WHICH BACKGROUND OF UNIVERSITY STUDENTS HAVE MORE HIGHER ENTREPRENEURIAL INTENTIONS AFTER RECEIVING ENTREPRENEURSHIP EDUCATION?

[1]JEN-CHIACHANG, [2]MING-ROU WANG

[1]Professor, Graduate Institute of Technological & Vocational Education, National Taipei University of Technology, Taiwan
[2]Master Student, Graduate Institute of Technological & Vocational Education,
National Taipei University of Technology, Taiwan
E-mail: [1]jc5839@mail.ntut.edu.tw, [2]t110498005@ntut.org.tw

Abstract - Many studies in the past have shown that students in higher education who receive entrepreneurship education will increase their entrepreneurial intentions. Some studies even suggest that students in business schools are more likely to start a business after receiving entrepreneurship education than students in other schools. However, which students from which backgrounds have higher entrepreneurial intentions after receiving entrepreneurial education? Based on the above, the purpose of this study wants to examine the key backgrounds that influence university students' entrepreneurial intentions. In this study, 702 university students were randomly selected from the 60 technology and science universities in Taiwan, and using regression analysis, the research found that: 1. The most important factors affecting students' entrepreneurial intentions are entrepreneurial attitudes and innovative behaviors; 2. Undergraduates who participated in off-campus internships had a positive impact on their entrepreneurial intentions; 3.Entrepreneurship education does not have a significant impact on entrepreneurial intentions, only freshmen and sophomore students received entrepreneurial education more effectively than junior and senior year students.

Keywords - Entrepreneurial Intention, Entrepreneurial Attitude, Entrepreneurial Education, Innovative Behavior

I. INTRODUCTION

Entrepreneurship education is an educational model that integrates various educational concepts such as innovation, entrepreneurship, and literacy in higher education. Its main content is to enhance the awareness of innovation and entrepreneurship, shape the spirit of innovation and entrepreneurship among university students, improve the ability of innovation and entrepreneurship, and cultivate the entrepreneurial spirit. In 2006, UNESCO defined entrepreneurship education as a formalized approach to educating and training anyone interested in participating in and contributing to the economic development of society through a series of entrepreneurship awareness programs (Office & Unesco, 2006). Entrepreneurial education is an educational activity that aims to develop individuals with the potential to innovate socially, culturally, socioeconomically, and politically, to create new spaces for development, and to provide opportunities for others and society (Zou, 2022).

Entrepreneurship Education (EE) refers to the combination of various forms of knowledge transfer (Bird, 1988).Anjum et al. (2018) mentioned that entrepreneurship education can improve students' entrepreneurial intentions by increasing their knowledge to improve their perceived feasibility (Anjum et al., 2018). In addition, entrepreneurship education not only improves students' entrepreneurial knowledge and skills, but also significantly increases students' entrepreneurial intentions (Martin et al., 2013), and two scholars, Rideout and Gray, commented that there is a significant relationship between entrepreneurship education and entrepreneurial intentions (Rideout and Gray, 2013).

Based on the above, there were many studies in the past have shown that students in higher education who receive entrepreneurship education will increase their entrepreneurial intentions. Some studies even suggest that students in business schools are more likely to start a business after receiving entrepreneurship education than students in other schools. However, which students from which backgrounds have higher entrepreneurial intentions after receiving entrepreneurial education? Do students from different backgrounds who receive entrepreneurship education at the same university really have the same educational outcomes? Even if they are in the same college, will their entrepreneurial intentions be the same when they receive entrepreneurial education? Based on the above, the purpose of this study wants to examine the key backgrounds that influence university students' entrepreneurial intentions.

II. LITERATURE REVIEW

2.1 Entrepreneurial Intention

Entrepreneurial intention could be referred as a belief that an individual can prepare for entrepreneurial action and then implement it (Krueger et al., 2000). Entrepreneurial intention begins with the ideas and motivations that emerge in the mind of an entrepreneur before he or she is ready to start a new business or is in the process of starting one. After the intention is formed, the entrepreneur will pay attention to and discover entrepreneurial

opportunities (Krueger et al., 2000). In other words, intention refers to the amount of effort an individual is willing to put into performing a behavior (Matthews, Eilert, Carlson, & Gentry, 2020). Therefore, entrepreneurial intention can guide critical strategic thinking and decision making, as well as the future outcomes they expect from entrepreneurial behavior (Bird, 1992). Entrepreneurial intention is subject to change due to many factors and is subject to change due to many factors also, such as personal, psychological, environmental, cognitive, etc. Therefore, this study examines the key backgrounds that influence university students' entrepreneurial intentions, including gender, grade, family's business experience, study in business college, select entrepreneurial education et al.

