

Creative Self-efficacy Moderating the Relationship between Entrepreneurship Education Experiences and Innovative Behavior: Evidence from Tobacco Production

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Objectives: The purpose of this study was to explore whether entrepreneurship education experiences related to innovative behavior and what a role of creative self-efficacy in the relationship evidence from tobacco production industry. **Methods:** We surveyed a sample of 230 young employees from tobacco production industry in China, a wide range of position, regarding their entrepreneurship education experiences, creative self-efficacy and innovative behavior. Creative self-efficacy and innovative behavior were measured by subjective and self-described questionnaires. Regression analyses and correlate analyses were used to test the hypotheses. **Results:** (1) Entrepreneurship education experiences can predict the young employees' innovative behavior. (2) Creative self-efficacy moderates the positive relationship between entrepreneurship education experience and innovation behavior, and such relationship is stronger when creative self-efficacy is higher. **Conclusion:** The tobacco production is in urgent need of technological innovation, so how to improve employee innovation behavior is very important. The results of this paper provide some constructive opinion for the tobacco manufacturing enterprises to recruit new employees.

Key words: tobacco production; entrepreneurship education experiences; creative self-efficacy; innovative behavior

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The Chinese cigarette market is the largest in the world, with nearly 30 per cent of global consumers. China has implemented the tobacco monopoly system since 1982. Monopoly refers to the state monopoly in the production and sale of certain commodities. Tobacco and its products are a kind of special consumer goods, which have the function of stimulating nerve to human body, and also have some health

hazards. Therefore, China's Principle to the development of the tobacco industry is to meet consumption needs appropriately while improving quality, improving formulations and minimizing the impact on the health of consumers.

China's cities have seen a decline in smokers, many organizations ban smoking in the workplace but, but so far, China has not a national smoke-free legislation, not only the national smoking rate has

not decreased, in the last three years China's second-hand smoke victims increased by 200 million. In comparison with some other countries in the world, such as Japan, where studies have found that smoking prevalence is declining, heated tobacco products are becoming increasingly common and are expected to become a permanent substitute for smokers.¹ China is in desperate need of innovative technology to produce healthy alternatives to tobacco. There is no doubt about the serious harm caused by tobacco use. China is the largest consumer of tobacco, and many professionals have called for legislation at all levels of government to clarify responsibilities and promote integrated tobacco control in China. In the face of the challenges of smoking and health problems, the tobacco production industry must undergo technological transformation for the health of consumers. They are trying to find a new way of sustainable development with superior performance, good quality and good economic benefit. Clearly, this depends on the innovative capacity of tobacco production companies.

In a rapidly changing world, tobacco production enterprises' ability to respond flexibly to challenges depends on its ability to innovate. Employee innovation behavior is considered as an important component of organizational innovation capability. Tobacco production enterprises are so. In the current knowledge-based economy, globalization and the rapid volatility of world markets present challenges to the business world.²⁻⁴ To meet these challenges, employees need to be more flexible and creative. Therefore, employees' innovation behavior becomes more and more important. In an era of dynamic business environments and knowledge management, creating new knowledge and applying it flexibly to practical problems, in the words of the Peter Drucker, "making it productive" has a huge impact on the way we do business, and tobacco production enterprises need to focus fundamentally on creativity and innovation. Enterprises, including tobacco production enterprises are the "end-users" of graduates entering the labour market supply chain. In order to make their graduates more popular with enterpr

ises, Chinese universities attach great importance to entrepreneurship education. In reality, however, many companies find that not every college graduate is a good innovator.

In the light of this issue, this study was designed to find out whether entrepreneurship education in universities can facilitate innovation in the workplace, and what role does creative self-efficacy play in this process.

