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Psychological capital, job involvement and innovative behavior among employees in high tech enterprises in China: Inputs to employee innovation performance framework

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Abstract

This research aims to investigate the Psychological Capital, Job Involvement and Employees Innovative Behavior of mature enterprises in China and lay the foundation for formulating and improving the Employee Innovation Performance Framework of mature enterprises. This study used a self-made questionnaire as a data collection tool. The research objects are 300 employees of mature enterprises in five provinces of Jiangsu, Guangdong, Beijing, Xinjiang and Shandong. Using weighted averages and rankings to describe Psychological Capital from the aspects of self-efficacy, hope, and resilience; to evaluate the Job Involvement of Psychological Capital; to determine Employees Innovative Behavior in terms of innovative atmosphere, relational behavior, and creative self-efficacy. As part of the nonparametric tests, Spearman rho was used to test for significant relationships. All analyzes were performed using SPSS version 28. The study revealed that respondents agree with the importance of hope, self-efficacy, resilience and optimism in psychological capital. They agreed on employees have moderate job involvement as to physical involvement, emotional involvement, and cognitive involvement. They agreed with the company's innovation behaviors in terms of organizational innovation climate, Relationship Behavior, and innovation self-efficacy. There is a very close direct relationship between psychological capital and job involvement. The study also found that there is a very close direct relationship between psychological capital and innovation behaviors, and a close direct relationship between job involvement and innovation behaviors. An Employee Innovation Performance Framework was developed for employees.

Keywords: psychological capital, job involvement, innovative behavior, employee innovation performance framework

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1. Introduction

As an innovation-driven enterprise, the success of high-tech enterprises largely depends on the employees' Psychological Capital, Job Involvement and Employees Innovative Behavior. In the current rapidly changing business environment, high-tech enterprises need to continuously promote innovation to maintain a competitive advantage. Therefore, it is of great significance to study the relationship among Psychological Capital, Job Involvement and Employees Innovative Behavior for understanding and promoting the innovative ability of high-tech enterprises.

In a globalized economic environment, the development of high-tech enterprises not only promotes technological innovation and industrial transformation, but also is the key to promoting economic growth and enhancing national competitiveness. Due to their research and development capabilities as well as technological innovation, they play an important role in job creation, economic growth and international competitiveness. Howell (2017) also emphasized the important contribution of high-tech enterprises in improving and optimizing the industrial structure, enhancing the country's international competitiveness, and creating more employment opportunities and wealth for the society.

High-tech enterprises face many challenges in the process of development. Cohen (2016) pointed out in his research that due to the extremely fast updating of technology and the increasingly fierce market competition, high-tech enterprises must have rapid technological innovation capabilities and market adaptability to maintain their competitive advantage. In addition, Roach and Sauermann (2017) pointed out that the development of high-tech enterprises is highly dependent on talents, and high-quality scientific and technological talents are relatively scarce, which is an important problem that high-tech enterprises need to face in the process of development. At the same time, how to establish and maintain a positive corporate culture and improve the job involvement of employees is also a problem that high-tech companies need to constantly explore and solve (Shalley et al., 2017).

Psychological Capital is a collection of positive psychological states of individuals, including dimensions such as self-efficacy, hope, optimism, and resilience. Psychological Capital can enhance the psychological resilience and adaptability of employees, so that they can actively deal with challenging problems. Studies have shown that Psychological Capital is positively correlated with job adjustment and mental health. For example, the study by Luthans et al. (2005) found that through the cultivation of Psychological Capital, individuals can enhance their psychological resilience in the face of stress and challenges, so as to better deal with challenges.

Job Involvement refers to the employee's dedication to work, including time, energy and emotion. The level of Job Involvement has an important impact on individual work performance and Employees Innovative Behavior. Job Involvement can increase individuals' attention and attention to challenging issues, and improve work motivation and effort. Studies have shown that Job Involvement is positively correlated with Employees Innovative Behavior. For example, the research of Chen et al., (2017) found that Job Involvement plays a mediating role between Psychological Capital and job performance, and employees with high Job Involvement are more inclined to propose new ideas and solutions, and actively respond to challenging problems.