2.2 Entrepreneurship Education and Entrepreneurial Intention

There have been many previous studies on the topic of entrepreneurship, but many of them have failed to clarify the contradictions regarding whether individuals can learn entrepreneurship or whether entrepreneurship is a natural skill (Henry, Hill, & Leitch, 2005). Some studies have confirmed that some aspects of entrepreneurship can be appropriately provided to students to equip them with the necessary competencies and qualities (Chang, & Shih, 2021; Jones, & English, 2004; Matlay, 2005; Riani, 2014). Therefore, educators in higher education believe that entrepreneurship education (EE) develops entrepreneurial literacy and knowledge in a self-employment model. In Jones & English's (2004) said EE is a process to aid individuals with the skills and aptitude to spot economically obtainable chances and the expertise, perceptiveness, and self-efficacy to act on them (Jones & English, 2004). Bakar et al. (2015), also agree that EE fosters the individual's entrepreneurial level by enhancing their decision-making and entrepreneurial abilities. A variety of research evidence from various resources seems to advise that those individuals who enroll in any kind of entrepreneurship educational program in comparison to those who are not enrolled show a high tendency to start new business ventures (Galloway, & Brown, 2002; Klofsten, 2000; Wang, 2020). Global Entrepreneurship Monitor's (GEM) recent study discovered that in cheering productive youth entrepreneurship, EE in the academic curriculum is a playing important factor. The report suggests that a perception of experimental learning gives students favorable environments to study from the skillful world that aids them in their entrepreneurial expedition (Todd, & Javalgi, 2007). Since the year 2011 in Taiwan, a large number of students from higher education showing more willingness to study innovative& entrepreneurship courses, to promote entrepreneurship culture in Taiwan, the Ministry of Education(MOE) of Taiwan also fostered EC-SOS in 2020, in addition, by 2020 MOE also set up Taiwan's major start-up platform Startup Terrace to provide students with practical entrepreneurial experience, giving them chance to experience a real startup creation process (Ministry of Education, 2023). According to the above discussion, the students become more optimistic and confident in adopting entrepreneurship in their future career by getting the essential education, knowledge, and skill through a good entrepreneurship course and training (Thompson, 2009). However, besides entrepreneurial education could enhance the student's entrepreneurial intention, weather the factors also effect their intention or not, such as personal, psychological, environmental, cognitive, etc. (Matthews, et al., 2020). Therefore, this study examines the key backgrounds that influence university students' entrepreneurial intentions, including gender, grade, family's business experience, study in business college, select entrepreneurial education et al.

III. METHODOLOGY

3.1 Research Framework

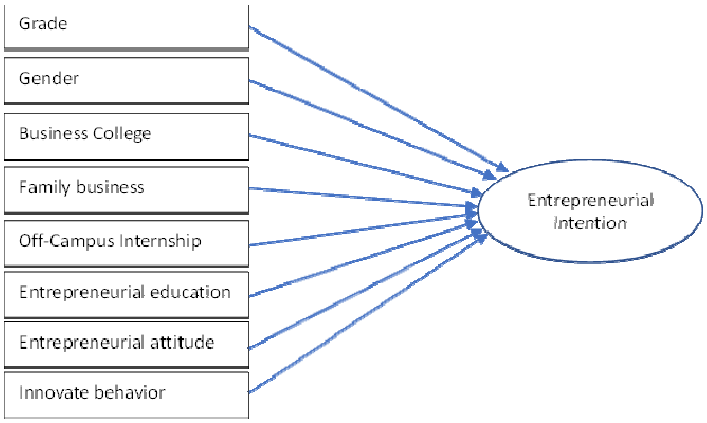


Figure 1: The research framework

The purpose of this study is to examine besides entrepreneurial education, the key backgrounds that influence university students' entrepreneurial intentions, including gender, grade, family's business experience, study in business college, select entrepreneurial education et al. The research framework was as proposed as Figure 1. The regression analysis was used to analysis the prediction of above variables on entrepreneurial intention.

