

# The Role of Entrepreneurial Passion and Creativity in Entrepreneurial Intention: A Hierarchical Analysis of the Moderating Effect of Entrepreneurial Support Programs

Jianwei Liu<sup>1,2\*</sup>, Jibao Gu<sup>1</sup>

1. Faculty of Public Affairs, University of Science and Technology of China, No. 96, Jin Zhai Road, Hefei, Anhui 230026, China

2. Faculty of Politics and Public Management, Xinjiang Normal University, No. 100, Guan Jing Road, Urumqi, Xinjiang 830017, China

\*E-mail of the corresponding author: 1258056605@qq.com

## Abstract

Based on the MOA (Motivation - Opportunity - Ability) model framework, a hierarchical model is built and the application of the self-efficacy theory is discussed in relation entrepreneurial passion, creativity and entrepreneurial intention in Chinese university graduate students. The results of questionnaire surveys from 1057 students and 238 members of the faculty show that entrepreneurial passion and creativity positively influence entrepreneurial intention, and that entrepreneurial self-efficacy partly mediates the above relationship. The questionnaire results also reveal that entrepreneurial support programs positively moderate the relationship between entrepreneurial passion and entrepreneurial self-efficacy but negatively moderate the relationship between creativity and entrepreneurial self-efficacy. Based on empirical research, this paper provides a way forward to improving entrepreneurial intention for graduate students.

**Keywords:** Entrepreneurial intention, Entrepreneurial passion, Creativity, Entrepreneurial support programs, Entrepreneurial self-efficacy

## 1. Introduction

Given the high academic skills level and strong innovation ability of graduate students, several colleges and universities in China have identified this group as a potential target for entrepreneurship and have thus implemented entrepreneurial incentive policies and measures. At present, however, the percentage of entrepreneurial graduates is only around 0.5% (Huang, Zhang, & Gu, 2016), which is far lower than in other groups. Entrepreneurship not only injects new impetus into the development of the social economy, but also provides potentially unlimited employment opportunities for high-quality talent. To that end, it is beneficial to thoroughly analyze and explore the related factors influencing entrepreneurial behaviors and how these factors intersect with graduate students' skills and abilities.

Entrepreneurial intention is the best predictor of entrepreneurial behavior (Krueger, Reilly, & Carsrud, 2000). There are two main branches in the research on entrepreneurial intention in the field of entrepreneurship. One branch focuses on individual-level factors such as the cognitive model (Teng, 2007), creativity (Phipps, Prieto, & Kungu, 2015), entrepreneurial passion (Cardon, & Zietsma, et al., 2005), and so on. The second branch focuses on organizational-level factors such as university quality (Di Gregorio, & Shane, 2003), organizational norms (Louis, Blumen, Gluck, & Stoto, 1989), and entrepreneurial support programs (Walter, Parboteeah, & Walter, 2013).

At present, there are a few gaps in the research. First of all, the two approaches mentioned above are relatively independent and based on the direct effect of the factors, whereas research on the integration of individual and organizational factors to explain entrepreneurial intention is rare. To remedy that, scholars have started to inquire whether university contextual factors moderate the relationships between individual-level factors and entrepreneurial behaviors (Walter et al., 2013). A second gap concerns entrepreneurial passion, which is an emotional factor at the individual level. Entrepreneurial passion is receiving more and more attention in the field of entrepreneurial research. However, the literature has barely begun to uncover the most exciting questions concerning entrepreneurial passion – namely, how and to what extent it can develop and influence entrepreneurial intentions in people (e.g., graduate students) who are not yet formally and actively entrepreneurs (Biraglia & Kadile, 2017). A third gap is that relevant factors on the individual level are relatively independent in the studies that influence entrepreneurial intention. There are few studies that integrate related factors such as cognition, ability, and emotional motivation to investigate how to influence entrepreneurial intention (Saadat,

Yousafzai, Yan-De-Soriano, & Muffatto, 2015). A fourth gap concerns the overall validity of study findings. At present, the factors involved in the organizational level of the university are basically measured by individual perception (e.g., Huyghe & Knockaert, 2015; Saadat et al., 2015), and the data sources are singular. These studies have been criticized for possible self-reported deviations, acquiescence, review bias, and other issues (Gregoire, Shepherd, & Schurer Lambert, 2010). Furthermore, some researchers have pointed out that there is a difference between third-party individual perception and the implementers of evaluation (Besterfield-Sacre, Zappe, Shartrand, & Hochstedt, 2016). In general, cross-level and multi-data sources enhance the quality of relevant research.

In light of the several gaps in research listed above, and in order to make up for those gaps in the existing research, this paper integrates entrepreneurial passion, creativity, entrepreneurial self-efficacy and entrepreneurial support programs under the MOA (Motivation - Opportunity - Ability) model framework and explores the relevant mechanism by using the self-efficacy theory.

The MOA model was first proposed by MacInnis and Jaworski (1989) and is now widely used in marketing, communication and other fields in individual intention and behavior research. The core idea is that a specific intention and behavior is generated by a combination of motivation, opportunity and ability. Since its introduction, MOA has been borrowed and applied in different fields, and its corresponding three variables have been further and specifically enriched. Adopting a cross-level approach and using the MOA model, this paper collects the data of individual-level and college-level graduate students and interlinks entrepreneurial passion to motivation, creativity to ability, and entrepreneurial support programs to opportunity. It also explores the action mechanism of the above three factors on entrepreneurial intention.

