

Original Paper

The Relationship between Undergraduate Students' Personality Dimensions and Effectiveness of Entrepreneurship Education in China

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Abstract

Purpose-This paper aims to identify the personality traits (agreeableness, openness to experience, extraversion, conscientiousness and neuroticism) of undergraduate students and effectiveness of entrepreneurship education in China. The difference among the personality traits of undergraduate students toward their effectiveness of entrepreneurship education is also analyzed.

Design/methodology/approach-The personality dimensions questionnaires were completed by 209 undergraduate students participants. Pearson correlation coefficients were extracted and regression analysis was performed.

Findings-The study revealed that out of 209 respondents. Students having open and conscientious trait were increasingly more effectiveness of entrepreneurship education, the conscientiousness was identified as the most suitable personality trait for undergraduate students. A significant difference was also observed among all the personality traits of undergraduate students.

Research limitations/implications-Participants retrospectively assessed their personality dimensions. Future research may use both teachers and students of participants to collect more accurate data on education practices or use observational methods.

Social implications-This work seems to suggest that the students' personality should be taken into account in entrepreneurship education.

Originality/value-This is the first study to investigate the relationship between personality dimensions and effectiveness of entrepreneurship education. The paper provided further insights into determinants of entrepreneurship education. This article also had certain reference value to the policy makers who intend to improve the entrepreneurship education of the universities in China. It also provide a basis to improve the effectiveness of entrepreneurship education.

Keywords

personality traits, entrepreneurship education, openness to experience

1. Introduction

In 2015, the State Council of China put forward the strategic objectives for the development of innovation and entrepreneurship education in institutions of higher learning, specifying the nine major tasks that need to be taken to achieve the strategic objectives, China's emphasis on innovation and entrepreneurship education not only reflects the new stage of higher education reform and development, but also reflects the urgent need for creative talents in the development of China's knowledge economy. The entrepreneurship education in Chinese colleges and universities has come to the peak stage of its development, and the entrepreneurship basic course has been gradually brought into the required course of undergraduate colleges and universities. Even, colleges and universities entrepreneurship education is becoming more of a "business incubator" for future entrepreneurship. Indeed, innovation is the soul of a nation's progress, the inexhaustible source of a country's prosperity and the deepest national endowment. Young people, especially undergraduate students are the most dynamic and creative group in society, and they should take the lead in innovation and creation. Young people must have the courage to innovate and create. On the other hand, Undergraduate students are products of universities. Upon graduation, they become the source of manpower for developing the country's economy. Undergraduate students are also the future mainstream of labor markets, employers are now paying more and more attention to employees' initiative, risk-taking spirit, pioneering spirit, independent working ability, technical ability, social ability and management ability, as well as professional achievement. Entrepreneurship education in higher education aims at strengthening the self-employment consciousness and risk-taking spirit. By establishing the entrepreneurship curriculum system, reforming the teaching contents and methods, such as setting up the second classroom, providing the means of entrepreneurship education such as venture capital and business consulting, we can make up for the shortage of undergraduates' entrepreneurial experience, at the same time, it systematically trains the undergraduates' entrepreneurial skills and provides them with the necessary knowledge, social ability and management skill. These learning experiences are also better at improving undergraduates' professional achievement.

Most undergraduate students develop physically and mentally rapidly, their thinking is active, their thirst for knowledge is strong, and they initially have the ability to think independently, find problems and solve problems. However, some students who graduated from the university would have no creative thinking, even find it difficult to resolve their practical new problems on the job. But also, in a way, hinder the development of the labor market. In the era of science and technology power, talent is the foundation and core element of innovation. In deepening the curriculum reform of the new round of basic education, cultivating students' effectiveness of entrepreneurship education is one of the core goals of quality-oriented education.

