schooling), 2 (high school or equivalent, 9 to 12 years schooling,), 3 (bachelor), 4 (master), 5 (doctorate or above)

Organizational tenure: For how many years are you working in the organization? ____ (if less than one year, write 0)

For how many years are you working with your direct leader? ____ (if less than 1 year, write 0)

Do you have sales function? Y/N

Annex B

Process Macro Outputs

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 3.5 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3

**************************************************************************
Model  : 8
    Y  : InOut5it
    X  : ELead5it
    M  : PE
    W  : LCE4it

Covariates:
 Kaizen  Gender   Age      Educ     OrgTen

Sample
Size:  271

**************************************************************************
OUTCOME VARIABLE:
 PE

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      ,7481      ,5597      ,3320    41,6313     8,0000   262,0000      ,0000

Model
             coeff         se          t          p       LLCI       ULCI
constant     3,6111      ,2728    13,2372      ,0000     3,0740     4,1483
ELead5it      ,4303      ,0594     7,2443      ,0000      ,3133      ,5472
LCE4it        ,2309      ,0608     3,7994      ,0002      ,1112      ,3506
Int_1         ,1127      ,0344     3,2731      ,0012      ,0449      ,1805
Kaizen        ,0905      ,0460     1,9676      ,0502     -,0001      ,1811
Gender       -,1193      ,0745    -1,6017      ,1104     -,2659      ,0274
Age          -,0281      ,0512     -,5494      ,5832     -,1290      ,0727
Educ          ,0024      ,0350      ,0685      ,9454     -,0666      ,0714
OrgTen        ,0140      ,0053     2,6524      ,0085      ,0036      ,0244
Product terms key:
 Int_1    :        ELead5it x        LCE4it

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      ,0180    10,7132     1,0000   262,0000      ,0012
----------
    Focal predict: ELead5it (X)
          Mod var: LCE4it   (W)

Conditional effects of the focal predictor at values of the moderator(s):

     LCE4it     Effect         se          t          p       LLCI       ULCI
     -,9701      ,3209      ,0656     4,8889      ,0000      ,1917      ,4502
      ,0000      ,4303      ,0594     7,2443      ,0000      ,3133      ,5472
      ,9701      ,5396      ,0706     7,6483      ,0000      ,4007      ,6785

Moderator value(s) defining Johnson-Neyman significance region(s):
      Value    % below    % above
    -2,2043     3,3210    96,6790

Conditional effect of focal predictor at values of the moderator:
     LCE4it     Effect         se          t          p       LLCI       ULCI
     1,0000      ,0916      ,1149      ,7968      ,4263     -,1347      ,3178
     1,2000      ,1141      ,1091     1,0462      ,2964     -,1006      ,3288
     1,4000      ,1366      ,1033     1,3222      ,1873     -,0668      ,3401
     1,6000      ,1592      ,0978     1,6280      ,1047     -,0333      ,3517
     1,8000      ,1817      ,0924     1,9669      ,0503     -,0002      ,3636
     1,8012      ,1818      ,0924     1,9691      ,0500      ,0000      ,3637
     2,0000      ,2042      ,0872     2,3421      ,0199      ,0325      ,3760
     2,2000      ,2268      ,0823     2,7562      ,0063      ,0648      ,3888
     2,4000      ,2493      ,0777     3,2106      ,0015      ,0964      ,4022
     2,6000      ,2719      ,0734     3,7046      ,0003      ,1274      ,4164
     2,8000      ,2944      ,0695     4,2338      ,0000      ,1575      ,4313
     3,0000      ,3169      ,0662     4,7890      ,0000      ,1866      ,4473
     3,2000      ,3395      ,0634     5,3547      ,0000      ,2146      ,4643
     3,4000      ,3620      ,0613     5,9089      ,0000      ,2414      ,4827
     3,6000      ,3846      ,0599     6,4247      ,0000      ,2667      ,5024
     3,8000      ,4071      ,0592     6,8745      ,0000      ,2905      ,5237
     4,0000      ,4296      ,0594     7,2357      ,0000      ,3127      ,5466
     4,2000      ,4522      ,0603     7,4955      ,0000      ,3334      ,5710
     4,4000      ,4747      ,0620     7,6529      ,0000      ,3526      ,5969
     4,6000      ,4973      ,0644     7,7178      ,0000      ,3704      ,6241
     4,8000      ,5198      ,0674     7,7065      ,0000      ,3870      ,6526
     5,0000      ,5423      ,0710     7,6375      ,0000      ,4025      ,6822
```