Employees Innovative Behavior refers to the behavior of employees to propose new ideas, try new methods, and promote innovation at work. Employees Innovative Behavior is an important factor for high-tech enterprises to gain competitive advantage and sustainable development. Psychological Capital and Job Involvement have direct and indirect impact on Employees Innovative Behavior. Psychological Capital can enhance individuals'

confidence and expectations for innovation, and improve innovation motivation and ability. Job Involvement can increase employees' concentration and engagement in work, and promote the occurrence of innovative thinking and behavior. Studies have shown that Psychological Capital and Job Involvement have a positive impact on Employees Innovative Behavior. The study by Jung et al. (2017) found that Psychological Capital can significantly promote Employees Innovative Behavior through the mediating effects of positive emotions, self-efficacy, hope, and resilience.

To sum up, conducting research on Psychological Capital, Job Involvement, and Employees Innovative Behavior is of great significance both theoretically and practically. These studies can fill the gaps in existing research, deeply explore the drivers of innovation, promote employee development and satisfaction, improve organizational competitiveness, and advance academic research.

Objectives of the Study **-** This study aimed to evaluate the Psychological Capital, Job Involvement and Employees Innovative Behavior of employees in Chinese high-tech enterprises and developed an Employee Innovation Performance Framework. Specifically, it assessed the psychological capital in terms of hope, self-efficacy, resilience; described the Job Involvement as to physical, emotional and cognitive engagement; determined the Employees Innovative Behavior as to organizational innovation atmosphere, behavior relationship and innovation self-efficacy; tested the significant relationship among Psychological Capital, Job Involvement, and Employees Innovative Behavior, and developed a Job Involvement framework for High-tech enterprises in China.

2. Methods

Research Design **-** Descriptive research design was used in this study for an adequate and precise interpretation of the findings. According to study of Rahi (2017), descriptive method of research is a type of research which obtains relevant facts, data and information at present state, providing a precise outline of situations, people or events. Polit and Beck (2014) also shared that descriptive research seeks to study and monitor an arising sensation which cannot be recognized by an impartial factor. The researcher seeks to gather information from the respondents through providing survey questionnaires and distributing these to them. This descriptive kind of research was helpful in collecting the respondents' data efficiently.

Participants of the Study **-** The participants of this study are employees (managers and non-managers) of selected high-tech enterprises. This study intentionally selects five high-tech enterprises from different provinces in China. In order to identify the respondent of the high-tech enterprise, the proponent sends a letter of request to the enterprise, asking for the total number of employees of the enterprise. The data comes from the human resource management of high-tech enterprises. The number of employees (managers and non-managers) in the five high-tech enterprises ranges from 140 to more than 80,000. The age ranges from 23 to 55 years old. The sample size is 300 people, the effect size is 0.22, the power probability is 0.95 or 95%, and the alpha level is calculated using G* power 3.1.9 to be 0.05 or 5%. The researcher was recalled 300 out of 360 due to the current situation.

Data Gathering Instrument **-** The study used three sets of questionnaires as the main mechanism for collecting the necessary data. The first section contains profiles of the respondents. The second and third part contains an assessment of an institution's Psychological Capital, Job Involvement, and Employees Innovative Behavior. The authors use Cronbach's alpha to test the reliability of the adopted tools. It is a convenient test for assessing the reliability or internal consistency of composite scores (Bonett & Wright, 2014). It is used under the assumption that you have multiple projects measuring the same infrastructure. The reliability results showed the computed Cronbach's alpha for Psychological Capital (0.981), Job Involvement (0.987), and Employees Innovative Behavior (0.979) indicates that the items have a strong internal consistency in the rule of thumb.

Data Gathering Procedure **-** The questionnaire survey was conducted through literature analysis and comprehensive expert opinions, and then the questionnaire was distributed online through the questionnaire star

research platform for pre-investigation. After the questionnaire was revised and improved under the guidance of consultants, the questionnaire was distributed online via WeChat and email. After the preliminary design of the questionnaire was completed, eight experts were invited to conduct a pre-test on the questionnaire to further improve the structure and language expression of the questionnaire. The pretest of the questionnaire showed that the Cronbach α and CR values of each variable were higher than 0.9, indicating that the scale had good reliability.

Ethical Considerations - The research is based on academic ethics and is transparent about the research process and results. The questionnaire used was developed by the researchers on the basis of existing academic works and research. During the questionnaire survey, there are questionnaire reminders to ensure that the data provided by the respondents will be kept confidential. It is unethical if it is shared with others without the consent of the interviewee. When designing the questionnaire, the names of the respondents were not involved and the number 0 was assigned to missing data or wrong entries.