ENTREPRENEURSHIP EDUCATION

Schumpeter (1911) defined an entrepreneur is someone who challenges the existing economic order and benefits from the introduction of new products and services, or from the creation of new organizational structures, or from the development of new raw materials, creating new rules, order, etc.⁵

According to Hamilton and Harper (1994) entrepreneurs are those who take certain risks in order to take advantage of an invention.⁶ As we all know, an innovation-driven strategy is a necessary condition for China's rapid and healthy economic growth. It can no longer rely on the old ways and high energy consumption to solve problems, those with unique intuition, a way of thinking, a long-term vision, the ability to conceptualize ideas and see change as an opportunity to create value, and those in organizations that are able to apply new approaches to new situations, are valuable human resources. To this end, over the past decade, China's universities set off an entrepreneurship education wave. Teaching people to be entrepreneurs is impossible, but it can teach college students to think more broadly and to be more problem oriented. Creativity is not as unattainable as you think, and that even those who they're uncreative can be trained and learned to improve. There is no doubt that creativity is the foundation of entrepreneurship, so entrepreneurship education raises People's creativity. Creativity is also needed for employees within the tobacco manufacturing industry.

Entrepreneurship education, rather, should be seen as providing students with the skills and knowledge they need to do things independently, how to identify the root cause of problems, how to be desired by customers, how to build social networks, and how to come up with ideas, develop problem-solving plan and assess the organization's external environment, institutional and political issues. Entrepreneurship education is different from traditional teaching, he

latter can be detrimental to students' ability to creatively solve new problems.

This study regard listening to entrepreneurs' lectures, participating in entrepreneurship contests, and learning how to write a business plan all as entrepreneurship education experiences (EEE).

INNOVATIVE BEHAVIOR

Like organizational citizenship behavior, innovation can not be prescribed, but it has a direct impact on individual and team performance and is the basis of tobacco production enterprises sustainable development. Several scholars have defined the concept of individual innovation in different ways. West and Farr (1989) thought individual innovation behavior is the activity that individuals generate, introduce new ideas and processes and apply them to the tobacco production enterprises.⁷ Annouk and Rudy (2000) argued that Innovation was an individual's attempt to introduce new concepts, products, methods, and processes that bring good results to himself and his team.⁸ Kleysen and Street (2001) put forward five steps of innovation structure.⁹

Which factors lead to innovation behavior, which is the focus of previous research. Scott and Bruce (1994) found that the way individuals deal with problems, leadership style influence employees' innovative behavior through the cognition of organizational innovation climate, and job characteristics play a moderating role.¹⁰

Many experts focus on the impact of entrepreneurship education on students' willingness to start a business. However, statistics show that the rate of entrepreneurship among college graduates is very low. In fact, it is more important for college students to improve their innovative behavior and creativity through entrepreneurship education. There are a few researches on entrepreneurship education and the performance in the background. Entrepreneurship education has a positive effect on employment had been confirmed. Therefore, the purpose of this study is to explore whether there is a correlation between entrepreneurship education and innovation behavior in the tobacco industry. Many experts are concerned about

whether entrepreneurship education can help college students to improve their willingness to start a business. However, statistics show that the rate of entrepreneurship among college graduates is very low. In fact, entrepreneurial desire may have a great relationship with family background, personality and so on. Entrepreneurship education is to improve students' innovative behavior and creativity. And college graduates need to be creative in whatever they do after graduation, as technicians in the tobacco industry, for example, are faced with innovative ways to develop better cigarette alternatives.

For the reasons outlined above, we consider it logical to make the following hypotheses.

H1: There is a positive correlation between entrepreneurship education and innovative behavior.

CREATIVE SELF-EFFICACY

Generalized self-efficacy is for the first time, presented by Bandura (1982) as a belief, a firm determination to do what one wants to do, especially in prospective situations.¹¹ Self-efficacy is also personal belief that represents the degree to which an individual believes he or she can successfully accomplish a difficult task in a given environment.