Among researchers, there appears to be reasonable consensus regarding the definitional elements of effectiveness of entrepreneurship education. Most researchers agreed that the two elements that define effectiveness of entrepreneurship education are novelty and usefulness (Shalley, 1991). According to Gurteen (1998), innovation is the taking of new or existing ideas and turning them into action. Effectiveness of entrepreneurship education is coming up with new ideas, which is the food of innovation. Effectiveness of entrepreneurship education is the foundation of innovation. Effectiveness of entrepreneurship education, known as the engine of scientific discovery, is usually defined as the ability to produce novel, unique and valuable products under specific circumstances.

Therefore, as a core component of China's working future, college students have a duty to improve their creative abilities to meet the demands of the technological age. As an important part of its national innovation system, administrators and educators at Chinese universities should, for their part, try to assess whether current educational practices, curricula and learning goals provide the kind of frameworks that inspire students to express their ideas and effectiveness of entrepreneurship education (Baker & Baker, 2012).

Academics and educators should concern undergraduate students' effectiveness of entrepreneurship education before they enter corporations, which are often said to be the "end user" in the supply chain of graduates for the labor market. Creativity is not something fuzzy or flaky, as some people think, is can be educated and applied in everyday innovation even by people who don't perceive themselves as being creative (David Tanner, 1992). School education is the main channel for the cultivation of students' creativity. Entrepreneurship education is the main channel to cultivate students' creativity. Therefore, it is imperative to explore effective ways of entrepreneurship education.

The society is changing deeply day by day, and there is a strong demand for college and university students' creativity and entrepreneurship spirit. It is very important to implement creative problem-solving in higher education. However, educators have not fared well in their efforts to develop effective teaching methods to guide and foster the effectiveness of entrepreneurship education among students (Bourgeois-Bougrine et al., 2017; Lin & Nabergoj, 2014). It also provides a reference for setting up the carrier of effectiveness of entrepreneurship education cultivation, such as entrepreneurship education programme, or incorporating effectiveness of entrepreneurship education cultivation into interdisciplinary collaborative teaching. It is uncertain whether education has the strength and impact to induce this kind of intrinsic motivation and enjoyment in students, or to change students' effectiveness of entrepreneurship education in such a way. It is likely that this creative tendency in individual personalities needs more time to grow.

To the best of our knowledge, no study has examined the relationship between personality and effectiveness of entrepreneurship education until now. Before explaining our research assumptions, we will describe the conceptualisation of Big Five personality.

1.1 A Review on Big Five Personality Inventory

The Big Five refers to five broad personality constructs that personality psychologists believe can be used to encapsulate an individual's entire personality.

The five factors are:

- (1) extroversion;
- (2) neuroticism;
- (3) agreeableness;
- (4) conscientiousness; and
- (5) openness to experience.

The first trait, extroversion, is close to the meaning of self-confidence, in contrast to introversion (Digman, 1990). Extraversion is generally considered a positive personality trait and is associated with social skills and extroverts are more likely to get raises and promotions in the workplace, and therefore to achieve higher levels of career success (Heller et al., 2002).

The second characteristic of neuroticism is the opposite of emotional stability. Neuroticism is associated with nervousness, irritability, and high anxiety. People with high neuroticism scores have poor emotional control and are prone to anger (John & Srivastava, 1999). According to Heller et al. (2002), those who are more neurotic pay more attention to negative events and therefore seem to experience more of them. While neuroticism is thought to be useful for some very detail-oriented jobs, generally neuroticism is seen as a negative trait. According to Seibert and Kraimer (2001), neuroticism scores can predict dissatisfaction with one's career (Seibert & Kraimer, 2001).

The third trait, agreeableness, has also been described as likeability or compliance. Agreeable people are described as courteous, flexible, trusting, good-natured, cooperative, forgiving, tolerant, and good-hearted (Barrick & Mount, 1991; Digman, 1990). Seibert and Kraimer (2001) refer to the construct as a continuum ranging from soft-hearted, good-natured, and trusting, at one extreme to cynical, rude, and suspicious at the other. More agreeable workers, while good team players, often are not ruthless enough to succeed in career. They are less able than other employees to shirk blame for bad performance and take credit for good performance (Seibert & Kraimer, 2001). However, several studies suggest that police officers those who were less agreeable engage in more workplace misconduct (Cuttler & Muchinsky, 2006). Black (2000) found agreeability to be the only Big Five trait that was not related to police training performance.