Data Analysis - Weighted averages and ranks were used to determine Psychological Capital for self-efficacy, hope, and resilience; to assess physical, emotional, and cognitive engagement for work engagement; and to evaluate Employees Innovative Behavior for innovation climate, relational behavior, and innovative self-efficacy. The results of the Shapiro-Wilk test showed that all variables had p-values less than 0.05, which means that the dataset is not normally distributed. Therefore, Spearman rho was used as part of nonparametric tests to identify significant relationships. All analyzes were performed using SPSS version 28.

3. Results and Discussion

Table 1

Psychological Capital

Indicator	Weighted Mean	Verbal Interpretation	Rank
Self-Efficacy	3.09	Agree	1.5
Hope	3.03	Agree	3
Toughness	3.09	Agree	1.5
Composite Mean	3.07	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree

Table 1 shows the Psychological Capital. The comprehensive average is 3.07, indicating that the indicators have a strong consistency. The highest ranking is Self-Efficacy and Toughness with the highest weighted average of 3.09. In the employee survey of high-tech enterprises, self-efficacy and resilience rank the highest among the dimensions of Psychological Capital. This means that employees have high scores and confidence in self-efficacy and resilience, reflecting employees' strong confidence and determination in the face of challenges and complex problems.

Self-efficacy plays a central role in high-tech enterprises. Self-efficacy not only affects the degree of job involvement of employees, but also determines their ability to face complex problems and challenges to a certain extent. Their innovative thinking and continuous learning ability are the key factors to promote the continuous innovation of enterprises. In addition, employees' self-efficacy also helps to build positive teamwork and organizational cohesion (Zhang & Chen, 2016; Chen et al., 2018).

At the same time, resilience is also regarded as an important element of Psychological Capital for employees of high-tech enterprises. The resilience of employees enables them to remain calm in the face of pressure and difficulties, flexibly adapt to environmental changes, and thus find new opportunities for survival and development amidst changes (Chen, 2015).

Companies need to continue to develop and support employee self-efficacy and resilience so employees can adapt to changing work environments and perform well in the face of challenges. This requires not only providing necessary employee training and development opportunities, but also establishing a positive work

environment and culture that encourages employees to share knowledge and experience and enhance team cohesion (Pradhan & Jena, 2017).

This means that among employees of high-tech enterprises, hope to be part of Psychological Capital has a relatively low score. Employees' hopes reflect their positive expectations for the future and pursuit of success. They firmly believe that their efforts and actions can achieve the desired goals, and they realize these expectations by formulating goals and plans. This hope helps employees stay motivated and focused on facing the challenges ahead.

The environment of high-tech enterprises is changing rapidly and the pressure of competition is high. This requires employees to continuously improve their skills and actively respond to work challenges. In this case, employees' hope and confidence become particularly important. The reality, however, is that hope tends to be placed lower in Psychological Capital's rankings. This may be due to the fact that in the rapid development of high-tech enterprises, employees face a lot of work pressure and many challenges, which may reduce their hope of achieving their goals. On the other hand, it may be that enterprises pay more attention to improving the skills and abilities of employees in human resource management, while ignoring the cultivation of employees' hope psychology.

Although Hope is lower in Psychological Capital's rankings, that doesn't mean it's less important. In fact, many studies have found that hope has a significant positive impact on employees' Job Involvement and Employees Innovative Behavior. In high-tech enterprises, employees' strong expectations and confidence in achieving their goals can motivate them to work more actively and be more willing to try and accept new challenges, thus promoting the innovation and development of enterprises (Youssef-Morgan & Luthans, 2015).

Table 2

Job Involvement

Indicators	Weighted Mean	Verbal Interpretation	Rank
Physical Engagement	3.13	Agree	2
Emotional Engagement	3.17	Agree	1
Cognitive Engagement	3.12	Agree	3
Composite Mean	3.14	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree

Table 2 shows the table of Job Involvement evaluations. The comprehensive average is 3.14, indicating that all indicators are consistent. All project evaluations are consistent. Among them, Emotional Engagement ranked first with an average score of 3.17.

In high-tech enterprises, emotional investment is important in Job. Employees in high-tech firms need emotional investment to drive innovation, solve problems, and achieve company goals (Jung et al., 2019). Emotional engagement makes employees more willing to put in extra effort and pursue excellent work results (Bakker & Demerouti, 2017). Emotional engagement helps stimulate employees' creativity and innovation (Bakker et al., 2015). High-tech enterprises need employees with innovative thinking and ability to promote technological progress and market competitiveness (Shalley et al., 2017). Emotional engagement makes employees more motivated to come up with new ideas, try new approaches, and actively participate in innovative activities (Schaufeli & Bakker, 2014). Emotional engagement helps to improve the quality of work and performance of employees (Sonnentag & Fritz, 2015).