Entrepreneurial passion is a positive emotion and an intrinsic motivation (Cardon, Gregoire, Stevens, & Patel, 2013). It is a conscious, continuous, accessible, very positive and intense emotional experience in an entrepreneurial activity that an individual engages in with an entrepreneur (Cardon, Wincent, Singh, & Drnovsek, 2009). Current research indicates that entrepreneurial passion makes individuals more focused on entrepreneurship-related activities (Cardon et al., 2009) and is the motivation for entrepreneurs to persevere and actively participate in entrepreneurial activities (Baum, Locke, & Smith, 2001).

Moreover, entrepreneurship is a creative process (Sternberg & Lubart, 1999). Creativity is the ability to develop new and useful ideas (Grant & Berry, 2011) and is also the force that drives individuals to find novel and alternative solutions (Hansen, Shrader, & Monllor, 2011). Creativity is closely associated with opportunity identification (Hansen, 2011). However, entrepreneurship faces enormous risks and uncertainties. Creative individuals with entrepreneurial passion can form entrepreneurial intention and behavior, relying on their own belief in overcoming various difficulties and uncertainties, which is referred to as entrepreneurship self-efficacy. Thus, this paper introduces the concept of entrepreneurial self-efficacy, which will play a mediating role in the relationship between entrepreneurial passion and entrepreneurial intention, and between creativity and entrepreneurial intention.

Whether or not creative and passionate individuals ultimately generate entrepreneurial intentions depends on some factors that either promote or hinder them. These are generally referred to as "opportunities". External factors, such as entrepreneurial support programs at the university organizational level, will exert the greatest influence. In order to stimulate students' willingness and behavior to start their own business, the college, as an organizational unit for teaching and training in universities, can provide various kinds of measures, such as entrepreneurial lectures, entrepreneurship competitions, entrepreneurship consulting and material support, in addition to providing some form of entrepreneurship education. Entrepreneurial support programs, as an overall concept, reflect the depth and breadth of organizations in supporting students' entrepreneurial activity (Walter et al., 2013). According to the theory of self-efficacy, an individual's evaluation of his own performance is the result of a combination of individual and external factors (Bandura, 1986). Hence, entrepreneurial support programs moderate the relationship between entrepreneurial passion and entrepreneurial self-efficacy, and between creativity and entrepreneurial self-efficacy.

## **2. Theoretical background and hypotheses development**

From the point of view of social learning, Bandura (1977) proposed the theory of self-efficacy to explain the causes of behavior and their impact on behavior in specific situations. Self-efficacy as an individual's self-judgment that is not without foundation, but on the basis of certain experience or information (Bandura, 1977). The processes and results of interactions between people and their environment show a large number of different kinds of information. Self-efficacy is formed through the cognitive processing of this efficacy information.

Bandura (1977) pointed out four sources of efficacy information: (1) mastery experience, which is the individual's perception of the level of achievement in the actual activity; (2) vicarious experience, which is the

observation and comparison of other people's activities and achievements; (3) verbal persuasion, which involves others persuading the individual to have the ability to perform a certain task; and (4) psychological or emotional state, which indicates an individual's psychosomatic response to an activity task. The formation of self-efficacy takes effect through one or more of these sources of efficacy information. Self-efficacy is the personal belief in one's abilities and skills to successfully perform a specific task (Bandura, 1986), and must be directed at specific areas (Bandura, 1977). Applied to the field of entrepreneurship, Chen, Greene and Crick (1998) defined entrepreneurial self-efficacy as the belief in one's capabilities to successfully perform the roles and tasks of an entrepreneur.

Entrepreneurship passion, creativity and entrepreneurial support programs will play important roles in the formation and development of entrepreneurship intentions in graduate students. First, a passionate individual has high motivation to actively participate in entrepreneurial activities (Baum et al., 2001). Thus, the efficacy information generated during the relevant activities will be reflected in the individual's evaluation of entrepreneurial self-efficacy, which ultimately affects the formation of entrepreneurial intentions. Entrepreneurship is a process of innovation. Creative individuals will find new and alternative solutions to deal with the uncertainties and obstacles in the entrepreneurial process through direct or indirect learning practices. Moreover, the efficacy information generated during the relevant practices will affect the evaluation of entrepreneurial self-efficacy, which ultimately affects the formation of entrepreneurial intentions.

Second, the formation process of entrepreneurial self-efficacy is the result of the combined effect of individual and external environment factors. Entrepreneurial support programs, as an external environmental factor, embody the differences in the organizational level and broaden the ways in which an individual generates efficacy information. Entrepreneurial support programs play an important role in the formation process of entrepreneurial self-efficacy and moderate the relationship between entrepreneurial passion and entrepreneurial self-efficacy, as well as creativity and entrepreneurial self-efficacy.

