

The Innovation Value Cognition of University Students In Different Perceived Support For Innovation

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1.ABSTRACT

Innovation is a key factor in the development of one person and society. As the society elite forces, university students raise concerns. How they value the innovation? What is their perception on innovation support? The study attempts to explore these questions. A questionnaire survey on perceived support for innovation of 813 university students is completed. The results show that the perceived support for innovation includes five dimensions: inclusiveness, family support, teacher encouragement, team support, and resource security; The level of perceived support for innovation of university students is relative low, according to the mean of five dimensions from high to low, the sequence is family support, inclusiveness, teacher encouragement, team support and resource security; university students' perceived support for innovation and their innovation value cognition have a significant positive correlation, and there is significant difference in innovation value cognition for university students in different perceived support for innovation.

Keywords: University students; perceived support for innovation; innovation value cognition; creativity.

2.INTRODUCTION

Since coming into 21st century, governments, employers, and popular media worldwide have been saying that people need innovation or creativity skills to survive in our constantly changing society and fuel economic prosperity [1]. Chinese university students are facing some important problems in innovation. Cultivating their innovative talents is a serious shortage [2]. A difference analysis of youth self-confidence in creativity between China and German shows that the self-confidence of Chinese youth tends to decline, and the German youth tends to rise. It means that the developing trend of self-confidence in creativity is not a general situation, and it has important relation with acquired education and environment in addition to age [3]. After entering society, university students are important force of innovation. If they can feel safe, free and relaxed environment and recognize the value of innovation, to some extent it will positively affect their development of creativity. This study puts forward the perceived support for innovation, investigate the content and present situation of university students' perceived support for innovation by a self-designed questionnaire, and discuss the

relationship between it and the innovation value cognition. Thus it can provide reference for improving innovation environment of university students.

Innovation and creativity are closely linked, and in some cases, even be equal. Creativity is defined as a psychological quality of creating novel and unique, feasible, applicable product using certain conditions, and it is unique to humans [4]. Creativity is a prerequisite for innovation [5-6]. Innovation is the implementation of views and ideas in the individual, team and organizational level [7]. The perceived support for innovation in the study is defined as individual's perception of the stimulant supporting innovation in environment.

3. LITERATURE REVIEW

3.1 Perceived support for innovation

We put forward the concept of perceived support for innovation, and one related concept is perceived organization support. The perceived organizational support is originally found in the mid-1980s by American social psychologist Robert Eisenberger when he studies employee's motivation. He finds that when employees feel the support and identity from the organization and are inspired and motivated, they will have good performance at work. In short, the perceived organization support is the support from organization felt by the employees [8]. The perceived organization support of employees has two sources, people and environment in their organization. It provides reference for the study of perceived support for innovation.

Creative work environment is another related concept, also namely innovation atmosphere. It is the perception of the work environment described by organization members, and the degree of supporting creativity and innovation perceived by organization members in work [7]. The innovation atmosphere includes five aspects, such as factors promoting or motivating creativity, autonomy and freedom, resource, pressure, and organization factors impeding creativity, and so on. The studies on innovation support still mainly focus on enterprise.

3.2 Environmental sources of perceived support for innovation

The perceived support for innovation has many environmental sources, and they can be called environmental suns, the certain factors in the environment that influence everyone [9]. The environmental suns are the sun of school, the sun of home, the sun of community and culture, the sun of chance and the sun of gender [10]. Rogers believes that there are at least two conditions are necessary for innovation activities, that is, the "psychological security" and "psychological freedom". Therefore, the formation of the relaxed and lively school spirit is conducive to cultivating students' innovative ability [11]. Watters' study of university students stresses the role of the teacher in developing giftedness and creativity [12]. A good classroom environment should be created by teachers by taking a few measures, thus students will feel safe and even express some risky idea [13]. The classroom discussion attracts some scholars. In the classroom discussion, teachers can support the students' creative thinking, encourage and reward students' new ideas, unique perspective and originality, so it provides an ideal forum for training the students' creative thinking ability [14]. If people are committed to reward creativity, aware that they are monitored and evaluated by others, and stress

competition and social comparison to them, then their creativity will be negatively affected. Instead, supporting personal interest and participating and enjoying in the challenging task are the environment of flourishing creativity [15]. Teachers should do their best to pay attention to intrinsic motivation, reduce environment function of hindering creativity and focus on letting students' interests into tasks and recognizing the students' creativity [16].