When employees are enthusiastic and committed to their work, they pay more attention to details, strive for excellence, and are willing to devote more time and energy to complete tasks. This high degree of emotional engagement promotes employees to achieve work goals and achieve excellent performance. When employees are emotionally invested and emotionally connected to their work, they are more likely to experience job satisfaction and a sense of job accomplishment. High-tech enterprises can improve employee happiness and well-being by motivating employees' emotional engagement. Emotional engagement helps build positive

teamwork and organizational cohesion (Miao et al., 2019).

In high-tech enterprises, physical involvement is important in Job Involvement. Physical engagement enables employees to concentrate fully on their work and devote more time and energy to completing tasks (Sonnentag & Fritz, 2015). High-tech enterprises usually require employees to concentrate on complex work for a long time, and physical engagement can help improve work efficiency and productivity (Bakker & Demerouti, 2017). Physical engagement can help improve employee work quality and performance. When employees are fully engaged in their work, they are more focused and meticulous, and are able to deliver higher-quality work products (Bakker & Demerouti, 2017). Physical engagement contributes to a positive work culture and team atmosphere (Miao et al., 2019).

In order to promote physical engagement of employees, high-tech enterprises take various measures to create a comfortable, safe and ergonomic working environment (Bakker et al., 2017). Provide work facilities and equipment that meet the needs of employees, such as adjusting the height of the workbench and providing comfortable seats, etc. Encourage employees to arrange work and rest time reasonably to avoid overwork (Bakker et al., 2017). Provide places for employees to rest and relax, such as lounges or recreation areas (Miao et al., 2019). Encourage employees to participate in physical activity and health promotion activities, provide fitness facilities or organize team sports. Provide health counseling and support to help employees maintain good health (Sonnentag & Fritz, 2015).

Table 3

Innovative Behavior

Indicator	Weighted Mean	Verbal Interpretation	Rank
Innovation Climate	3.09	Agree	2
Relationship Behavior	3.12	Agree	1
Creative Self-efficacy	3.05	Agree	3
Composite Mean	3.09	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree

Table 3 shows the Innovative Behavior evaluation. The comprehensive average value is 3.09, indicating that all indicators are consistent. All project evaluations are consistent. Among them, Relationship Behavior ranked first, with an average score of 3.12. In high-tech enterprises, relationship behavior ranks first in Employees Innovative Behavior, which indicates that relationship behavior plays an important role in promoting innovation (Cummings et al., 2018). Relational behaviors encourage knowledge sharing and collaboration among employees. High-tech enterprises need cross-departmental and cross-team cooperation between employees to promote innovation and solve complex problems. By building a good relationship and a positive collaborative atmosphere, employees are more willing to share their work style, experience and skills, thus promoting the occurrence of Employees Innovative Behavior.

Wang and Hsu (2019) argue that relational behaviors help build team cohesion and a sense of common purpose. Innovation often requires teamwork and coordination, while relational behaviors can facilitate interaction and cooperation among team members. By building positive relationships and common goals, team members are abler to come together and work together to drive Employees Innovative Behavior. Relational behaviors help foster a culture of feedback and learning. In high-tech enterprises, rapid learning and continuous feedback are the keys to driving innovation. By building good relationships, employees are more likely to accept and provide feedback, share experiences and learn, leading to continuous improvement and innovation.

In high-tech enterprises, innovation climate, relational behavior and creative self-efficacy are all closely related to Employees Innovative Behavior, and they influence and promote each other. To sum up, in high-tech enterprises, there is a close relationship between innovation climate, relational behavior, creative self-efficacy and Employees Innovative Behavior. The innovation atmosphere provides the basis and support for the occurrence of Employees Innovative Behavior, relational behavior promotes the cooperation and sharing of innovative activities, and creative self-efficacy stimulates the performance of Employees Innovative Behavior.

Enterprises can promote the development of Employees Innovative Behavior and promote the innovation and competitiveness of high-tech enterprises by creating a positive innovation atmosphere, promoting good relationship behaviors, cultivating creative self-efficacy, and providing corresponding incentives and supports.