According to Judge, et al (1994), self-efficacy is dynamic and can be changed directly.¹² From the perspective of social cognition, it is related to the performance in a particular field or the result of activities, is often an intrinsic factor in the achievement of results in the completion of general activities. People with high self-efficacy have stronger motivation are able to persist successfully achieve a goal and think positively when faced difficulties, high self-efficacy is related to effective problem solving and self-control. Multiple researchers have shown that people with high self-efficacy are more likely to achieve high performance.¹³⁻¹⁴ There are many different forms of self-efficacy, in different areas of work, for example in relation to professional behavior, called career self-efficacy has a positive impact on job career satisfaction. Two researchers (2009) pointed out pointed out that there is a certain positive correlation between occupational self-efficacy and salary even seven years late.¹⁵ People with a high self-efficacy level are more confident that their work will be done, will not give up easily in the face of difficulties, will not be satisfied with the status quo when reaching a

certain goal, will move towards a higher goal. The same goes for an employee who works in the tobacco industry. If he or she has a higher sense of self-efficacy, that means he or she is braver and more resourceful, so he or she can perform better.

For innovation, creativity is the first step, thus, the second stage is innovation that follows creativity, responding to the changing external environment and implementing the idea as a tangible solution to the problem. For example, new product testers in the tobacco manufacturing need to implement a alternative product for a specific customer group, or also give new processes, or improve on current products, which are innovative activities. In fact, in China, jobs in the tobacco manufacturing industry are well paid and relatively stable, many excellent graduates want to enter this profession, recruitment tests are very difficult, and innovative people can stand out and be successfully hired.

Self-efficacy may be a “key personal attribute [...] in the workplace”.¹⁶ Terje slatten (2014) identified factors that may be associated with creative self-efficacy.¹⁷ People with high creative self-efficacy are good at taking innovative actions, are much interested in creativity, are passionate about the creative process, are good at finding new ways to solve problems, rather than simply giving up.

Those who has high creative self-efficacy are more actively break out of the routine. Failure is inevitable in the process, but they can stick with it, try a new approach, break the routine, keep trying until success. Previous studies have demonstrated the effect of self-efficacy beliefs on the development and growth of creativity. Han, G.H. and Bai, Y.T. (2020) determined that creative self-efficacy can be associated with the individual creativity.¹⁸

As a whole, those college graduates who enter the tobacco industry with experience in entrepreneurship education, because they have learned in entrepreneurship education to persevere, to understand that innovation is a

responsibility, and that innovation will bring good results, this also promotes their innovative self-efficacy, so they persist innovative behavior, which eventually leads to more frequent innovative behavior. Based on the logic discussed above, we hypothesize that:

H2: Creative self-efficacy moderates the positive relationship between entrepreneurship education experience and innovation behavior, that is to say, the relationship between independent variables and dependent variables is more obvious when the creative self-efficacy is higher.

METHODS

Sample

The data needed for the study were collected by means of questionnaires. We asked 230 young workers from several tobacco manufacturing companies to volunteer for the survey. The volunteers filled out an online questionnaire about the study, which included items about the purpose of the study, age, sex, position and years of service. About half of the sample was female (50.5%, N = 116). Some of them are leaders in a team (20%, N = 46). Average age: 24.6 years (SD = 2.2). 8.0% of the samples worked for less than one year, 63.9% for one to two years, 22.1% for two to three years, and 6.0% for more than three years.

Measures

This study measured two variables: creative self-efficacy and innovation. The volunteers answered all the questionnaires. We used the five-point scale most commonly used in previous study, ranging from 1(strongly opposed) to 5(strongly agreed). The measurement of entrepreneurial education experience was first designed to fit this situation, with reference to relevant research.

Creative self-efficacy

The measurement of creative self-efficacy is shown in Table 1, and the reliability of the scale is also reported. The measurement items refer to the relevant studies.

Table 1
Items of Creative Self-Efficacy and α Creative Self-Efficacy Scale $\alpha = .84$

1	I am perfectly capable of generating new ideas.
2	I believe I can find creative ways to solve problems.
3	I am good at further developing the ideas of others.
4	I often can have good way to solve problems creatively.
5	I often do well in my study.
6	I am confident that I can try new ideas.
7	I often can find new methods to do old thing.
8	I feel I can resolve some problems with new method.
9	I am good at resolving problems with many methods.

Innovative Behavior

Innovative behavior scale in this paper was developed by Janssen, is a 9-item scale on individual innovation behavior. In this scale, there are three questions about creativity, three items focus on creativity implementation and three questions are designed for creativity realization.