The relationship between family environment and individual creativity is studied. Family cohesion, emotional expression, independence, conflict and the creative tendency of university students have a significant correlation [17]. University students emphasize the home environment and the support, acceptance and help of their parents and extended family as the most important factor for their development in creativity. The role of the parents is most important, but sisters, brothers and grandparents are also mentioned. In home, the important issues for creativity development are mainly fostering divergent thinking, responding affective needs, respecting individual choices [10]. As to community, there are also important issues for creativity development, such as interaction with different cultures, free playing with friends, children's play, valuing creative products, and so on [10].

4. STUDY DESIGN

4.1 Sample

By random sampling method, the study is carried out in Southwest University, China. 900 questionnaires are distributed and the total valid samples are 813. The response rate is 90.3%. In 813 university students, Male students are 279 (34.3%), and female students are 534 (65.7%). Students of science major are 619 (76.1%), and art major students are 194 (23.9%). Students of only children are 264 (32.5%), and students from multiple children families are 549 (67.5%).

4.2 Questionnaire

The perceived support for innovation scale is developed. It has 24 items and respondents are asked to rate these items from 1 to 5 on a Likert scale. The rate answer is accordingly "not agree", "few agree", "in general", "more agree", "full agree".

Five dimensions (inclusiveness, family support, teacher encouragement, team support, and resource security.) are yielded by the exploratory factor analysis using principal component analysis and oblique rotation accounting for 60.158% of variance. The Kaiser-Meyer Olkin value is 0.900, and the value of Bartlett test was 7476.750 (df =300, $p < 0.001$). The five dimensions include 22 items, and the other 2 items are deleted.

Inclusiveness includes 5 items, for example, "Even if I fail in innovation, I will not be ridiculed by others". Family support includes 4 items, for example, "When I carry out innovation activity, my family will give the necessary support". Teacher encouragement includes 6 items, for example, "In classroom discussion, teachers encourage us to express different opinions". Team support includes 4 items, for example, "It is easy for me to build the team in innovation practice". Resource security includes 3 items for example, "When we carry out innovation activities, the school will provide the necessary material resources".

After a confirmatory factor analysis, the main fit indicators of the model fit the data well. The questionnaire of the perceived support for innovation has good validity. The Cronbach’s alpha for the whole questionnaire is 0.891, and the five dimensions’ are 0.757, 0.778, 0.790, 0.794, and 0.701. This means that the questionnaire of perceived support for innovation also has good reliability.

Innovation value cognition is investigated. Respondents are asked to rate the item “Developing students’ creativity is an important task of education” from 1 to 5 on a Likert scale. The rate answer is accordingly “not agree”, “few agree”, “in general”, “more agree”, “full agree”.

5.RESULTS

5.1 Means of perceived support for innovation of university students

According to the data, the perceived support for innovation of university students is not high. The means of every dimension respectively are following. The inclusiveness is 3.74 (± 0.63), family support is 3.68 (± 0.65), teacher encouragement is 3.64 (± 0.60), team support is 3.17 (± 0.66), resource security is 3.19 (± 0.74). It can be clearly seen from figure 1. The inclusiveness perceived by university students is the highest; followed by family support and teacher encouragement, and they are almost at the same level; the team support and resource security are at the lower level. However, these five dimensions still have not reached a satisfactory level.

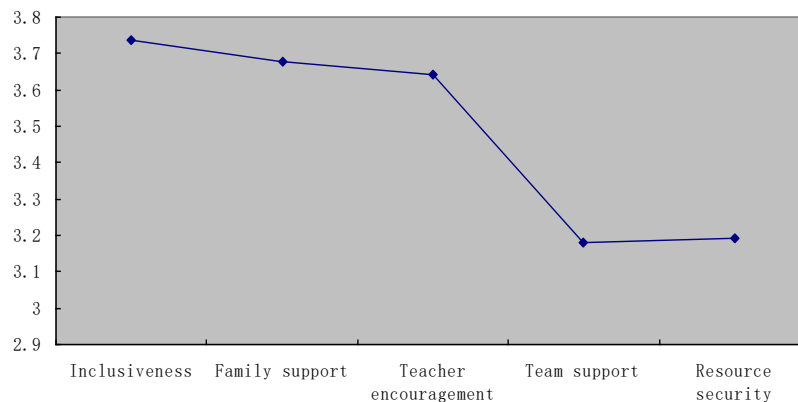


Figure 1. Means of perceived support for innovation of university students

5.2 University students’ perceived support for innovation and innovation value cognition

The means of university students’ innovation value cognition is 4.39(± 0.71), and it is at a high level. Table 1 lists the correlation coefficient of university students’ perceived support for innovation and innovation value cognition. These five dimensions significantly correlate with innovation value cognition, and the correlation coefficients are between 0.069-0.186. It indicates that the stronger they perceive innovation support, the higher they value innovation.