Table 4

Relationship Between Psychological Capital and Job Involvement

Variables	rho-value	p-value	Interpretation
Self-Efficacy			
Physical Engagement	0.265**	0.000	Highly Significant
Emotional Engagement	0.316**	0.000	Highly Significant
Cognitive Engagement	0.232**	0.000	Highly Significant
Hope			
Physical Engagement	0.125*	0.000	Highly Significant
Emotional Engagement	0.195**	0.000	Highly Significant
Cognitive Engagement	0.255**	0.000	Highly Significant
Toughness			
Physical Engagement	0.268**	0.000	Highly Significant
Emotional Engagement	0.245**	0.000	Highly Significant
Cognitive Engagement	0.219**	0.000	Highly Significant

**. Correlation is significant at the 0.01 level/*. Correlation is significant at the 0.05 level

As shown in the table, the calculated rho values ranged from 0.125 to 0.316, indicating a very weak direct relationship between the subvariables of Psychological Capital and work participation. There is a statistically significant relationship between Psychological Capital and Job Involvement as the p-values obtained are less than 0.01/0.05. That means there's a significant relationship, it just shows better Psychological Capital, better Job Involvement.

In high-tech enterprises, self-efficacy has an important impact on physical investment, emotional investment and cognitive investment. Employees with high self-efficacy are more inclined to put in more physical effort and physical activity because they believe they have the abilities needed to complete work tasks (Bandura, 2016). They are more motivated to challenge their physical abilities and work hard, thereby demonstrating higher levels of physical engagement. At the same time, employees with high self-efficacy are more likely to experience positive emotional states at work because they believe that they can successfully complete tasks (Stajkovic & Luthans, 2018). This positive self-efficacy belief can stimulate employees' emotional engagement, make them more passionate and motivated to work, and experience a higher level of emotional engagement. In addition, employees with high self-efficacy are more confident to cope with various cognitive tasks and challenges (Wood & Bandura, 2017). Believing in their cognitive abilities to solve problems and cope with complex situations, they are more inclined to put in more cognitive effort and exhibit higher levels of cognitive engagement. By providing support, cultivating employees' self-efficacy beliefs, encouraging positive attitudes and self-motivation, and creating a favorable working environment, companies can promote the development of self-efficacy, thereby improving employees' Job Involvement and performance, and promoting the innovation and development of high-tech enterprises. Enhanced competitiveness (Tims et al., 2016).

Hope has a significant impact on physical engagement, emotional engagement, and cognitive engagement. Hope is an assessment of positive expectations and confidence in the future, and employees with high hopes are more engaged in all aspects. Research has found that hope has a positive effect on physical engagement. Highly motivated employees are more motivated and willing to engage in physical effort, challenge their abilities, and exhibit higher levels of physical engagement. In addition, hope also has a positive impact on emotional engagement. Employees with positive hopeful attitudes are more likely to experience positive affective states, engage in work, and experience higher levels of emotional engagement. At the same time, hope also plays an important role in cognitive investment. Employees with high hopes are more confident and motivated to tackle cognitive challenges, engage more in thinking and analysis, and exhibit higher levels of cognitive engagement.

Resilience also has a significant impact on physical engagement, emotional engagement, and cognitive

engagement. Employees with a high degree of resilience are more able to cope with the pressure and challenges at work, continue to invest in physical, emotional and cognitive efforts, and demonstrate a higher level of Job Involvement. Therefore, in high-tech enterprises, innovation climate, relational behavior, creative self-efficacy and resilience all have important influences on Employees Innovative Behavior. Enterprises can promote the development of Employees Innovative Behavior and promote the development and competitiveness of enterprises by shaping a positive innovation atmosphere, promoting good relationship behaviors, and cultivating creative self-efficacy and resilience.

Table 5

Relationship Between Psychological Capital and Innovative Behavior

Variables	rho-value	p-value	Interpretation
Self-Efficacy			
Innovation Climate	0.257**	0.000	Highly Significant
Relationship Behavior	0.263**	0.000	Highly Significant
Creative Self-efficacy	0.233**	0.000	Highly Significant
Hope			
Innovation Climate	0.306**	0.000	Highly Significant
Relationship Behavior	0.297**	0.000	Highly Significant
Creative Self-efficacy	0.156**	0.000	Highly Significant
Toughness			
Innovation Climate	0.270**	0.000	Highly Significant
Relationship Behavior	0.293**	0.000	Highly Significant
Creative Self-efficacy	0.115*	0.000	Highly Significant

**. Correlation is significant at the 0.01 level/*. Correlation is significant at the 0.05 level

As shown in the table 5, the calculated rho values range from 0.115 to 0.306, indicating a very weak direct relationship between the sub variables of Psychological Capital and Employees Innovative Behavior. There is a statistically significant relationship between Psychological Capital and Employees Innovative Behavior as the obtained p-value is less than 0.01/0.05.