EEE

We developed a sub-scale to measure EEE in this study which had six items as following: (1) How many courses of entrepreneurship, creative thinking and similar subjects did you take at university. (2) Did you have experience of working with classmates to start a business at university. (3) Did you participation in study activities organized by the department of entrepreneurship at university. (4) Did you listen to lectures given by entrepreneurs at university. (5) Did you have experience of participating in the innovation and entrepreneurship competition at the university.

(6) Did you have the experience of visiting enterprises, business start-up center, business incubator base and so on at the university. Rate it on a scale of 1(none) to 5(multiple, more than five), depending on frequency.

There may be a possibility that age, gender, and work experience may have a potential impact on behaviors. People of different physical maturity, job duration, or even gender may have different innovative behaviors, so before analyzing the data, we treated these variables as control variables and do not let them become the interference between independent variables and dependent variables in the theoretical model of this study.

Statistical Results

We first used the confirmatory factor analysis (CFA) in Amos version 25 to test the proposed model, to explore whether the three measurement structures of entrepreneurial education experience, creative self-efficacy and creative behavior are independent of each other.

Table 2
Confirmatory Factor Analysis (N = 230)

Models	χ^2 (df)	χ^2 /df	$\Delta\chi^2$ (Δ df)	SRMR	RMSEA	CFI
1-factor model	2837.02 (171)	16.70	2250.22 (3)***	0.17	0.19	0.51
2-factor model	1386.52 (169)	8.20	800.72 (2)***	0.12	0.13	0.70
3-factor model	565.80 (165)	3.51				

Results can be seen in Table2 and table 3.

Variable	M	SD	1	2	3
EEE	3.56	0.72	1	0.422**	0.355**
Creative self-efficacy	3.45	0.69		1	0.368**
Innovative behavior	3.25	0.56			1

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

Table 3 shows our results, including averages, standard deviations and correlations with variables. The statistical results show that there is indeed a positive correlation between creative self-efficacy and innovative behavior. There was also a positive correlation between the EEE and innovation behavior. Therefore, the theoretical hypothesis 1 proposed above is supported by the practical data.

Next, we use hierarchical regression analysis and process analysis to verify the first hypothesis we presented earlier. Hypothesis 1 suggests that there is a positive correlation between the EEE and innovation behavior. Therefore, we use the innovation behavior as the dependent variable, carries on the Hierarchical regression analysis. Furthermore, we looked at age, gender, and work experience as control variables, as shown in Table 1. In Step 2, EEE was entered (Model 2). In Step 3, we put in creative self-efficacy, which can be found in model 3. The fourth and final step I, the interaction term of EEE* creative self-efficacy was entered (Model 4).

Next, we use hierarchical regression analysis to further validate our first hypothesis we presented earlier. Hypothesis 1 holds that there is a positive correlation between EEE and innovation behavior. Therefore, we use the innovation behavior as the dependent variable, carries on the level regression analysis. At the same time, we used age, gender, and work experience as control variables, as shown in Table 1. Step two, add the EEE (model 2). An indepe

ndent variable is added to the statistical analysis in step 3, as can be seen in model 3. In the fourth and final stage, the interaction period of creative self-efficacy was added (model 4). Creative self-efficacy and EEE are both self-centered. As can be seen from table 3, when age, gender and work experience were not affected, the EEE had a significant positive effect on the dependent variable (innovation behavior) (model 2: $\beta = 0.34$; P & Lt; 0.001). These results show that hypothesis 1 is correct.

Our second hypothesis suggests that creative self-efficacy could moderate the relationship between EEE and innovative behavior, such that the relationship is weakened when creative self-efficacy is lower. Regression analysis helps us draw conclusions that the interaction of EEE \times creative self-efficacy significantly related to innovation behavior (Model 4, Step4: $\beta = 0.22$, $p < 0.01$). We conclude that creative self-efficacy moderates the relationship between EEE and innovative behavior. The relationship is more obvious when creative self-efficacy is high.