3.2 Samples participate

This study examines the key factors that influence university students' entrepreneurial intentions. According to the calculations of Creative Research Systems, a total of 272,256 students from 60 universities of science and technology across the Taiwan for the questionnaire survey at a 95% confidence level with a 4% margin of error. Therefore, 880 students from 60 universities of science and technology were randomly selected. After excluding invalid questionnaires, a total of 702 valid questionnaires were collected in this study, with a valid recovery rate of 79.77%.

Area	Parameter	Percentage	Survey samples	Valid samples	Valid recovery rate
Northern	104,022	38.21%	398	389	98%
Central	67,868	24.93%	195	122	63%
Southern	96,735	35.53%	277	182	66%
Eastern	3631	1.33%	10	9	90%
Total	272,256	100%	880	702	79.77%

Table1 The different area sampling of distribution in Taiwan

3.3 Instruments

A. Entrepreneurship Education Effectiveness Scale

The scale was designed by Mwiay (2014) in a survey for 452 university graduates in the United Kingdom, with five questions and a raw reliability coefficient of Cronbach's α of .87 (Mwiya, 2014). Thisscale covers whether the entrepreneurship curriculum improves students' entrepreneurial attitudes, motivation, skills, entrepreneurial knowledge, and the ability to identify opportunities, and enables students to understand the preparation for entrepreneurship. The Likert-type seven-point scale is used. The higher the score, the better the learning outcome of the student after taking entrepreneurship education; conversely, the lower the score, the less effective the learning outcome.

B. Entrepreneurial Attitude Scale

Liñán & Chen (2009) used the Entrepreneurial Attitude Scale (EAS) proposed by Liñán & Chen (2009) to survey 511 Taiwanese and Spanish students on their attitudes toward entrepreneurship across countries based on the theory of planning behavior. The Likert-type seven-point scale was used to measure the entrepreneurial attitudes of the study participants, with higher scores indicating a more positive entrepreneurial attitude and lower scores indicating a lower entrepreneurial attitude.

C. Innovative Behavior Scale

The original reliability coefficient of Cronbach's α was .95-.96. The Likert-type seven-point scale was used to measure the innovative behaviors of the participants. The higher the score, the more innovative the participant is.

D. Entrepreneurial Intention Scale

This study used the Entrepreneurial Intention Scale proposed by Liñán and Chen (2009), which is based on the Theory of Planning Behavior (TPB). The Likert-type seven-point scale was used to measure the entrepreneurial intentions of the study participants, and the higher the score, the stronger the entrepreneurial intention, and the opposite, the lower the entrepreneurial intention.

IV. RESULTS

4.1 The relationship between entrepreneurial and the other factors

Pearson's product-moment correlation was used in this study to explore the relationship between different variables. From the Table 2, the correlation between senior students and entrepreneurial intention is negative relationship, nevertheless, the entrepreneurial intention is positive correlation with freshman students, sophomore students, male students, business college students, the students with family business, internship, entrepreneurial attitude, and entrepreneurial behavior. Furthermore, there are highest correlation among entrepreneurial intention, entrepreneurial attitude, and entrepreneurial behavior.

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1.entre_intentio	1.000											
2.freshmen	.066*	1.000										
3.sophomore	.085**	-	1.000									
4.junior	.010	-	-	1.000								
5.senior	-	-	-	-	1.000							
6.gender	.063*	-.002	-.032	.031	-.002	1.000						
7.business	.079**	-.032	.138**	-.012	-.083	-	1.000					
8.family_busine	.251**	.027	.072	.028	-.097	.032	.065*	1.000				
9.internship	.200**	-	.084*	.025	-.003	-.004	.046	.184**	1.000			
10.entre_educat	.240**	-.075*	.058	.110**	-.111	.053	.105**	.245**	.315**	1.000		
11.entre_attitud	.811**	.070*	.045	-.010	-.064	.027	.098**	.253**	.174**	.245**	1.000	
12.inno_behavi	.739**	.019	.028	.001	-.033	.025	.079**	.218**	.168**	.169**	.748**	1.000

Table2The variables correlation matrix in this research
Note: *p<.05, ** p<.01, ***p<.001