In high-tech enterprises, self-efficacy has an important impact on innovation climate, relational behavior and creative self-efficacy. Self-efficacy is an assessment of an individual's confidence in their ability to successfully complete a specific field or task (Bandura, 2017). Research has found that employees with high innovative self-efficacy are more confident in facing innovative tasks, willing to try new ideas, methods and solutions, and promote the formation of an innovative atmosphere (Duan et al., 2016). In addition, self-efficacy also positively affects the development of relational behavior. Employees with high innovative self-efficacy are more confident and willing to share knowledge, experience, and innovative thinking, promote good communication, trust, and cooperation, and build positive relationship behaviors and innovative cooperation (Tierney et al., 2019). Self-efficacy also directly affects creative self-efficacy. Employees with high creative self-efficacy are more confident to exhibit innovative and creative behaviors at work, believing that they can generate unique innovative ideas, solve problems, and put them into practice (Zhang & Bartol, 2018).

In addition, hope also has an important influence on the development of relational behavior. Promising employees are more willing to collaborate with others, share knowledge and experiences, and form positive, supportive relationships. Good relational behavior helps to promote innovation sharing and cooperation, and promotes the formation of an innovative atmosphere (Chen, 2015).

Hope also had a positive impact on creative self-efficacy. It is hoped that it can enhance employees' confidence and self-efficacy in their own creative abilities, stimulate creative thinking and behavior, and promote the occurrence of innovation and individual innovation performance (Tierney & Farmer, 2019). As such, businesses can promote hope by inspiring hope in their employees, providing development opportunities and support, and creating a positive work environment. This will help to create a positive innovation atmosphere, promote good relational behaviors, stimulate employees' creative self-efficacy, and promote the innovative development and competitiveness of high-tech enterprises.

In high-tech enterprises, resilience has an important impact on innovation climate, relational behavior and creative self-efficacy (Hmieleski & Carr, 2015). Research shows that resilience contributes to a positive climate for innovation. Employees with high resilience maintain flexibility and adaptability in the face of pressure, challenges and changes, and their positive attitude and optimism can be passed on to the team, creating a positive and innovative atmosphere (Chen et al., 2018).

Furthermore, resilience positively affects relational behavior. Employees with high resilience are more inclined to actively cooperate with the team, collaborate and support others, they can flexibly respond to changes and difficulties, and promote team cohesion and synergy (Luthans et al., 2005). Resilience also positively affects creative self-efficacy. Employees with high resilience believe that they have the ability to deal with challenges, overcome difficulties, and find innovative solutions. They are more confident, willing to try new ideas and methods, and improve creative self-efficacy (Carmeli et al., 2015).

Therefore, businesses can promote the development of resilience by providing support, developing resilience among employees, encouraging positive and flexible thinking styles, and establishing a resilient and adaptable work environment. This will help to create a positive innovation atmosphere, promote good relational behaviors, stimulate employees' creative self-efficacy, and promote the innovative development and competitiveness of high-tech enterprises.

In high-tech enterprises, Psychological Capital has an important impact on innovation climate, relational behavior and creative self-efficacy (Wu & You, 2011). Research shows that self-efficacy is closely related to creative confidence. High self-efficacy means that employees believe that they can effectively propose and implement innovative ideas, are more likely to take risks in new approaches, and actively participate in innovative activities (Chen et al., 2018).

In order to promote Employees Innovative Behavior, high-tech companies should consider enhancing employees' Psychological Capital through training, leadership development, incentive systems, and creating a supportive culture. This will improve the job satisfaction and participation of employees, stimulate creativity and innovation potential, and promote the innovation and competitiveness of enterprises.

As shown in the table 6, the calculated rho values range from 0.110 to 0.374, indicating a very weak direct relationship between work participation and the subvariables of Employees Innovative Behavior. There is a statistically significant relationship between job participation and Employees Innovative Behavior as the obtained p-value is less than 0.01/0.05. However, the study showed no statistically significant relationship between cognitive engagement and innovation climate, as the obtained p-values were greater than 0.01/.05.