Hypothesis 2 suggests that creative self-efficacy is a moderating variable in the relationship between creative self-efficacy and innovation behavior. The higher the creative self-efficacy, the stronger the relationship (see table 3). We adopted the regression analysis, has obtained the verification. The statistics outcome told us that the interaction of EEE \times creative self-efficacy significantly predicted innovation behavior (MODEL 4, Step4: $\beta = 0.22$, P & Lt; 0.01). As the figure 1 show, we conclude that creative self-efficacy moderates the relationship between creative behavior and creative self-efficacy, and among young people in different positions in the

tobacco industry, those with creative self-efficacy, it is more obvious that entrepreneurship education plays a great role in innovation behavior. It's not hard to understand that young people who have received entrepreneurship education in have a greater

ability to innovate, which can help improve innovation behavior, and that new employees with high levels of creative self-efficacy are more likely to stick to their goals, have the motivation to achieve innovative behavior.

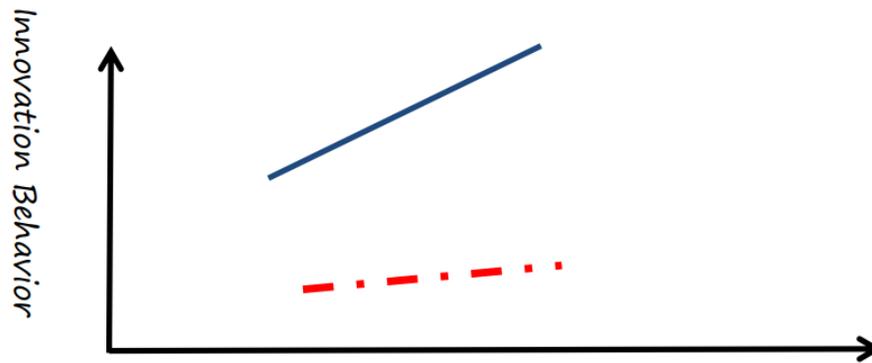


Figure 1
The Moderating Effect on the Relationship between EEE and Innovative Behavior

DISCUSSION AND IMPLICATIONS

Conclusion and Discussion

In recent years, various industries are facing the pressure of digital transformation and the COVID-19 epidemic has exacerbated the changing dynamics and instability of the international economy, as well as faster changes in market and customer demand, in this era of innovation, tobacco production enterprises need to shoulder the important responsibility of innovation, the need to speed up management and technology innovation. Tobacco production enterprises have realized that their sustainable competitiveness depends on their rapid response to the business environment, which depends to a large extent on the innovative behavior of their employees.

In this study, we used samples from different positions in tobacco industry to prove that EEE is a positive predictor of young employees' innovation behavior in tobacco manufacturing enterprises, which provides a positive conclusion for entrepreneurship education. This article also demonstrated that entrepreneurship education is necessary and valuable in universities, by successfully imparting some of the ideas and skills of entrepreneurship education

on to these young graduates who have been systematically trained, not only can improve their personal quality, but also can improve the results of work. Creative self-efficacy is not necessarily the result of entrepreneurship education, but it does enhance the role of entrepreneurship education. Among the young employees with higher creative self-efficacy, creative self-efficacy has a bigger influence to innovation behavior.

In this age of technology, as with tobacco manufacturing, innovation is needed in all walks of life, and it is a big task for universities to teach and enhance the most valuable creativity of undergraduates. We should pay more attention to the entrepreneurship education than ever. We believe that entrepreneurship education is not only about how to establish and manage a business, but also with the education idea of cultivating students' entrepreneurship and a brand-new teaching method different from the traditional one.

Innovation is essential, not only for the development of new products and technologies, but also for solving any problem in tobacco production enterprises, or even for any occupation. In a word, undergraduate students with higher innovative behavior are more likely to innovate.

Organizations such as the United Nations Tobacco Association and the World Trade Association

required that cigarette packaging be marked as harmful to health, and our country is also strictly required to tell smokers about the health hazards of tobacco. The FDA has the authority to communicate with smokers through inserts and should consider adopting inserts to promote smoking cessation.¹⁹ In this context, technological innovation and employees' innovative behavior are of great importance to the tobacco production enterprises, which will affect the implementation process of organizational performance. This study found that the innovation behavior of college students can be predicted after entering the enterprise. Therefore, undergraduate students should receive entrepreneurship education to improve their innovation ability before entering the tobacco production enterprise.