Fourth, openness are described as imaginative, curious, original, broad-minded, and artistically sensitive (Barrick & Mount, 1991). Barrick and Mount (1991) found that while openness was not associated with police performance. However, many researchers believed that openness is most closely related to intelligence, with people with high scores having better intelligence, and people with low scores often not interested in new things (Digman, 1990).

Finally, conscientiousness indicates the individual's degree of organization, persistence, and motivation in goal-directed behavior. This trait has been associated with educational performance and motivation

(Barrick & Mount, 1991). Some personality psychologists argue that the core trait is dependability, because those with high conscientiousness scores are careful, thorough, responsible, and organized. Other psychologists posit a slightly different version, with the trait being an expression of volition or will to achieve.

Hans-Georg Wolff and Sowon Kim (2012) examined the relationship between the Big Five traits and six networking behaviors in samples of employed individuals. They found extraversion and openness to experience were related to networking behaviors.

1.2 A Review on Entrepreneurship Education

Schumpeter (1911) defined entrepreneurship as a person who breaks the existing economic order, creates and benefits from new structures by introducing new products and services, or by creating new organizational forms, or by developing new raw materials. According to Hamilton and Harper (1994), entrepreneurs are people who take certain risks in order to take advantage of inventions. Thompson (1999) thought entrepreneurs are people who can identify opportunities and take advantage of new business opportunities. Among researchers, there appears to be reasonable consensus that entrepreneurs are those who have a unique intuition, mindset, inspiration or vision, the ability, willingness and ability to conceptualize ideas and implement a business plans, and see change as an opportunity to create value.

Souitaris et al. (2007) concluded that an effective entrepreneurship programme was defined as one which is able to influence entrepreneurial intentions. However, Cheng, M. Y. (2009) indicated the entrepreneurial education programmes conducted in Malaysia fail to create an impact to influence students to take up entrepreneurial challenges. From the findings above, the key to becoming an entrepreneur is personality, an innate trait that can not be trained. Therefore, it is impossible to teach people to be entrepreneurs.

In contrast, previous studies have shown that entrepreneurship education does play an important role in fostering entrepreneurship among students (Ronstadt, 1987; Katz, 2003; Solomon et al., 2002; Robinson & Hayes, 1991; Sexton & Upton, 1984). Kolvereid and Moen (1997) noted that students who took entrepreneurship courses were more likely than other students to face the challenges of starting a business and were more interested in starting a business. Webb et al. (1982) argued that students who participated in an entrepreneurship programme were more likely to start their own business than other students who did not participate in an entrepreneurship programme.

Ibrahim and Soufani (2002) believed entrepreneurship education plays a critical role in identifying and shaping the characteristics of entrepreneurs. Other studies have pointed out that entrepreneurship education, especially education that provides technological training, is crucial to enhance entrepreneurs' innovation skills in an increasingly challenging environment (Clarke, 1990; Menzies & Paradi, 2003). Creativity is the foundation of entrepreneurship, David Tanner (1992) pointed out creativity is not as vague as some people think, and even those who do not think of themselves as creative can be educated and applied in everyday innovation.

Entrepreneurship education is not just about business management or entrepreneurship. It is about preparing undergraduates for careers. It is about learning how to combine experience, skills, and knowledge to prepare for a new career. Therefore, this study defines entrepreneurship education as learning to equip students with the skills and knowledge needed to start a new business, to learn to identify business opportunities, to build social networks, to focus on customer needs, and to create ideas, develop business plans, run businesses, and evaluate environmental, institutional, and political issues. Entrepreneurship education needs a different teaching pedagogy in which entrepreneurship education is linked to work-related learning (Dwerryhouse, 2001), experiential learning (Kolb, 1984), action-learning (Smith, 2001) and entrepreneurial training (Gibb, 1999). Just as Kirby (2002) emphasised that entrepreneurship education is different to “traditional” management studies as the latter may impede the development of the necessary entrepreneurial quality and skills.

