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Relationships Between Entrepreneurial Education and Entrepreneurial Intentions and Activities

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Entrepreneurial education (EE) is a powerful instrument which aims to foster entrepreneurship among students in higher education (HE). The interest in research for EE is growing, as well as its antecedents and consequences. This study investigates the association between EE and entrepreneurial intentions (EI) and entrepreneurial activities (EA), empirically testing the proposed relationship in the context of students of HE in Italy. This study utilizes contingency tables and chi-square tests to establish the association between EE and EI and between EE and EA. The results found that EE is significantly associated with both EI and EA.

Keywords: entrepreneurship education, entrepreneurial mindset, entrepreneurial intentions, entrepreneurial activity, cross-tabulation, chi-square test of independence, higher education

Introduction

The study of entrepreneurship education (EE) has always been a crucial issue. The impact of EE on the knowledge, skills, and attitudes of students has frequently been investigated (Gibb, 1993; Vesper, 1997). The importance of this field of research has been emphasized by the European Commission which referred to a "sense of initiative and entrepreneurship" as one of the eight key competencies that all individuals need for personal fulfilment, social inclusion, and employment in the economy (European Commission, 2006a). The importance of EE in creating growth in a national economy is a shared belief (Fayolle & Gailly, 2008). Moreover, research suggests that EE can bring many positive changes in the society and economy of a country (Hameed & Irfan, 2019) and represents one of the main engines for economic growth (Rasmussen & Sørheim, 2006), as it fosters the entrepreneurial potential of young people, help them to develop the ability to capitalize on opportunities, enhance skills (Peterman & Kennedy, 2003) and entrepreneurial attitude and intention (Sanchez, 2013). The development of these key competencies also has impacts on the perception of students concerning EE and on other skills and competencies (Peterman & Kennedy, 2003) such as creativity, planning ability, financial literacy, marshalling of resources, managing ambiguity, and teamworking (Moberg et al., 2014).

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It is proposed that students who have attended entrepreneurship courses are three to six times more likely to start a business at some point later in life than those who do not receive EE (European Commission, 2014). In this context, the educational system has been encouraged to focus on equipping students with entrepreneurial skills and competencies (Smith, Flowers, & Larkin, 2009), that go beyond the intention to start a business later in life. Therefore, EE can be considered as methods and activities capable of turning opportunities and ideas into value, and to foster the development of knowledge, capabilities, and experiences that might be useful to start an entrepreneurial value-creating process (Drucker, 1985; Gartner, 1988; Shane & Venkataraman, 2000; European Commission, 2006b).

Given the importance of EE, scholars have long been interested in the antecedents and consequences of EE under different contexts and settings. One such intended consequence of EE is to stimulate an entrepreneurial mindset (EM) and eventually entrepreneurial intention (EI) and entrepreneurial activity (EA). Gartner (1985) proposed that entrepreneurs constitute a highly heterogeneous group of people that defies a common definition and, therefore, common predictors such as personality. Moreover, despite the research concerning EE being rich and full of interesting contributions, few studies refer to non-management programs in higher education (HE). Thus, this study shall focus on providing evidence for one of the most common predictors for EI and EA which is EE in a non-managerial department.

The findings of this study shall highlight whether EE had any association with EI and EA, which shall help academicians and HE managers assess the effectiveness of didactical strategies. This study shall proceed to first briefly discuss the literature background and hypothesis development. Sample selection and methodology shall be discussed in the next section followed by findings analysis, discussion, and finally, limitations of the study.

Background Analysis: EE, EM, EI, and EA

EE entails pedagogical education for teaching entrepreneurial attitudes, skills, and behaviors (Fayolle, Gailly, & Lassas-Clerc, 2006). Despite the huge interest in this field, EE research is considered fragmented (Fayolle, 2013) and poor definitions and misalignment still exist (Zhang, 2020). In fact, in the past educational programs and courses about entrepreneurship focused on the “how” and the “why” of setting up a business with a limited engagement of students (Pittaway & Edwards, 2012), and today EE is often considered as a means to create start-ups, while it is much more than this.

As long as the research in EE goes on, many scholars argue that different learning and teaching methodologies can significantly change entrepreneurial intentions through the development of an EM (Linton & Klinton, 2019). EM might be defined as the ability to benefit from uncertainty (Ireland, Hitt, & Sirmon, 2003), the ability to identify and exploit opportunities (McMullen & Kier, 2016), and the ability to think, plan, and act in unusual ways (Davis, Hall, & Mayer, 2016). Thus, EM is considered a way of thinking and behaving that welcomes and outweighs challenges and encourages students to learn from mistakes in order to improve their skills. Given these considerations, EE should entail pedagogical education for teaching how to develop EM and for whom it is being developed. Yet, even though the research in the field is focusing on how to innovate EE, for instance by adopting smart technologies (Ahmed et al., 2019), the process of developing EM in higher education is limited (Bandaranaike, Quijano, & Navarrete-Baez, 2020). We argue that a successful EE would lead to the development of EM, which would in turn lead to EI.

EI is defined as the conscious state of mind that precedes actions and directs attention towards a goal such as starting a new business (Bird, 1988; Krueger & Carsrud, 1993). EI can also be defined as the self-

acknowledged conviction by a person that he/she intends to set up a new business venture and consciously plan to do so at some point in the future (Thompson, 2009).

EI is entrepreneurial anticipation that will either be realized in the future in the form of starting a new business or is already realized in the form of entrepreneurial activities (EA) in the past. Here EA can be described as human actions in pursuit of value creation by expanding to new products, processes, or markets, or significantly enhancing goods/services, and processes (Organization for Economic Cooperation and Development, 2002). Thus, beyond future entrepreneurial intentions, the development of a successful EM can be reflected also by EA that respondents have already carried out when answering the survey.