### **2.1 Entrepreneurial passion and entrepreneurial intention**

Entrepreneurial passion is a conscious, continuous, accessible, very positive and intense emotional experience (Cardon et al., 2009) that prompts entrepreneurs to persevere and actively participate in entrepreneurial activities (Baum et al., 2001). The passion that drives entrepreneurship is a core element in the formation of entrepreneurial intention and is also the key to explaining it (Baron, 2008). Cardon (2009) pointed out that individuals with entrepreneurial passion will have a strong and positive emotional experience in entrepreneurial-related activities, embodying a higher level of commitment and self-worth in pursuit of achieving their entrepreneurial goals. Under this kind of emotion, individuals will have strong motivation, which will then enhance their willingness to participate in business-related activities. With the emergence of ideas, potential entrepreneurs will translate these into intention and behavior.

In addition, entrepreneurial passion can sometimes help overcome certain barriers associated with new business establishment (Baumand & Locke, 2004). Entrepreneurial passion is likely to mobilize the needed energy for prospective entrepreneurs to overcome challenging situations by dealing with uncertainties and setbacks in the gathering of financial, human, and social resources (Cardonet et al., 2009). In other words, during the development of entrepreneurial intention, entrepreneurial passion can lead to a narrower focus on the actual venture creation, without necessarily considering any contingencies or obstacles attached to it (Biraglia & Kadile, 2017). Vallerand, Paquet and Philippe (2010) considered entrepreneurial passion a motivational factor that can explain the willingness of individuals to participate in activities. The intensity of that willingness in the early stages of business directly affects the outcome of future intentions and behaviors.

H1: Entrepreneurship passion is positively related to entrepreneurial intention.

### **2.2 Creativity and entrepreneurial intention**

Creativity is the ability to produce novel and useful ideas (Grant & Berry, 2011), and entrepreneurship has been found to be closely linked with creativity (Yar Hamidi, Wennberg, & Berglund, 2008). Creativity is seen as a core concept in the formation of entrepreneurial intention (Yar Hamidi et al., 2008), with entrepreneurship emerging as one possible result of the influence of creativity (Sternberg et al., 1999). At the same time, creativity is closely linked to the identification of opportunities (Hansen et al., 2011). Creative individuals tend to produce unique and novel ideas that will have a positive impact on the market (Yar Hamidi et al., 2008). The creation of unique and novel ideas is the process of entrepreneurial opportunity recognition, and opportunity recognition will most likely lead to the generation of intention (Hansen et al., 2011). In marketing their novel ideas, creative individuals will solve the related problems by finding new ways or obtaining new information (Zhou, Hirst, & Shipton, 2012). This process is accompanied by the creation of entrepreneurial intention and behavior. In

summary, creativity is a driving source for individuals to produce novel and unique ideas. Previous studies have linked the generation of novel ideas and problem-solving to entrepreneurial intention (Hansen et al., 2011).

H2: Creativity has a significant positive impact on entrepreneurial intention.

### **2.3 The mediating role of entrepreneurial self-efficacy**

Entrepreneurial self-efficacy refers to the belief that individuals have the ability to successfully fulfill the roles and tasks related to starting a business (Chen et al., 1998). Based on the self-efficacy theory, entrepreneurial self-efficacy serves as an intermediate variable in the relationship between entrepreneurial passion, creativity, and entrepreneurial intention.

Entrepreneurial passion is conducive to self-confidence in the entrepreneurial process (Cardon et al., 2013) and is associated with a high level of entrepreneurial self-efficacy (Murnieks, Mosakowski, & Cardon, 2014). This form of passion promotes entrepreneurial self-efficacy through the following three main ways. First, entrepreneurial passion is the motivation of individual perseverance and active participation in entrepreneurial activities (Baum et al., 2001) that will encourage entrepreneurs to overcome difficulties (Baron, 2008) and to focus more on entrepreneurial-related activities (Cardonet et al., 2009). Active participation related to entrepreneurial activities will help in the accumulation of individual experience and skills as well as have an impact on the individual's evaluation of entrepreneurial self-efficacy. Secondly, passionate individuals are encouraged to learn from the entrepreneurial success experience of entrepreneurs and stimulate their confidence in starting a business and thereby influence the evaluation of their own abilities. Thirdly, entrepreneurial passion is a state of mind driven by positive emotion. Passionate individuals are more confident that they can identify high-potential entrepreneurial opportunities and have more confidence in entrepreneurial activity, which in turn produces in them a positive evaluation of their ability and self-efficacy.

Creativity promotes entrepreneurial self-efficacy in a number of ways. One of these is that creativity drives individuals to creatively solve the problems and obstacles that are typically associated with start-up. Through practice, individual creative performance cultivates individual self-confidence (Biraglia et al., 2017). Additionally, through indirect learning, creative individuals focus on the behavioral traits of related learning objects while interacting with their surroundings. They also actively store symbolic information of coping strategies in specific contexts at the psychological level (Bandura, 1986). By accumulating a large amount of information, creative individuals are more likely to find associations between relevant information and generate new ideas and solutions to problems (Baron, 2008), which then boosts their confidence to be able to cope with related business problems.

