Research on the Mechanism of the Influence of Emotional Intelligence on Innovative Behavior by Researchers in the Field of Telecommunication

Mingyue Yu

Corresponding author. Email:yumy4@chinatelecom.cn

Beijing Research Institute of China Telecom Corporation,Beijing,102209,China

Abstract. How to effectively support the innovation of researchers in the field of communication is the focus of policy and mechanism research. In this study, organizational innovation support and innovation self-efficacy were introduced as explanatory variables to explore the influence mechanism of emotional intelligence on innovative behavior. Based on the results of a questionnaire survey conducted by 312 researchers in the field of communications, a structural equation model was used for statistical analysis. The results show that there is a positive correlation between emotional intelligence and innovative behavior. And organizational innovation support and innovation self-efficacy play a partial mediating role. But the mediating role of innovative self-efficacy is much greater than that of organizational innovation support.

Keywords: emotional intelligence, innovative behavior, innovative self-efficacy, organizational innovation support

1 Introduction

Innovation is an important factor in improving comprehensive national strength. It is also a strong driving force for enterprises to gain competitive advantages and achieve sustainable development. For the continuous development of the field of communication, the innovative behavior of researchers is the key to organizational innovation, which has important research significance. Emotional intelligence has a guiding and controlling effect on individual behavior and it is a key factor for individuals to achieve good work performance and success at work[1]. But the relationship between the two is not completely direct. It is necessary to further study and improve the specific influence path between the two.

2 Theoretical basis and research hypothesis

2.1 Emotional intelligence and innovative behavior

Emotional intelligence affects people's thinking and cognitive activities, contributing to the production of creativity. Ragini Gupta et al. empirically found that positive emotions play a mediating role between emotional intelligence and creativity[2]. Sun Jianqun et al. believe that emotional intelligence affects employees' innovation performance through emotional depletion[3]. Therefore, the following hypothesis is made:

MSIEID 2023, December 08-10, Guangzhou, People's Republic of China

DOI 10.4108/eai.8-12-2023.2344352

Hypothesis 1: Emotional intelligence is positively correlated with innovative behavior.

2.2 The relationship between emotional intelligence, innovative self-efficacy, and innovative behavior

People with high levels of emotional intelligence are good at managing their emotions. When they successfully complete a task multiple times, their confidence in performing other tasks on their own also increases. Therefore, the higher the level of emotional intelligence of the individual, the higher the sense of self-efficacy of innovation. Wang Nan et al. found that people with high self-efficacy of innovation have higher external and internal motivations, which will promote the generation of individual innovative behavior[4]. Therefore, the following hypothesis is made:

Hypothesis 2: Innovative self-efficacy mediates between emotional intelligence and innovative behavior.

2.3 The relationship between emotional intelligence, organizational innovation support, and innovative behavior

Wang Li、He Ning [5] and Gao Ying [6] believe that individuals with high emotional intelligence are good at perceiving and regulating their own and others' emotions, which helps to establish a wider social relationship network and thus obtain more social support. Therefore, the following hypothesis is made:

Hypothesis 3: Organizational innovation support mediates between emotional intelligence and innovative behavior.

2.4 Organizational innovation support and innovation self-efficacy

Gu Yuandong et al. found that organizational support has a positive impact on the self-efficacy of innovation[7]. When individuals receive more organizational support, they will have stronger belief in innovation and will be more proactive in innovative behavior. Therefore, the following hypothesis is made:

Hypothesis 4: Organizational innovation support is positively correlated with innovation self-efficacy.

The theoretical model summarized from the assumptions of this study is shown in Figure 1:

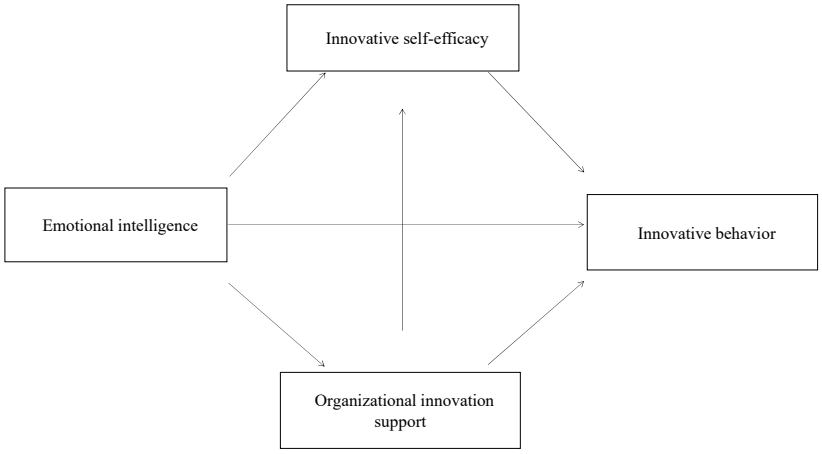

Fig. 1. Theoretical model

3 Research design

3.1 Questionnaire design

The specific measurement scales are as follows: emotional intelligence scale using 16 questions in four dimensions developed by Wong and Law (2002) [8]; According to the Individual Innovative Behavior Scale of Scott and Bruce (1994) [9] and the Personal Innovation Self-efficacy Scale of Tierney and Farmer (2002) [10], five topics with high factor loads and suitable for the behavioral characteristics of the research subjects were selected. A 5-question measurement scale is formed on the basis of a simplified version of the Organizational Support Perception Scale developed by Eisenberger (1986) et al[11]. A total of 407 original questionnaires were collected, and 312 valid questionnaires were obtained, with an effective rate of 76.65%.

3.2 Reliability and validity testing

Second-order confirmatory factor analysis using Amos. The Cronbach α values of all four scales were greater than 0.7, and the reliability of the scales was good. Moreover, the factor load of all questions in each scale is higher than 0.5, indicating that all the questions have a good correlation with the measured target variable, and the aggregation validity of the scale is good. The four-factor model fitting test was carried out by Amos, and the relevant results were: $\mathrm{CMIN/DF} = 1.572, \mathrm{RMSEA} = 0.043, \mathrm{GFI} = 0.887, \mathrm{CFI} = 0.921, \mathrm{NFI} = 0.812, \mathrm{IFI} = 0.922, \mathrm{TLI} = 0.913$. All indicators met the requirements, indicating that the four variables in this study were well distinguished and valid. The questionnaire structure conformed to the theoretical model of the study.

4 Data analysis

4.1 Analysis of relevant relationships

A direct effect model between the two variables was constructed. Under $p < 0.001$, the path coefficient between emotional intelligence and innovative behavior was 0.655. The path coefficient between organizational innovation support and innovative self-efficacy was 0.552, indicating that there was a significant positive correlation. Hypotheses 1 and 4 were verified.

4.2 Analysis of the role of intermediaries

The structural equation model is used to verify the mediating role of innovative self-efficacy between emotional intelligence and innovative behavior. Under $p < 0.01$, all paths in this model are significant. The relevant fitting indexes of the model: $\mathrm{CMIN} = 449.712, \mathrm{DF} = 268, \mathrm{CMIN/DF} = 1.678, \mathrm{GFI} = 0.896, \mathrm{CFI} = 0.922, \mathrm{NFI} = 0.829, \mathrm{IFI} = 0.923, \mathrm{TLI} = 0.913, \mathrm{RMSEA} = 0.047$, indicating that the fitting effect of the model is better.

Under the mediating effect of innovative self-efficacy, the direct effect path co-efficient of emotional intelligence on innovative behavior was 0.361. The path co-efficient of emotional intelligence on innovative self-efficacy was 0.683. The effect path coefficient of innovative self-efficacy on innovative behavior was 0.430. Therefore, the direct effect of emotional intelligence on innovative behavior was 0.361, while the indirect effect exerted by the mediating effect of innovative self-efficacy was 0.294 (0.683×0.430). The indirect effect accounted for 44.9%. It shows that emotional intelligence affects the innovative behavior by affecting innovative self-efficacy. Hypothesis 2 is verified.

In the same way, hypothesis 3 is verified. A test model for the mediating role of organizational innovation support between emotional intelligence and innovation behavior is constructed. The correlation fitting index of this model is as follows: $\mathrm{CMIN} = 387.459, \mathrm{DF} = 245, \mathrm{CMIN/DF} = 1.581, \mathrm{GFI} = 0.907, \mathrm{CFI} = 0.934, \mathrm{NFI} = 0.840, \mathrm{IFI} = 0.935, \mathrm{TLI} = 0.925, \mathrm{RMSEA} = 0.043$.