Table 1. The correlation coefficients of university students’ perceived support for innovation and innovation value cognition

Inclusiveness	Family support	Teacher encouragement	Team support	Resource security

Innovation value cognition	0.186**	0.158**	0.136**	0.151**	0.069*
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* P < 0.05, **P < 0.01

University students are grouped according to their means of five dimensions of perceived support for innovation respectively. The low group of every dimension is less than and equal to the mean, and the high group is higher than the mean. T-tests of two groups' innovation value cognition of every dimension indicate that there exists significant differences between low and high groups (P <0.005, in table 2).

Table 2. The difference of the innovation value cognition of university students in different perceived support for innovation

Dimension of perceived support for innovation	Innovation value cognition		t
Inclusiveness	Low group(N=481)	4.24±0.78	-5.828***
	High group(N=332)	4.55±0.56	
Family support	Low group(N=500)	4.30±0.76	-4.734***
	High group(N=313)	4.53±0.59	
Teacher encouragement	Low group(N=463)	4.30±0.74	-4.061***
	High group(N=350)	4.51±0.65	
Team support	Low group(N=502)	4.32±0.72	-3.722***
	High group(N=311)	4.51±0.69	
Resource security	Low group(N=523)	4.34±0.74	-2.674***
	High group(N=290)	4.48±0.65	

***P < 0.005

6. DISCUSSIONS

Inclusiveness involves reward for innovation activities and tolerance of failure. It is mainly human environment in innovation, and this also shows the society is more tolerant of diversity and failure. It has the highest correlation with innovation value cognition. This means the soft environment for innovation is very important, even it maybe influence how the students recognize innovation. Considerable evidence shows that the family which can promote the development of creativity is democratic type, less restrictions, authoritarian, encouraging independence, and the interaction between parents and children gives more emphasis on rationality [4]. This study also shows that the more students perceive family support, the more they value the innovation.

Teachers are agents of change in the context of creativity education [18]. In the classroom, students spend most of the time of learning life, and teachers are the key link to cultivate their

innovation ability[19]. Teachers are given a lot of expectations, such as facilitating independent learning, creating the stimulating environments for critical and creative thinking, and role model creativity-fostering behavior, and so on[20]. Some study shows that after the reform of teaching methods and carrying out creative teaching, the effect of cultivating creativity is not so good[21-22]. Thus we believe teacher support maybe will be more easy to operate and have the effect, such as encouraging students to speak out new ideas, allowing students to question any ideas (including the teacher's own point of view.), and assigning the challenging learning tasks letting students to finish them autonomously. Because accessing innovation support, students value the innovation according to the study. A positive attitude will guide positive innovative behavior.

University students perceive more team support, and they give more emphasis on the value of innovation. In the information era, relying on personal power to accomplish creative activity apparently will face increasing difficulties. Innovation needs team support. Team is the core of organizational innovation and the key factor of innovation development [23]. Although the correlation coefficient of resource security and innovation value cognition is the lowest, there still exists significant difference in innovation value cognition between low and high resource security groups. Resource security is a physical environment, and adequate resources will play an important role on innovation of university students.

The different innovation support perceived by university students leads to their different cognition on innovation importance. As the perceived support for innovation of university students has numerous resources and it needs more support from society, schools, teachers, and family. So when they perceive these supports, they not only pay great attention to innovation, but also their creativity are more likely to be cultivated and promoted. However, some study believes that the more prospective teachers in college do not like their school, have lower sense of belonging, have lower self-judgment to their past ability to succeed in school, the more they will think it is important to enhance creativity. According to this, in the past experience of an individual, the effect of environment is very small for creativity, these experiences drive an individual to enhance creativity, look for opportunities to improve in a similar environment, and improve the impact of environment on creativity [24]. These difference remains to be further explored.

7. CONCLUSIONS

The level of perceived support for innovation of university students is relative low, in which, the family support is the highest, then the inclusiveness and teacher encouragement, and the last two are team support and resource security. University students' perceived support for innovation and their innovation value cognition have a significant positive correlation. There is significant difference in innovation value cognition for university students in different perceived support for innovation.

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