Entrepreneurial self-efficacy is the key factor influencing entrepreneurs and their behaviours. This form of self-efficacy acts on individual thinking, motivation and behavior and reflects faith in one's self-ability to achieve business goals (Bandura, 1977). Due to the particularity of business environments and tasks, people's perceptions of their own capabilities and confidence reflect the expectations of entrepreneurial success: the stronger the perception of positive entrepreneurial quality measure and evaluation, the higher the subjective initiative, and the greater the ability to rationally deal with more opportunities and challenges. Therefore, individuals with high entrepreneurial self-efficacy can more effectively analyze and identify opportunities, prevent risks, use resources, strengthen self-expectations, and effectively predict entrepreneurial intention.

In summary, entrepreneurial passion and creativity as individual-level factors will affect entrepreneurial intention through impacting entrepreneurial self-efficacy. That is, entrepreneurial self-efficacy plays an intermediary role.

H3: The effect of entrepreneurial passion on entrepreneurial intention is mediated by entrepreneurial self-efficacy.

H4: The effect of creativity on entrepreneurial intention is mediated by entrepreneurial self-efficacy.

### **2.4 The moderating role of entrepreneurial support programs**

Entrepreneurial support programs reflect the breadth and depth of supports for entrepreneurship at the organization level (Walter et al., 2013), which includes a variety of entrepreneurship-related activities and initiatives such as education, speeches, competitions, counseling, material support, and so on. These play important roles in stimulating students' willingness to start a business. Since entrepreneurial self-efficacy is based on the result of individual-environment interaction (Bandura, 1977), it is not only related to individual motivation and abilities, but also closely related to the external environment, especially the organizational environment. Therefore, entrepreneurial support programs can moderate the relationship between entrepreneurial passion and entrepreneurial self-efficacy, as well as between creativity and entrepreneurial self-efficacy.

Entrepreneurship support programs can enhance the role of entrepreneurial passion by moderating the relationship between passion and self-efficacy. Passionate individuals are highly motivated to persistently and actively participate in related activities (Baum et al., 2001). In fact, the higher the level of entrepreneurial

support programs, the higher the level of entrepreneurial practices, business competition, material support, etc., provided by the organization. Furthermore, the higher the level of individual participation and utilization of various activities and resources, the higher the level of efficacy information generated through direct experience. At the same time, a high level of entrepreneurial support programs will promote higher levels of indirect learning activities such as entrepreneurship-related education, speeches and consulting provided by the organization. This in turn will promote higher levels of efficacy information through indirect learning. Moreover, because entrepreneurial support programs reflect the organizational norms and values, the better the support programs, the stronger the organizational atmosphere and the greater the degree of perception and exertion of positive emotions such as entrepreneurial passion. This then leads to greater efficacy information and greater individual assessment of entrepreneurial self-efficacy. In contrast, a lack of organizational support programs for entrepreneurship will result in lower levels of efficacy information obtained through the emotional state among individuals with entrepreneurial passion as well as lower ratings of entrepreneurial self-efficacy.

Similar to how it can affect passion, entrepreneurial support programs can enhance the role of creativity that positively moderates the relationship between creativity and entrepreneurial self-efficacy. So, the higher the level of entrepreneurial support programs, the higher the level of activities and measures such as financial support, entrepreneurship education and entrepreneurial practices provided by the organization. At the same time, the higher the opportunity of creative individuals solving problems and improving skills, the higher will be the level of efficacy information through direct experience.

Secondly, effective organizational support programs will lead to better related activities and measures such as entrepreneurship lectures and education, helping creative individuals to expand their knowledge base through indirect learning, opportunities and alternative solutions. The higher the level of efficacy information obtained through indirect learning, the higher will be the individual's rating of the entrepreneurial self-efficacy. Conversely, if organizational support programs are insufficient, the level of efficacy information gained through direct experience and indirect learning will also be insufficient, and the lower will be the evaluation of entrepreneurial self-efficacy.

H5: Entrepreneurial support programs positively moderate the relationship between entrepreneurial passion and entrepreneurial self-efficacy. Specifically, the higher the entrepreneurial support programs, the stronger the relationship between entrepreneurial passion and entrepreneurial self-efficacy; the lower the entrepreneurial support programs, the weaker the relationship between entrepreneurial passion and entrepreneurial self-efficacy.

H6: Entrepreneurial support programs positively moderate the relationship between creativity and entrepreneurial self-efficacy. So, better entrepreneurial support programs will build a stronger relationship between creativity and entrepreneurial self-efficacy, whereas less effective entrepreneurial support programs will result in a weaker relationship between creativity and entrepreneurial self-efficacy.

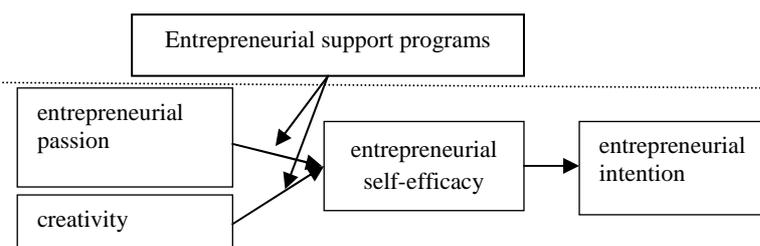


Figure 1 Research hypothesis model

### 3. Research design and methods

The data for this study were collected by means of questionnaires distributed randomly in paper form between March 2016 and May 2016. The questionnaires were distributed in 10 colleges in Xinjiang University, 7 colleges in Xinjiang Medical University, 10 colleges in Xinjiang Normal University, 10 colleges in Xinjiang University of Finance and Economics, 11 colleges in Xinjiang Agricultural University, and 3 colleges in Kashi University. The questionnaires were distributed to a total of 51 colleges. Each college questionnaire consisted of a “College Leadership Questionnaire” and a “Student Questionnaire”.