The direct effect of emotional intelligence on innovative behavior is 0.522. The mediating effect of organizational innovation support is 0.134. The indirect effect accounts for 20.5% of the total effect. Therefore, emotional intelligence has a positive impact on innovation behavior by affecting the mediating variable of organizational innovation support. That is, organizational innovation support also plays a partial mediating role in the relationship between emotional intelligence and innovative behavior. Hypothesis 3 is verified.

4.3 Theoretical model testing

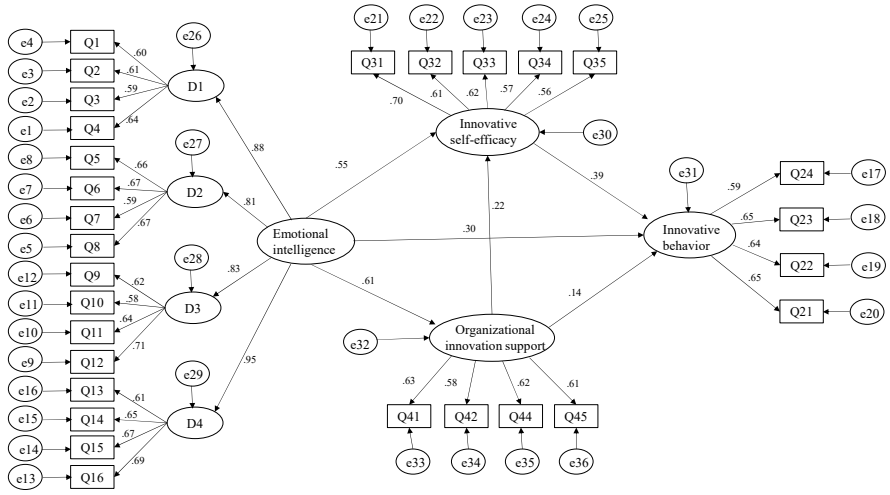

Fig. 2. The theoretical model of this paper

In order to further test the internal influence mechanism between all the research variables in this paper, the overall path analysis of the research model is carried out by structural equation model, as shown in Figure 2. The fitting index results of the model: $\mathrm{CMIN} = 576.769, \mathrm{DF} = 367, \mathrm{CMIN/DF} = 1.572,$ less than $3, \mathrm{GFI} = 0.887, \mathrm{CFI} = 0.921, \mathrm{NFI} = 0.812, \mathrm{IFI} = 0.922, \mathrm{TLI} = 0.913, \mathrm{RMSEA} = 0.043$. However, the positive correlation between organizational innovation support and innovation behavior no longer holds in the overall model test. The path co-efficient between the two is 0.139. But it is not significant ($\mathrm{P} = 0.145$). The positive correlation between the remaining variables still holds.

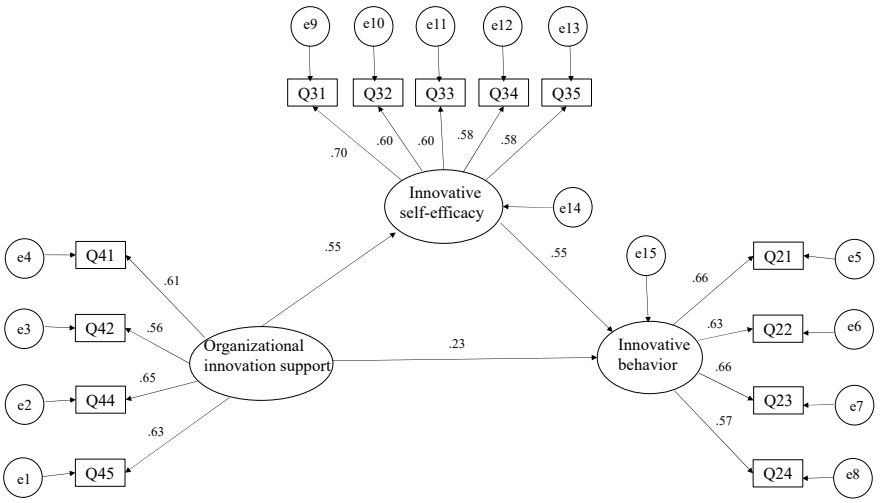

Fig. 3. The relationship between innovative self-efficacy, organizational innovation support and innovative behavior

In order to further confirm whether organizational innovation support has a positive impact on innovation behavior by completely affecting innovation self-efficacy, this paper constructs a model of the relationship between innovation self-efficacy, organizational innovation support and innovation behavior, as shown in Figure 3. $P < 0.05$, all path coefficients in the model are significant. Under the mediating effect of innovative self-efficacy, the direct effect of organizational innovation support on innovative behavior is 0.232. The indirect effect of innovation self-efficacy is 0.303 (0.554×0.547), accounting for 56.6% of the total effect. Innovative self-efficacy is not a complete mediating role between organizational innovation support and innovation behavior. But the mediating role is relatively strong, accounting for a relatively large proportion of the total effect.