4.2 The regression analysis of entrepreneurial intention as a validated variable

In this study, regression analysis was used to explore the predictive variables affecting entrepreneurial intention. This study considers entrepreneurial intention as the dependent variable. The background variables of the study sample were considered as predictor variables, including grade level, gender, business school, entrepreneurial experience of family members, and whether they participated in an externship. After regression analysis, as shown in Table 3, all key backgrounds explained 70.3% of the variance and the regression effect reached the significant level (F=166.805, p<.05). Freshman year (β=.045), sophomore year (β=.066), internship (β=0.41), entrepreneurial attitudes (β=0.561), and innovative behaviors (β=0.300) all had a significant and positive effect on entrepreneurial intentions.

The results after regression analysis, we can find:

1) Freshmen and Sophomore students have a positive effect on entrepreneurial intentions.
2) Students who have participated in off-campus internships are more likely to have higher entrepreneurial intentions.
3) Students with higher entrepreneurial attitudes and innovative behaviors also have higher entrepreneurial intentions.
4) Entrepreneurial attitude is the most important factor affecting entrepreneurial intention.
5) Students' entrepreneurial intentions are not affected by their gender, their family's experience in entrepreneurship, or whether they are in business school.

DV=Entre. Intention	Unstandardized coefficients		Beta	t	p	Collinearity	
	B	Se				tolerance	VIF
(constant)	-4.282	.714		-5.994	.000		
Freshman	1.098	.529	.045	2.077*	.038	.887	1.127
Sophomore	1.012	.349	.066	2.897**	.004	.826	1.210
Junior	.526	.304	.039	1.731	.084	.825	1.212
Gender	.471	.259	.038	1.817	.070	.967	1.034
Business college	-.086	.268	-.007	-.322	.747	.939	1.065
Family business	.264	.272	.021	.968	.333	.883	1.132
Internship	.558	.303	.041	1.845*	.056	.852	1.173
Entre_education	.373	.305	.028	1.223	.222	.819	1.221
Entre_attitude	.665	.038	.561	17.546***	.000	.415	2.408
Inno_behavior	.311	.032	.300	9.617***	.000	.436	2.295
Whole Model	R^2= .707, adj R^2= .703 F (10, 691) =166.805, (p=.000)						

Table3An analysis of regression of the entrepreneurial intention as dependent variable
Note: *p<.05, ** p<.01, ***p<.001

V. CONCLUSION

5.1 The most important factors affecting students' entrepreneurial intentions are entrepreneurial attitudes and innovative behaviors

In this study, five background variables (including grade, gender, whether they were enrolled in business school, whether their family members had entrepreneurial experience, and whether they participated in off-campus internship), and entrepreneurial attitude and innovative behavior were considered as predictor variables in the regression analysis with entrepreneurial intention as a valid variable. It was found that the factors affecting students' entrepreneurial intentions were freshmen, sophomore, and off-campus internship students had a

positive influence on entrepreneurial intentions, and entrepreneurial attitude and innovative behavior were the most important factors affecting entrepreneurial intentions.

5.2 Undergraduates who participated in off-campus internships had a positive impact on their entrepreneurial intentions

Many previous studies indicate that receiving an entrepreneurship education program will help increase entrepreneurial intentions. However, this study found that students' participation in off-campus internships had a much greater effect on entrepreneurial intentions than receiving entrepreneurship education. In other words, allowing students to participate in off-campus internships to gain practical experience and to learn how the industry makes money through services, processes or products has a high positive impact on their entrepreneurial intentions.

5.3 Entrepreneurship education does not have a significant impact on entrepreneurial intentions, only freshmen and sophomore students received entrepreneurial education more effectively than junior and senior year students

Overall, entrepreneurship education does not affect a student's intention to start a business, but only freshmen and sophomores who receive entrepreneurship education have a significant impact on entrepreneurial intention, while juniors and seniors have no impact. This study found that freshman and sophomore students positively influence entrepreneurial intentions. The study further analyzed that freshmen and sophomores also have a significant impact on entrepreneurial intentions after receiving entrepreneurship education, with sophomores having a slightly higher impact than freshmen. In other words, we should not only encourage students to take entrepreneurship education in higher education, but also explicitly encourage sophomore students to take it.