Each college was asked to fill out 5 “College Leadership Questionnaire”. In total, 255 of these questionnaires were distributed and 248 were reclaimed; of these, 238 were valid questionnaires, giving a recovery rate of 97.3% and an effective rate of 96.0%. The “Student Questionnaire” was distributed to second- and third-year

postgraduates. In order to ensure a high rate of recovery and quality of the sample, the questionnaires are distributed at the time of enrollment and centralized learning. A total of 1800 questionnaires were distributed, of which 1318 were recalled and 1057 were valid, giving a recovery rate of 73.2% and an effective rate of 80.2%. Samples of the relevant statistics are shown in Table 1.

Table 1 Sample descriptive statistical distribution table

|        | Item   | Value | Proportion |            | Item                         | Value | Proportion |
|--------|--------|-------|------------|------------|------------------------------|-------|------------|
| gender | Male   | 459   | 43.4%      | grade      | Second grade                 | 757   | 71.6%      |
|        | Female | 598   | 56.6%      |            | third grade                  | 300   | 28.4%      |
| age    | ≤23    | 51    | 4.8%       | ethnicity  | Han nationality              | 853   | 80.7%      |
|        | 24     | 214   | 20.2%      |            | Ethnic minorities            | 204   | 19.3%      |
|        | 25     | 302   | 28.6%      | discipline | Nature & Engineering         | 264   | 25.0%      |
|        | 26     | 279   | 26.4%      |            | Economy & Management         | 223   | 21.1%      |
|        | ≥27    | 211   | 20.0%      |            | Humanities & Social Sciences | 327   | 30.9%      |
|        |        |       |            | Others     | 243                          | 23.0% |            |

In order to ensure the reliability and validity of the measuring scale, this study adopts the mature scale of the existing literature for measurement purposes. All scales use Likert's 5-point scale, in which 1 means "totally disagree" and 5 means "completely agree". In the measurement of the entrepreneurial support programs, 1 means "few" and 5 means "many".

(1) Entrepreneurial passion

We adopted a 9-item entrepreneurial passion scale developed by Cardon et al. (2013). Some of the statements read: "I am pleased to find unmet market demand", "I have the inherent motivation to optimize some products or services", "I am keen to create a new company", and so on. The coefficient alpha for this scale was 0.884.

(2) Creativity

We assessed creativity using the 8-item scale version of Zampetakis' (2008) scale. Statements included: "I can show creativity if I have the chance", "I can make the right plan and schedule to achieve a new idea", "I can often come up with new ways to carry out the task", and so on. The coefficient alpha for the scale was 0.887.

(3) Entrepreneurial self-efficacy

Entrepreneurial self-efficacy was measured using a 10-item measurement scale version of Lanero, Vázquez and Aza's (2016) scale. Statements included: "I think I can identify a business opportunity", "I think I can develop a viable business project", and "I think I can plan a specific business", and so on. The coefficient alpha of the scale in this study was 0.925.

(4) Entrepreneurial support programs

We assessed entrepreneurial support programs using Walter et al.'s (2013) 5-item scale. Choices included: "The extent to which entrepreneurship is promoted as a career choice by the college", "extracurricular training at colleges", and "the extent of business plan competition", and so on. The coefficient alpha of the scale in this study was 0.878.

(5) Entrepreneurial intention

Using Linan and Chen's (2009) measurement of entrepreneurial intention, there are 6 items in total. These include: "I am willing to work hard to become an entrepreneur", "My career goal is to become an entrepreneur", "I am going to start up my own business in the future", and so on. The coefficient alpha in this study was 0.919.

(6) Control variables

Based on previous studies, the students' gender, ethnicity, age, grade and discipline were used as control variables in the present study. Previous research suggests that demographic characteristics appear to influence entrepreneurial intention.

#### 4.Data analysis and results

In this study, SPSS19.0 software and HLM6.08 were used to analyze the data. The mean (M), standard deviation (SD), and correlation coefficient of each measurement variable were calculated, after which the discriminant validity of each variable was verified. We found, in this study, that the root mean square of AVE (Table 2) was larger than the correlation coefficient, showing good discriminant validity between the variables.

Table 2 mean, standard deviation, correlation coefficient and discriminant validity

|                                     | entrepreneurship<br>passion | creativity | entrepreneurial<br>self-efficacy | entrepreneurial<br>intention | entrepreneurial<br>support programs |
|-------------------------------------|-----------------------------|------------|----------------------------------|------------------------------|-------------------------------------|
| entrepreneurship passion            | (0.790)                     |            |                                  |                              |                                     |
| creativity                          | 0.369**                     | (0.748)    |                                  |                              |                                     |
| entrepreneurial self-<br>efficacy   | 0.438**                     | 0.433**    | (0.773)                          |                              |                                     |
| entrepreneurial intention           | 0.545**                     | 0.484**    | 0.573**                          | (0.845)                      |                                     |
| entrepreneurial support<br>programs | --                          | --         | --                               | --                           | --                                  |
| M                                   | 3.150                       | 3.600      | 3.191                            | 3.169                        | 3.787                               |
| SD                                  | 0.577                       | 0.568      | 0.607                            | 0.765                        | 0.396                               |

Note: N = 1057, diagonal values for the corresponding variables AVE square root, \* P <0.05, \*\* P <0.01, the same below.