5 Summary

5.1 Conclusion

In this paper, an empirical analysis of the internal influence mechanism between emotional intelligence and innovative behavior is carried out, and the results are as follows:

First, there is a significant positive correlation between an individual's emotional intelligence and innovative behavior. Second, innovative self-efficacy plays a partial mediating role in the relationship between emotional intelligence and innovative behavior. Third, organizational innovation support plays a partial mediating role between emotional intelligence and innovative behavior. Fourth, the mediating effect of innovative self-efficacy in the relationship between emotional intelligence and innovative behavior is much higher than that of organizational innovation support. And this conclusion is relatively novel and has strong reference significance. Organizational innovation support has less direct effect on innovation behavior and more through innovation self-efficacy to influence innovation behavior.

5.2 Research enlightenment

Based on the conclusions of this study, the following suggestions are made on how to improve the innovative behavior of researchers in the field of communication:

Businesses give preference to motivated employees with high levels of emotional intelligence in the recruitment process. For employees with low emotional intelligence, methods such as providing relevant training, strengthening communication with superiors and subordinates are adopted to exercise and improve the emotional intelligence so as to improve the possibility of employees to innovate. In addition, enterprises can also create a good innovation atmosphere for employees, provide better resources and conditions, and form a positive, fair and just working environment. So that employees can feel the organization's encouragement and support for innovation behavior. Then they can tolerate the results of innovation failure and strengthen confidence and enthusiasm for innovation to improve their own innovation behavior.

Reference

[1] YE Xiaoqian,LI Ling,WANG Yufen. Development of College Students' Team Consciousness and Innovation from the Perspective of Emotional Intelligence [J]. Contemporary Vocational Education, 2017(01):76-80.

[2] Ragini Gupta, Badri Bajaj. Positive Affect as Mediator between Emotional Intelligence and Creativity: An Empirical Study from India[J]. International Journal of Emergency Mental Health and Human Resilience, 2017, 19(4):1522-4821.

[3] SUN Jianqun, TIAN Qi, WANG Guoxuan, et al. Does emotional intelligence always benefit employee innovation performance? A moderated mediation model[J].Chinese Journal of Clinical Psychology,2022,30(03):640-644.

[4] WANG Nan,ZHANG Liyan,WANG Yang. The Influence of Innovative Self-efficacy on Innovative Behavior: An Analysis of Multiple Mediating Effects[J]. Studies of Psychology and Behavior, 2016, 14(06):811-816.

[5] WANG Li,HE Ning. The Mediating Role of College Students' Social Support in Emotional Intelligence and Emotional Well-being [J]. Chinese Journal of Health Psychology, 2013, 21(12):1895-1896.

[6] GAO Ying. The relationship between emotional intelligence, self-efficacy and social support and stress tolerance in college students[J].Ergonomics, 2017, 23(01):58-61.

[7] GU Yuandong,ZHOU Wenli,PENG Jisheng. Research on the influence mechanism of organizational support on the innovation behavior of R&D personnel[J].Management Science,2014,27(01):109-119.

[8]Wong C S, Law K. The effects of leader and follower emotional intelligence on performance and sttitude: An exploratory study. The Leadership Quarterly, 2002, 13(3):243-274.

[9] Scott S G, Bruce R A. Determinants of innovative behavior: a path model of individual innovation in the workplace[J]. Academy of Management Journal, 1994, 37(3):580-607.

[10] Tierney P, Farmer S M. Creative self-efficacy: Its potential antecedents and relationship to creative performance[J]. Academy of Management Journal, 2002, 45(6): 1137-1148.

[11] Eisenberger R, Huntington R, Hutchison S, et al. Perceived organizational support[J]. Journal of Applied Psychology, 1986, 71(3):500-507.