1.3 Hypotheses

Based on the literature reviewed, it is expected that each of the Big Five traits will effect effectiveness of entrepreneurship education.

First, extroversion will be positively related to effectiveness of entrepreneurship education. Starting a business requires a lot of social and interpersonal skills that extroverts tend to have more of.

Second, neuroticism will be negatively related to effectiveness of entrepreneurship education. Starting a business is not a detail-oriented job, neuroticism has no direct benefit to entrepreneurial activity. On the contrary, people with high neuroticism can not control their own emotions and can not deal well with entrepreneurial partners. Therefore, neurotic people are not conducive to entrepreneurship, and not conducive to getting good entrepreneurial programme results.

Third, agreeableness will be positively related to effectiveness of entrepreneurship education. Gregarious people are good at working with others, and there should be a positive correlation between entrepreneurial education and entrepreneurial activities with many collaborative tasks.

Fourth, openness will be positively related to effectiveness of entrepreneurship education. Open people have imagination and creativity, and entrepreneurship requires creativity, so there is a positive correlation between the two.

Last, conscientiousness will be positively related to effectiveness of entrepreneurship education. Entrepreneurial Learning is very tired, entrepreneurship is also very difficult, to overcome the difficulties of people with a sense of responsibility, certainly can get better entrepreneurial education performance.

Further, it is expected that of the Big Five traits, openness will have the strongest effect on effectiveness of entrepreneurship education.

In the light of this issue, this research is undertaken to determine the undergraduate students’ effectiveness of entrepreneurship education in Zhejiang Gongshang University, China. In addition, this study is conducted to identify the personality dimensions that influence their effectiveness of

entrepreneurship education. This research will examine the relationship between five personality dimensions and effectiveness of entrepreneurship education in China.

2. Method

2.1 Participants

The sample consists of 209 Undergraduate Students (97 females and 112 males) between 19 and 21 years (mean = 20.34 and standard deviation = 0.84). Participants administered a self-administered questionnaire on line that stated the purpose of the research. They answered questions regarding age, majors, gender and so on. The questionnaire responses also offered insight into students' knowledge of entrepreneurship. All participants spoke Chinese as their first language and were recruited from Zhejiang Gongshang University. Some of them served as a leader in student union (20%, $n = 41$). The distribution of respondents in terms of their majors and specialisations is business and management, art, computer science, information technology, finance, economics, and signals a vocational predisposition towards following entrepreneurship activities.

2.2 Measurement

All instruments were measured on a five-point Likert scale where 1 was "strongly disagree" and 5 was "strongly agree". Personality was measured by a 10-item scale Big five personality test (Goldberg, 1993). In this study, measuring effectiveness of entrepreneurship education by intention to start a business upon graduation. Participants are asked to respond on a five-point Likert-type scale ranging from 1 ("strongly unlikely") to 5 ("strongly likely"). Chronbach's alpha of intention ranges from 0.74 to 0.87 and test-retest reliability ranges from 0.77 to 0.87. At the same time ask the students several questions, such as what is entrepreneurship, how to write business plan. Teacher evaluated the effectiveness scores by five-point scale.

The 209 respondents who claimed to understand the conception "entrepreneurship" offered various expression of entrepreneurship education ranging from: how to start a new business (46.8 per cent); to business management (35.8 per cent); and risk management (9.5 per cent). The findings reveal that the level of knowledge and understanding on the meaning and purpose of entrepreneurship education among students in China is not very high.