In order to verify the relationship between the variables, we established the model according to Baron and Kenny's (1986) method, and tested the hypothesis using stratified and stepwise regression. First, we tested hypotheses 1, 2, 3 and 4 by using the analytic hierarchy process. According to the hierarchical regression procedure, and taking entrepreneurial self-efficacy as the dependent variable in the regression model, the control variable (M1) and the independent variable (M2) are brought in turn. Then, the entrepreneurial intention is taken as the dependent variable and the control variable (M3) independent variable (M4), independent variable and mediator (M5), and mediator (M6). Table 3 shows the entire analysis process and results.

Table 3 Hierarchical regression test results

|                                   | entrepreneurial self-<br>efficacy |          |        | entrepreneurial intention |          |          |
|-----------------------------------|-----------------------------------|----------|--------|---------------------------|----------|----------|
|                                   | M1                                | M2       | M3     | M4                        | M5       | M6       |
| gender                            | -0.078*                           | -0.094** | -0.042 | 0.060*                    | -0.029   | 0.003    |
| age                               | 0.009                             | -0.003   | 0.029  | 0.017                     | 0.018    | 0.024    |
| ethnicity                         | -0.003                            | 0.010    | 0.026  | 0.042                     | 0.039    | 0.028    |
| grade                             | -0.026                            | -0.039   | 0.001  | -0.014                    | -0.001   | 0.016    |
| discipline                        | -0.036                            | -0.060*  | -0.030 | -0.057*                   | -0.037   | -0.010   |
| entrepreneurship<br>passion       |                                   | 0.326**  |        | 0.427**                   | 0.319**  |          |
| creativity                        |                                   | 0.319**  |        | 0.330**                   | 0.224**  |          |
| entrepreneurial self-<br>efficacy |                                   |          |        |                           | 0.332**  | 0.573**  |
| R2                                | 0.009                             | 0.283    | 0.004  | 0.398                     | 0.476    | 0.330    |
| Δ R2                              | 0.009                             | 0.283    | 0.004  | 0.394                     | 0.078    | 0.330    |
| F                                 | 1.878                             | 20.598** | 0.928  | 33.028**                  | 39.703** | 28.726** |
| Δ F                               | 1.878                             | 69.906** | 0.928  | 114.321**                 | 52.159** | 28.726** |

As can be seen in Table 3, entrepreneurial passion has a significant positive effect on the promotion of entrepreneurial intention ( $\beta=0.427$ ,  $p <0.01$ ); hence Hypothesis 1 is supported. Creativity has a significant positive effect on the promotion of entrepreneurial intention ( $\beta = 0.330$ ,  $P <0.01$ ), so Hypothesis 2 is also supported.

Furthermore, it can be seen from models 1, 4 and 5 that entrepreneurial self-efficacy plays an intermediary role in entrepreneurial passion, creativity and entrepreneurial intention, and is a mediator ( $\beta = 0.319$ ,  $p < 0.01$ ;  $\beta = 0.224$ ,  $p <0.01$ ). Therefore, hypotheses 3 and 4 are supported, indicating that entrepreneurship self-efficacy partly mediates the relationship between entrepreneurial passion and entrepreneurial intention, as well as between creativity and entrepreneurial intention.

To analyze the regulatory effect of entrepreneurial support programs, we paired the sample of graduate students and college-level samples, and then imported HLM6.08 for analysis. The results are shown in Table 4.

Table 4 cross-level moderating analysis results (self-efficacy)

| variable                               | correlation coefficient | standard deviation | T value |
|--|-------------------------|--------------------|---------|
| Individual level                       |                         |                    |         |
| gender                                 | -0.101**                | 0.033              | -3.077  |
| age                                    | 0.001                   | 0.015              | 0.052   |
| ethnic                                 | 0.019                   | 0.040              | 0.480   |
| grade                                  | -0.041                  | 0.040              | -1.033  |
| discipline                             | -0.030                  | 0.019              | -1.581  |
| Entrepreneurship passion(EP)           | 0.347**                 | 0.029              | 11.843  |
| Creativity(C)                          | 0.339**                 | 0.030              | 11.384  |
| organizational level                   |                         |                    |         |
| entrepreneurial support programs (ESP) | 0.140*                  | 0.060              | 2.326   |
| hierarchical interactive items         |                         |                    |         |
| ESP xEP                                | 0.313**                 | 0.072              | 4.338   |
| ESP xC                                 | -0.198**                | 0.075              | -2.639  |

From Table 4, it can be seen that entrepreneurial support programs positively moderate the relationship between entrepreneurial passion and entrepreneurial self-efficacy ( $\beta = 0.313, p < 0.01$ ), which means that Hypothesis 4 is supported. However, because entrepreneurial support programs negatively moderate the relationship between creativity and entrepreneurial self-efficacy ( $\beta = -0.198, p < 0.01$ ), Hypothesis 5 is not supported.