Table 6

Relationship Between Job Involvement and Innovative Behavior

Variables	rho-value	p-value	Interpretation
Physical Engagement			
Innovation Climate	0.269**	0.000	Highly Significant
Relationship Behavior	0.374**	0.000	Highly Significant
Creative Self-efficacy	0.302**	0.000	Highly Significant
Emotional Engagement			
Innovation Climate	0.283**	0.000	Highly Significant
Relationship Behavior	0.339**	0.000	Highly Significant
Creative Self-efficacy	0.133*	0.000	Highly Significant
Cognitive Engagement			
Innovation Climate	0.110	0.057	Not Significant
Relationship Behavior	0.319**	0.000	Highly Significant
Creative Self-efficacy	0.228**	0.000	Highly Significant

***. Correlation is significant at the 0.01 level/*. Correlation is significant at the 0.05 level*

In high-tech firms, physical engagement has multiple positive effects on innovation climate, relational behavior, and creative self-efficacy (Carmeli et al., 2015). Research shows that physical engagement can have a

positive impact on the climate of innovation. Employees' active participation in physical effort and physical activity demonstrates their dedication and commitment to work, creates a positive and dynamic working environment, and stimulates employees' innovative thinking and behavior (Liu et al., 2016). To promote physical engagement, high-tech companies can encourage employees to participate in physical activity, provide health promotion measures, and create a positive work environment. This will enhance the innovation atmosphere, promote good relational behavior, and enhance employees' creative self-efficacy, promote the development of innovation and enhance the competitiveness of enterprises.

Emotional engagement has a positive impact on employees' creative self-efficacy. When employees demonstrate emotional engagement, they demonstrate commitment and confidence in their work, increasing confidence in their own creative abilities. This increase in creative self-efficacy encourages employees to participate in innovation activities more actively, propose new ideas, and promote the occurrence of innovation (Wu et al., 2018). To promote emotional engagement, high-tech companies can create a positive work environment, motivate employees to express emotional engagement, and provide support and recognition. This will enhance the innovation atmosphere, promote good relational behavior, and enhance employees' creative self-efficacy, promote the development of innovation and enhance the competitiveness of enterprises.

In high-tech enterprises, cognitive input has an important impact on innovation climate, relational behavior, and creative self-efficacy (Shalley et al., 2017). Research shows that cognitive engagement positively affects innovation climate. Employees demonstrate thoughtful, analytical, and problem-solving abilities on a task when they demonstrate cognitive engagement. This positive cognitive attitude helps create a working atmosphere that encourages thinking, exploration, and innovation, stimulates the thinking activity of team members, and promotes the occurrence of Employees Innovative Behavior (Janssen, 2016). To sum up, in high-tech enterprises, the direct impact of cognitive investment on the formation of innovation atmosphere is relatively small. The innovation climate is mainly shaped by factors such as organizational culture, leadership style, and organizational structure, while cognitive investment pays more attention to individual capabilities and behaviors, and is more directly related to Employees Innovative Behavior and performance. Therefore, when discussing innovation climate, more attention should be paid to organizational factors, such as culture, leadership style, and organizational structure, as well as other factors that affect innovation climate.

Proposed Employee Innovation Performance Framework for Hi-Tech Enterprise Employees