Researchers and practitioners generally believe that innovation behavior has a significant impact on individual behavior and work outcomes, as well as on organizational change and organizational performance, including in tobacco production enterprises. In the past long time, the innovation behavior has been paid more and more attention by the organization behavior research including the tobacco production enterprise. The current era is characterized by uncertainty and complexity, the ability of personal innovation is of great importance to organizational performance and personal career success. This study also verified that undergraduate students with entrepreneurial education experience have higher innovative behavior after entering the enterprise, therefore, it is necessary for college students to receive entrepreneurial education.

Tobacco companies are facing digital transitions, product changes and changing consumer demand, all of which require a creative team. Knowing what's affecting young employees' innovation behavior, tobacco production enterprises can be targeted to train young employees. Of course, the experience of entrepreneurship education is no doubt also a basis for choice. This study finds that creative self-efficacy is an important symbolic factor. Creative self-efficacy is belief and confidence on the creativity, which has different levels of factors as determinants to creative self-efficacy: leader-related, self-related and job-related.²⁰

Tobacco manufacturing enterprises should create a creative climate that can stimulate curiosity, encourage and advocate new employees to have responsibility and interest in creative behavior, and persist in pursuing creative behavior. This is also the best way for tobacco manufacturers to maintain their competitive advantage.

The ability to start a business is not innate. It needs to be taught. Mastering certain methods, cultivating certain interests and giving training opportunities are the initial conditions for forming entrepreneurial thinking. Entrepreneurship education in colleges and universities should help students form their initial entrepreneurial intention by cultivating their practical ability and creativity. It is a good way to set up a student innovation lab, let students attend lectures, participate in various entrepreneurial competitions, and let students and entrepreneurs or teachers run companies together. It is also a common practice in many colleges and universities.

Of course, on the way to reducing the harm caused by tobacco, in China, tobacco manufacturing industry has used traditional Chinese medicine to explore the use of appropriate Chinese medicines or their preparations in cigarettes to develop new products that can reduce the harm to the respiratory system, the new products do not affect the smell of cigarettes, no new side effects, they are welcomed by consumers. So, in fact, young innovative people in the tobacco manufacturing industry also need to have more comprehensive knowledge.

Implications of the Results

As society recognizes the health risks of smoking, the tobacco industry continues to make use of new science and technology in an effort to reduce the level of harm caused by cigarettes, the business environment of tobacco production enterprises is increasingly changeable and complex, it is the innovative behavior of the young people that the organization expects more. Individuals need to take more responsibility, learn to think independently, break through the routine to solve the problem, using divergent thinking to find more solutions. When managers of tobacco companies read this article, they prioritize candidates with potential for innovation, focusing on graduates who took entrepreneurship courses in university.

In the past, many researches focused on how entrepreneurship education influence to students' entrepreneurial intention. In fact, the rate of college

students' entrepreneurship is not very high, but the significance of entrepreneurship education should not be denied. College students can learn the sense of innovation, learn to think independently and use creative thinking to solve the problems in the actual work after entrepreneurship education. Therefore, the contribution of this study to entrepreneurship education is to broaden the evaluation perspective of the effectiveness of entrepreneurship education.

The study also tells college students that receiving entrepreneurship education is very helpful in developing their personal qualities, and that they must actively participate in activities such as entrepreneurship competitions and seminars for entrepreneurs during their college stage, so as to understand entrepreneurship, applying entrepreneurial skills in enterprises.

This research has some limitations that future researchers could consider making perfect. Firstly, research methods can be more dynamic rather than limited to self-reported measurements at an event point, a limitation that may also be a problem for common method variance. Future researcher could also consider how changes in the tobacco industry's consumers are imposing innovative requirements on managers within tobacco companies.

Conflict of Interest Disclosure Statement

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