Based on Cohen et al.'s (2013) approach, we use graphic analysis of the adjustment effect of mean plus and minus one standard deviation, respectively, describing the regulating effect of entrepreneurial support programs in the relationship between entrepreneurial passion, creativity, and entrepreneurial intention. The diagram results are shown in Figure 2.

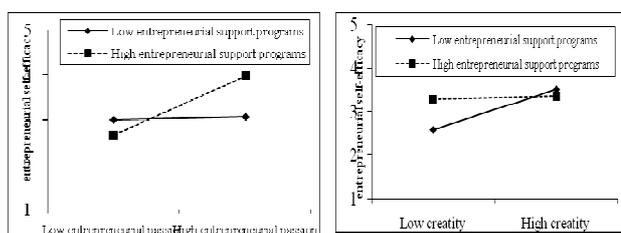


Figure 2 Moderating influence of entrepreneurial support programs

## 5. Conclusions and theoretical significance

In this study, we investigated the effect of entrepreneurial passion, creativity, entrepreneurial self-efficacy and entrepreneurial support programs on entrepreneurial intentions at the college level in a group of postgraduate students. The main conclusions and theoretical significances are as follows:

5.1 Entrepreneurial passion and creativity significantly positively impact entrepreneurial intention. After controlling for personal factors such as gender, age and academic disciplines, which may affect individual entrepreneurial intention, the research shows that entrepreneurship passion and creativity will positively influence entrepreneurial intention. In other words, the higher the level of entrepreneurship passion or creativity in an individual, the stronger is the entrepreneurial intention of that individual. The existing literature suggests that entrepreneurial passion is a very important and common emotion for entrepreneurs (Cardon et al., 2013; Cardon et al., 2009). The present study verified that, in the student respondents, entrepreneurial passion plays a positive role in the developing of entrepreneurial intention. In addition, the present study also verifies previous related research regarding individuals with higher evaluations of creativity tending to form entrepreneurial intention.

5.2 Entrepreneurial self-efficacy partly mediates the relationships between entrepreneurial passion and entrepreneurial intention, and creativity and entrepreneurial intention. Consistent with the theory of self-efficacy, the level of an individual's belief in his own ability plays a key role in shaping his behavior. Therefore, whether a passionate or creative individual forms entrepreneurial intention depends to a certain extent on his or her

cognitive assessment of personal entrepreneurial competence.

5.3 The impact of entrepreneurial passion and creativity on entrepreneurial self-efficacy is subject to the differences in organizational entrepreneurial support programs. This study strongly indicates that entrepreneurial support programs positively moderate the relationship between entrepreneurial passion and entrepreneurial self-efficacy. When entrepreneurial support programs are high, the impact of entrepreneurial passion on entrepreneurial self-efficacy is strong. Conversely, when entrepreneurial support programs are low, entrepreneurial passion has a weak effect on entrepreneurial self-efficacy. However, entrepreneurial support programs negatively moderate the relationship between creativity and entrepreneurial self-efficacy. When entrepreneurial support programs are low, the impact of creativity on entrepreneurial self-efficacy is stronger. Conversely, when entrepreneurial support is high, the impact of creativity on entrepreneurial self-efficacy is weaker.

Bandura (1977) illustrated the sources of negative efficacy information as being direct experiences of failure and indirect learning experiences. Thus, some possible reasons why entrepreneurial support programs negatively moderate the relationship between creativity and entrepreneurial self-efficacy are as follows. Being college students, most graduate students still have significant insufficiencies in entrepreneurial skills and entrepreneurial knowledge (Saeed et al., 2015). Organizations provide a wide variety of entrepreneurial practice, competitions and other activities, but it is difficult to achieve certain goals if the resource and skill requirements to achieve them are still beyond the scope of a student's capabilities. Then, due to difficulties around underestimating related activities and neglecting their own lack of resources and limitations, they will fail in the process of achieving the goals. However, in the indirect learning process of various types of entrepreneurship education and lectures provided by the organization, if the relevant personnel overemphasize how their personal endowments and resources in the entrepreneurial activities played a role, creative individuals will be more likely to find their own shortcomings and gaps. To sum up, because of their limitations in cognition, competence and experience, students will likely fail in their early attempts. Furthermore, if strong entrepreneurial support programs ignore this limitation at the organizational level, creative individuals will experience negative performance information through direct experience and indirect learning, and their assessment of their entrepreneurial self-efficacy will be lower. Conversely, in low-impact entrepreneurial support programs, the lower the level of creative information disseminated through direct experience and indirect learning, the higher is the individual's rating of entrepreneurial self-efficacy. This is how entrepreneurial support programs negatively moderate the relationship between creativity and entrepreneurial self-efficacy.

Previous studies have investigated the direct impact of entrepreneurial support programs on entrepreneurial intentions at the organizational level, but they neglected looking into the moderating effect of entrepreneurial support programs. Moreover, in the interpretation of various social phenomena, they tend to consider the interaction of various elements rather than consider only a single element (Turker, & Sonmez Selçuk, 2009). This present study enriches the research on how the mechanism of entrepreneurial support programs impacts the process of entrepreneurship. Based on the data collected across several different levels, this paper verifies that there is a major difference in the moderating effect of entrepreneurial support programs on the relationship between entrepreneurial passion and entrepreneurial self-efficacy, and between creativity and entrepreneurial self-efficacy. That is, entrepreneurial support programs on the organizational level have different effects on the process of transforming from individual ability to self-efficacy.