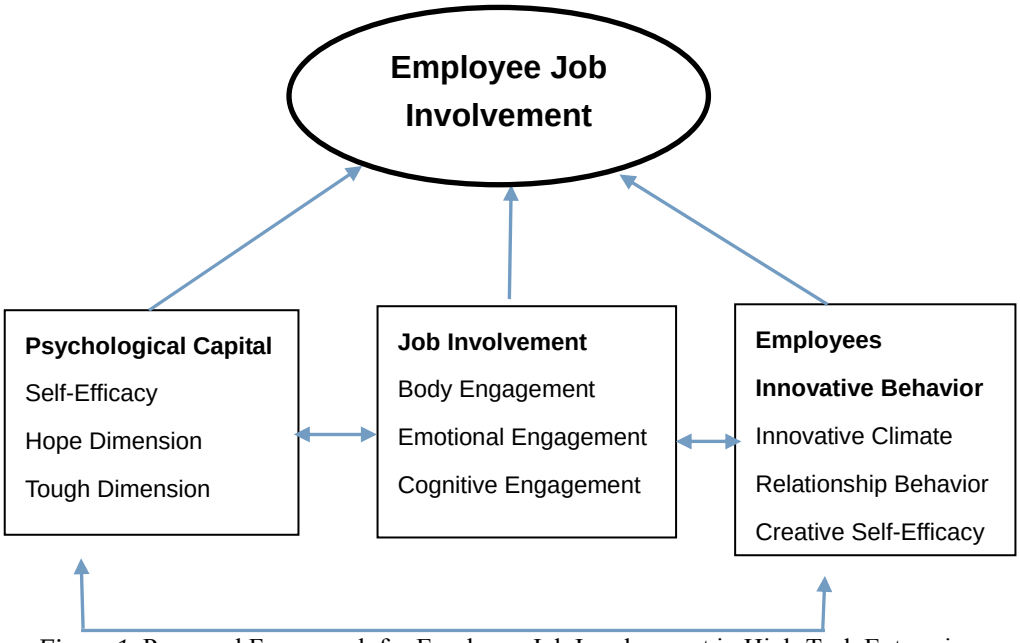

Figure 1. Proposed Framework for Employee Job Involvement in High-Tech Enterprises

The proposed Employee Innovation Performance Framework for high-tech enterprise employees has been established to promote the improvement of enterprise innovation. Establishing this framework is conducive to the development of the core competitiveness of enterprises, as well as the maintenance and expansion of market share. By clarifying strategies such as the cultivation of employees' Psychological Capital, the improvement of job satisfaction, and the establishment of incentive mechanisms, employees' Job Involvement and Employees Innovative Behavior can be improved. This will be a good way to improve the overall development and competitiveness of high-tech enterprises, and it will also be a powerful tool to strengthen competition with other enterprises in the same industry in terms of talent recruitment, product innovation and market share. Finally, from the perspective of employee satisfaction and work efficiency, consider the psychological needs of employees and the working environment to enhance the core competitiveness of enterprises.

As can be seen from the figure below, effective employee Job Involvement needs to consider three key factors: Psychological Capital, Job Involvement, and Employees Innovative Behavior. First of all, Psychological Capital has a positive impact on Job Involvement and Employees Innovative Behavior. This finding suggests that when employees have high levels of self-efficacy, positive attitudes, resilience, and hope, they are more likely to engage fully in their work and engage in innovative practices. Secondly, Job Involvement also has a significant positive impact on Psychological Capital and Employees Innovative Behavior. This finding shows that the level of employee engagement at work has a strong relationship with their Psychological Capital and is also an important factor in driving Employees Innovative Behavior. When employees are willing to devote more time and energy to the company, they usually feel more fulfilled, thereby improving self-efficacy, and are also more likely to generate innovative thinking and behavior.

Finally, Employees Innovative Behavior has a positive impact on Psychological Capital and Job Involvement. Through employee satisfaction surveys and feedback, employees' Job Involvement can be improved, and employees' sense of identity and belonging to the company can be established. When employees think that their work is meaningful and beneficial to their own development, they are more likely to generate Employees Innovative Behavior in their work, thereby increasing their Psychological Capital. At the same time, this positive feedback can further enhance the employee's Job Involvement.

4. Conclusions and Recommendations

Respondents agree with the importance of hope, self-efficacy, resilience in psychological capital. The employees have moderate job involvement as to physical engagement, emotional engagement, and cognitive engagement. Respondents agreed with the company's innovation behaviors in terms of organizational innovation climate, Relationship Behavior, and innovation self-efficacy. There is a very close direct relationship between psychological capital and job involvement. The study also found that there is a very close direct relationship between psychological capital and innovation behaviors, and a close direct relationship between job involvement and innovation behaviors. An Employee Innovation Performance Framework was developed for employees.

The management of high-tech enterprises can create a positive working environment and culture, motivate employees' psychological capital and job involvement, so as to promote the occurrence of employee’s innovative behavior. Human resource management can recruit and select talents with high psychological capital and job involvement, provide appropriate training and development plans, and design flexible work systems and reward systems to stimulate employees' job involvement and willingness to innovate. The executive management can set clear goals and expectations, give employees autonomy and decision-making power, provide support and resources, demonstrate positive leadership behaviors and demonstration effects, and stimulate employees' job involvement and willingness to innovate. The human resources management office and managers can continue to focus on practicing psychological capital and improving employee job involvement, so as to promote the realization and optimization of enterprise employee’s innovative behavior. Enterprise administrators can use the proposed employee innovation performance framework to improve the work performance of enterprise

employees in terms of psychological capital, job involvement and employee's innovative behavior. The proposed framework can serve as a basis for building innovative human resources. Future researchers may undertake follow up studies on other variables that are not included in this study.

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