```
Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
   ELead5it   LCE4it     PE         .
BEGIN DATA.
     -,9653     -,9701     3,3326
      ,0000     -,9701     3,6424
      ,9653     -,9701     3,9521
     -,9653      ,0000     3,4511
      ,0000      ,0000     3,8664
      ,9653      ,0000     4,2817
     -,9653      ,9701     3,5696
      ,0000      ,9701     4,0904
      ,9653      ,9701     4,6113
END DATA.
GRAPH/SCATTERPLOT=
 ELead5it WITH     PE       BY       LCE4it   .
************************************************************************
OUTCOME VARIABLE:
 InOut5it

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      ,8207      ,6736      ,2746    59,8358     9,0000   261,0000      ,0000

Model
             coeff         se          t          p       LLCI       ULCI
constant      ,4376      ,3205     1,3655      ,1733     -,1934     1,0687
ELead5it     -,0688      ,0592    -1,1626      ,2460     -,1853      ,0477
PE            ,6315      ,0562    11,2402      ,0000      ,5209      ,7422
LCE4it        ,1131      ,0568     1,9925      ,0474      ,0013      ,2249
Int_1         ,0133      ,0319      ,4154      ,6782     -,0496      ,0762
Kaizen        ,2516      ,0421     5,9712      ,0000      ,1687      ,3346
Gender       -,0842      ,0681    -1,2374      ,2170     -,2182      ,0498
Age          -,0180      ,0466     -,3855      ,7002     -,1097      ,0738
Educ          ,0513      ,0319     1,6111      ,1084     -,0114      ,1141
OrgTen        ,0080      ,0049     1,6364      ,1030     -,0016      ,0176

Product terms key:
 Int_1    :        ELead5it x        LCE4it

Test(s) of X by M interaction:
         F        df1        df2          p
     3,4009     1,0000   260,0000      ,0663
Test(s) of highest order unconditional interaction(s):
      R2-chng          F        df1        df2          p
X*W      ,0002      ,1725     1,0000   261,0000      ,6782
----------
    Focal predict: ELead5it (X)
          Mod var: LCE4it   (W)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
   ELead5it   LCE4it     InOut5it   .
BEGIN DATA.
     -,9653     -,9701     3,9337
      ,0000     -,9701     3,8549
      ,9653     -,9701     3,7761
     -,9653      ,0000     4,0310
      ,0000      ,0000     3,9646
      ,9653      ,0000     3,8982
     -,9653      ,9701     4,1284
      ,0000      ,9701     4,0744
      ,9653      ,9701     4,0204
END DATA.
GRAPH/SCATTERPLOT=
 ELead5it WITH     InOut5it BY       LCE4it   .

****************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************

Conditional direct effect(s) of X on Y:
     LCE4it     Effect         se          t          p       LLCI       ULCI
     -,9701     -,0817      ,0624    -1,3096      ,1915     -,2045      ,0411
      ,0000     -,0688      ,0592    -1,1626      ,2460     -,1853      ,0477
      ,9701     -,0559      ,0710     -,7881      ,4313     -,1957      ,0838

Conditional indirect effects of X on Y:

INDIRECT EFFECT:
 ELead5it    ->    PE          ->    InOut5it

     LCE4it     Effect     BootSE   BootLLCI   BootULCI
     -,9701      ,2027      ,0572      ,0871      ,3141
      ,0000      ,2717      ,0454      ,1768      ,3557
      ,9701      ,3408      ,0539      ,2251      ,4369
```

```
      Index of moderated mediation:
           Index     BootSE   BootLLCI   BootULCI
LCE4it      ,0712      ,0330      ,0022      ,1311
---

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

W values in conditional tables are the mean and +/- SD from the mean.

NOTE: The following variables were mean centered prior to analysis:
          LCE4it   ELead5it

NOTE: Standardized coefficients not available for models with moderators.

------ END MATRIX ----
```