## **6. Practical significance**

According to the above conclusions, relevant stakeholders such as education authorities and universities or colleges need to consider various factors and formulate corresponding policies and plans.

Most important is to cultivate and promote a high degree of entrepreneurial passion and entrepreneurial self-efficacy. These two key factors – passion and self-efficacy – play a proactive role in promoting entrepreneurial intention, and both of them are malleable. Therefore, the government, colleges and community at large should continue to optimize the public service system for entrepreneurship, provide various kinds of consultation and support for postgraduate entrepreneurship, step up publicity on policies, and strive to create a favorable outlook and pan-cultural acceptance of entrepreneurship in society as well as on campus. In addition, the players need to increase investment in and construction of appropriate business platforms and practice bases and actively encourage graduate students to carry out commercial social practice activities. Through implementation of the above measures, the identity of entrepreneurship will be strengthened, and the entrepreneurial passion of graduate students will be cultivated and promoted.

Entrepreneurship education is closely related to entrepreneurial self-efficacy. So, to improve entrepreneurial self-efficacy, universities need to further establish and improve the graduate education system through the active

implementation of various forms of curriculum learning, social business practices, and other entrepreneurial education activities. These include efforts to enhance entrepreneurial awareness and entrepreneurial skills, as well as to enhance the ability of graduate students to deal with the vicissitudes of entrepreneurship. In addition, colleges and universities should step up their training for postgraduates and develop opportunities and levels of contact between graduate students and enterprises and related industries. Such contact can be created through, for instance, school-enterprise cooperation, with an aim to increase the opportunities and levels of enhancing business knowledge and skills through practice.

It is also important to develop and enhance the level of creativity in graduate students. However, the cultivation of creativity is a systematic and complicated process. As the main channel for the cultivation of creativity in students, universities thus play a crucial role in the development of creativity, especially in the cultivation and development of creativity in graduate students. Moreover, because creativity and skills improvement involved a process of reciprocation, universities should focus on subject knowledge teaching, research and development of innovative design courses, and training of innovative skills. This should be done by paying attention to applying knowledge as practice, while emphasizing the flexible application of knowledge.

Tutors play an equally important role in the process of cultivating graduate students' creativity. In fact, some studies have pointed out that tutoring styles with high levels of support and control are the most conducive to cultivating graduate students' creativity (Gu, Wang, & Wu, 2013). Graduate supervisors need to provide necessary research resources for postgraduates, give play to their subjective initiative, and encourage innovation and practice. At the same time, supervisors should strengthen supervision and guidance so that the students complete the necessary knowledge and ability-training required for postgraduates.

Additionally, efforts should be made to optimize and improve various types of entrepreneurial support programs. The key to the success of entrepreneurial measures provided by university organizations in achieving the expected goals is appropriately implementing the relevant support measures. Therefore, in carrying out entrepreneurial practices and project competitions in colleges and universities, it is necessary to set specific targets in graduate students. As well, there needs to be a strengthening of the process guidance and result tracking feedback, according to students' specific needs. Related project consulting, funding and guidance system construction also needs to be improved. Overall, the most important aspect is to stimulate self-confidence in the students and enhance the skills they need to deal with entrepreneurship problems.

### **7.Limitations and future research**

Although this study, to some extent, was intended to make up for the limitations of the previous study, there is still room for further improvement. (1) Cross-sectional data in this study cannot explain the causal relationship between variables. Future work should therefore consider a longitudinal study with experiments across time. (2) The entrepreneurial support programs reflect the breadth and depth of supports at the organizational level. It is an important source of efficacy information obtained through mastery experience and vicarious experience. The role of entrepreneurial passion and creativity on entrepreneurial self-efficacy is based on one or more of the above. The results of the comprehensive effects of efficacy information sources show that there is a difference between positive and negative or ineffectiveness of various measures during the moderating effect. In this study, entrepreneurial support programs negatively moderate the relationship between creativity and self-efficacy, showing that the overall effect of various activities and measures provided by entrepreneurship support programs are negative. Similarly, the moderating role of entrepreneurial support programs between entrepreneurial passion and entrepreneurial self-efficacy is positive and only shows that the overall effect of support programs of various types of activities is positive. Badura (1997) pointed out that mastery experience is the major source of efficacy information, but recent studies indicate that the proportion of four sources of efficacy information is discriminating in different groups (Sweida & Woods, 2015). Future studies need to further elaborate the effect of entrepreneurial support programs in order to explore which kinds of entrepreneurial support activities or measures contribute to the acquisition of efficacy information. (3) In this study, we focused on the mechanism of interactions between entrepreneurial support programs and individual factors impacting entrepreneurial intention. Within a university environment, any number of organizational factors, such as organizational norms, research orientation and industry ties, may all moderate the relationship between individual factors and entrepreneurship intention. Thus, future researches need to consider additional contextual factors beyond the boundaries of universities and colleges.

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