ACKNOWLEDGEMENTS

This study was partially funded by the Ministry of Science and Technology of Taiwan, with grant number MOST 111-2410-H-027-020 and NSTC 112-2410-H-027 -021.

REFERENCES

[1] Anjum, T., Ramzani, S. R., Farrukh, M., Raju, V., Nazar, N., & Shahzad, I. A. (2018). Entrepreneurial intentions of Pakistani students: The role of entrepreneurial education, creativity disposition, invention passion & passion for founding. Journal of Management Research, 10(3), 76-100.

[2] Bakar, R., Islam, M. A., & Lee, J. (2015). Entrepreneurship education: Experiences in selected countries. International Education Studies, 8(1),88-99. doi:10.5539/ies. v8n1p88

[3] Bilgiseven, E. B. (2019). Analysis of factors leading to entrepreneurial intention. Procedia Computer Science, 158, 885-890.

[4] Bird, B. (1988). Implementing entrepreneurial ideas: The case for intention. Academy of Management Review, 13(3), 442-453.

[5] Chang, J-C. & Shih, H-F. (2021). Entrepreneurship education for the next generation of higher education in Taiwan. Next Generation Entrepreneurship, doi: https://doi.org/10.5772

[6] Entrepreneurship education in UK business schools:Conceptual, contextual and policy considerations. Journal of Small Business and Enterprise Development,12 (4), 627-643. doi: 10.1108/14626000510628270

[7] Galloway, L., & Brown, W. (2002). Entrepreneurship education at university: a driver in the creation of high growth firms. Education and Training, 44(8/9), 398-405.

[8] Henry, C., Hill, F., & Leitch, C. (2005). Entrepreneurship education and training: can entrepreneurship be taught? Education & Training, 47 (3), 158-169. doi: 10.1108/00400910510592211

[9] Jones, C., & English, J. (2004). A contemporary approach to entrepreneurship education. Education & Training, 46(8/9), 416-423. doi: 10.1108/00400910410569533

[10] Klofsten, M. (2000). Training entrepreneurship at universities: a Swedish case. Journal of European Industrial Training, 24(6), 337-44. doi: https://doi.org/10.1108/03090590010373325

[11] Krueger, JR. N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. Journal of Business Venturing, 15, 411–432.

[12] Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. Journal of Business Venturing, 15(5), 411-432. https://doi.org/https://doi.org/10.1016/S0883-9026(98)00033-0

[13] Matlay, H. (2005). Entrepreneurship education in UK business schools: Conceptual, contextual and policy considerations. Journal of Small Business and Enterprise Development,12 (4), 627-643. doi: 10.1108/14626000510628270

[14] Matthews, L., Eilert, M., Carlson, L., & Gentry, J. (2020). When and how frontline service employee authenticity influences purchase intentions. Journal of Business Research, 114, 111-123.

[15] Ministry of Education (2023). Innovative and entrepreneurial education program for colleges and universities. https://sme.moeasmea.gov.tw/startup/modules/rproject/detail/?sId=2

[16] Riani, Asri. (2014). Entrepreneurship Education Program (EEP) activities to improve the entrepreneurship attitudes and business attitudes of the entrepreneurs and Batik Artisans in Surakarta and Sragen. International Journal of Computer Networks and Communications Security, 2, 109-112.

[17] Rideout, E. C., & Gray, D. O. (2013). Does entrepreneurship education really work? A review and methodological critique of the empirical literature on the effects of university-based entrepreneurship education. Journal of Small Business Management, 51(3), 329-351.

[18] Thompson, E. R. (2009). Individual entrepreneurial intent: Construct clarification and development of an internationally reliable metric. Entrepreneurship: Theory and Practice, 33(3) 669-694. https://doi.org/10.1111

[19] Todd, P. R., & Javalgi, R. R. G. (2007). Internationalization of SMEs in India: Fostering entrepreneurship by leveraging information technology. International Journal of Emerging Markets, 2(2), 166-180. http://dx.doi.org/10.1108/17468800710739234

[20] Wang, X. (2020). Research on enhancing the effectiveness of entrepreneurship education with entrepreneurship practice as a carrier. Creative Education, 11, 275-284. doi: 10.4236/ce.2020.113021.

[21] Zou, J. (2022). Intelligent course recommendation based on neural network for innovation and entrepreneurship education of college students. Informatica, 46(1), 95-100.

★★★