2.3 Data Analysis

IBM SPSS 24.0 was used for all statistics procedures. In the correlation analysis, variables were personality dimensions and effectiveness of entrepreneurship education's subscales. In the regression analysis, we set the effectiveness of entrepreneurship education total score as dependent variable and the Big Five personality subscales scores as independent variables: agreeableness, openness to experience, extraversion, conscientiousness and neuroticism.

3. Result

Descriptive statistics concerning effectiveness of entrepreneurship education resulted as follows: 3.23 (0.12). Concerning the 63% of participants indicated that entrepreneurship education taught them much knowledge. Observed five personality dimensions means and standard deviation values resulted as follows: agreeableness, 3.16, (0.51), openness to experience, 3.51, (0.71), extraversion, 3.16, (0.46), conscientiousness, 3.54, (0.32), and neuroticism, 3.04, (0.32).

Pearson correlation coefficients were extracted. We observed a significant positive correlation between openness to experience and effectiveness of entrepreneurship education ($r = 0.269$, $p < 0.001$), a significant positive correlation between conscientiousness and effectiveness of entrepreneurship education a significant negative correlation between neuroticism and effectiveness of entrepreneurship education ($r = 0.352$, $p < 0.001$). Pearson's correlations among the study variables are presented in the Table 1.

Table 1. Correlation Matrix of Variables (N=209)

	Agreeableness	Open	Extraversion	Conscientiousness	Neuroticism	EEE
				SS		
Agreeableness	1	0.194	0.126	0.136	-0.256	0.194
Openness		1	0.095	.0135	-0.164	0.27**
Extraversion			1	0.145	-0.054	0.036
Conscientiousness				1	-0.154	0.35**
Neuroticism					1	-0.13
EEE						1

Notes. ** Correlation is significant at the 0.01 level (2-tailed).

Table 2 shows the stepwise multiple regression analysis. The independent variables included in the analysis were the five personality dimensions. According to the results of the regression analysis, openness to experience ($t = 2.29$, $\beta = 0.37$, $p = 0.015$) and conscientiousness ($t = 3.44$, $\beta = 0.44$, $p < 0.0001$) can predict effectiveness of entrepreneurship education. More specifically, higher levels of openness to experience and conscientiousness predict higher effectiveness of entrepreneurship education scores.

Table 2. Results of Stepwise Multiple Regression to Predict EEE (N=209)

Criterion Variable	Predict variable	β	Beta	T	ΔR^2	S.E.	p-Value	Variance Inflation Factor
EEE	OPEN	0.32	0.37	2.29	0.092	0.131	0.015	1.024
	Counsci	0.58	0.44	3.44		0.142	0.001	1.03
	Agreeab	0.18	0.14	1.09		0.122	0	1.01
	Extrave	0.28	0.14	1.09		0.122	0	1.01
	Neurotic	-0.11	-0.038	-0.64		0.166	0	1.02

4. Discussion

There has been more attention paid to entrepreneurship education in the last 10 years than during the previous many years, in this science and technology age, teaching and enhancing the undergraduate students' most valuable entrepreneurial skill is a major problem which universities face to. A full display of entrepreneurial skill is indispensable, not only for developing new products and technology, but also for managing any business, even any career. In a word, those undergraduate students with higher entrepreneurial skill will be more easily to gain career success and subjective well-being in the future, which is helpful to individuals but also to organizations because employees' career success can eventually contribute to organizational performance. So, it is widely acknowledged that it is not only the responsibility of the university but also the responsibility of the organizations to promote individual entrepreneurial skill and knowledge.

To our knowledge, our study is the first one investigating the relationship between personality dimensions and effectiveness of entrepreneurship education. In fact, the verification of this relationship is not surprising, and it has been concluded that personality is associated with organizational learning outcomes (Bamber & Castka, 2006).

In entrepreneurship education, a key issue is how to teach entrepreneurial behaviour and support students to develop abilities and skills enabling them to perform entrepreneurial tasks (Colette et al., 2005). In this respect, effectiveness of entrepreneurship education is important in entrepreneurship education (Hamidi et al., 2008; Lin & Nabergoj, 2014). In efforts to develop and stimulate effectiveness of entrepreneurship education and creative problem-solving skills, educators emphasise practice-based learning. However, due to various constraints, we emphasize some case studies in the education curriculum to improve the entrepreneurial experience of students.

The results show that the personality dimensions (conscientiousness and openness are) of undergraduate students can predict the effectiveness of their entrepreneurship education to some extent. Conscientiousness and openness are the most important factors in predicting the effects of entrepreneurship education. Conscientiousness emphasizes perseverance and diligence, which is necessary to do anything, not just to entrepreneurial activities, entrepreneurial education activities need students to work hard in class and after

class. Openness to experience is characterized by curiosity, open mindedness, imagination, and a willingness to experiment with new technologies (Borkenau & Ostendorf, 2008; Goldberg, 1990). Ashton and Lee (2001) argued that openness is related to “the degree to which people engage in behavior, often leading to ideas that are generated or understood”. At the same time, the content of entrepreneurship education contains a large number of new ideas, need imagination, need creativity, therefore, students with these characteristics are easier to obtain and understand the essence of entrepreneurship education, more able to achieve good results of entrepreneurship education.

We showed that effectiveness of education is influenced by two personality dimensions (openness to experiences and conscientiousness). Overall, this study contributes to our understanding of why some students engage more in entrepreneurial emcourse than others and which personality traits facilitate learning behaviors. In line with other studies, we provide evidence that personality matters in in achieving educational education results. Some may argued it is impossible to teach someone to become an entrepreneur and therefore entrepreneurship education is a waste of time. In fact, like this view is unrealistic.

5. Conclusions

Education is not an isolated thing, especially entrepreneurial education, is not blindly remember some knowledge that education has an effect. The effectiveness of entrepreneurship education is related to teaching contents, teaching methods and teachers’ skills, especially to students’ personality. When all the teaching contents and methods are the same, the students with high consciousness and high level of openness are more likely to achieve the good effectiveness of entrepreneurship education.

The study provides an important exploratory analysis of the state of entrepreneurship education in China. The results show the effectiveness of entrepreneurship education in China in matching students’ skill expectations with their skill acquisition. Thus, educational institutions need to review the existing curriculum and design a more appropriate curriculum to develop effective entrepreneurship programmes and enterprising individuals. The findings also indicate that the level of understanding on “what is entrepreneurship” is still low among the respondents selected in this study.

The government, especially the ministry of education and the education providers should take seriously into this aspect and consider revising the existing education system and process. Unless some action and changes are taken to improve the current education system to impart essential entrepreneurial knowledge and skills, the country may struggle to meet the upcoming new challenges brought by the ever changing political, economic, social and technological environment in today’s global economy.

5.1 Limitations and Future Research Suggestions

Although this research adds to the literature on the relationship between predictors and undergraduate students’ effectiveness of entrepreneurship education, like all research, several limitations exist that should be addressed in future research. First, this study was limited by the set of factors that were proposed to be linked to effectiveness of entrepreneurship education. There are many predictors that have been examined

in previous models of effectiveness of entrepreneurship education, the study just proposed the impact of personality dimensions on effectiveness of entrepreneurship education. However, as found in other studies effectiveness of entrepreneurship education are sometimes effected by other variables, such as, entrepreneurship education programme, teaching method, teacher's entrepreneurial experiences and so on. While this current study did not examine the relationship between education program and effectiveness of entrepreneurship education. So, future studies should capture their influence.

Secondly, future research can provide additional information and extensions to these results. For example, more information is needed on the mechanisms through which personality dimensions into effectiveness of entrepreneurship education. How to evaluate the effectiveness of entrepreneurship education is also a problem worthy of further discussion.

Finally, our study was conducted in a single university, just recruited participants of students, future research may recruit both other universities participants to collect more accurate data on education practices or use observational methods.

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