Given the positive role of EE in developing EM and then EI, we can propose that a successfully implemented EE would lead to the development of EM which would reflect in terms of EI or that have already been expressed through EA. Thus, we form the following two hypotheses.

H1: There exists an association between EE and EI.

H2: There exists an association between EE and EA.

Sample and Methodology

The study aims to understand whether EE in HE is or is not associated with the variables EI and EA, which are expected to foster EM. To collect useful data to speculate on the research questions of the paper, the methodology of the survey has been adopted. We designed a survey addressed to a sample of students from the Department of Communication studies of University of Teramo, Italy. This department offers Bachelor's degrees, Master of arts, and Master of sciences in the field of communication and pays great attention to EE, by embedding in each offered program classes or seminars devoted to this kind of educational initiatives, to engage students in every other different initiative that aims at developing skills, capacities, and experiences that can enhance EI and EA.

To estimate the three nominal variables under investigation, which are EE, EA, and EI, three separate questions were used, one for each variable. Students have been invited to answer either "yes" or "no" to three items to approximate the three aspects under investigation through three binomial variables.

Table 1

The Specific Items Surveyed

Variable	Item/question	Answers
EE (entrepreneurial education)	Have you ever attended educational activities about entrepreneurship during the program you are currently enrolled in?	Yes/No
EA (entrepreneurial activity)	Do you, on your own or together with others, operate a business today?	Yes/No
EI (entrepreneurial intentions)	Are you at the moment trying to set up a business?	Yes/No

The data collection was conducted online, during 2021. We engaged at least one class for each year of all BSc and MSc and selected the students based on their attendance to the lectures. We collected 329 responses which represent the sample size for this study.

First, two-dimensional cross-tabulation tables or contingency tables are used to display the frequency distribution of respondents. Cross-tabulation tables are usually used to analyze categorical (or nominal) data, as in this study and can provide a wealth of information about the relationship between the variables. Then, Chi-square test is used to determine whether the two variables are independent or not. If the two variables are related, then the results of the statistical test will be "statistically significant" or $p < 0.05$, allowing us to state that there is some relationship between the variables.

Results

Results of contingency table for the variables entrepreneurial education and entrepreneurial activity are depicted in Table 2. At first glance there seems to be a reasonable difference between the frequencies of people who started a business or have not started a business among the groups who in past received entrepreneurial education or have not. 42% of the respondents who had taken an entrepreneurial education started a business as compared to almost 14% of respondents who did not take entrepreneurial education in the past, as evident by Table 2.

Table 2

Contingency Table Between EE and EI

			Are you at the moment trying to set up a business? (EI)		Total
			1 (No)	2 (Yes)	
Have you ever attended educational activities about entrepreneurship during the program you are currently enrolled in? (EE)	1 (No)	Count	180	44	224
		% within Have you ever attended educational activities about entrepreneurship?	80.4%	19.6%	100.0%
	2 (Yes)	Count	70	35	105
		% within Have you ever attended educational activities about entrepreneurship?	66.7%	33.3%	100.0%
Total		Count	250	79	329
		% within Have you ever attended educational activities about entrepreneurship?	76.0%	24.0%	100.0%

To test whether these differences are significant, we utilize the chi-square test for association whose results are displayed in Table 3. None of the cells had an expected count of less than five.

Results of the chi-square test of independence show that there is a significant association between entrepreneurial education and owning a business ($\chi^2 = 84.937$, $p = 0.000$). Hence people who took entrepreneurial education were found to be significantly more likely to own their own business accepting Hypothesis 1.

Table 3

Chi-Square Test of Independence Between EE and EI

	Value	df	Asymptotic significance (2-sided)	Exact sig. (2-sided)	Exact sig. (1-sided)
Pearson chi-square	7.344[a]	1	0.007		
Continuity correction[b]	6.612	1	0.010		
Likelihood ratio	7.091	1	0.008		
Fisher's exact test				0.008	0.006
Linear-by-linear association	7.321	1	0.007		
No. of valid cases	329				

Notes. [a] 0 cells (0.0%) have expected count less than five. The minimum expected count is 25.21. [b] Yates's continuity correction has been used to reduce the error in approximating the binomial frequencies of the contingency table by the continuous $\chi 2$ distribution.

Next, we illustrated the cross-tabulation between entrepreneurial education and entrepreneurial intentions. The frequency distribution of the responses is depicted in Table 4. Looking at Table 4, it appears that people who have received entrepreneurial education in the past have higher intentions to start a business as compared to the

people who did not receive entrepreneurial education in the past. 52.4 % of respondents who received entrepreneurial education intended to start a business in future as compared to 35.7% of the respondents who did not receive an entrepreneurial education in the past.

Table 4

Contingency Table Between EE and EA

			Do you, on your own or together with others, operate a business today? (EA)		Total
			1 (No)	2 (Yes)	
Have you ever attended educational activities about entrepreneurship during the program you are currently enrolled in? (EE)	1 (No)	Count	144	80	224
		% within Have you ever attended educational activities about entrepreneurship?	64.3%	35.7%	100.0%
	2 (Yes)	Count	50	55	105
		% within Have you ever attended educational activities about entrepreneurship?	47.6%	52.4%	100.0%
Total		Count	194	135	329
		% within Have you ever attended educational activities about entrepreneurship?	59.0%	41.0%	100.0%

There seem to be obvious differences in frequency distributions of the two variables but to check whether these differences are significant, we ran a chi-square difference test whose results are listed in Table 5.

Table 5

Chi-Square Test of Independence Between EE and EA

	Value	df	Asymptotic significance (2-sided)	Exact sig. (2-sided)	Exact sig. (1-sided)
Pearson chi-square	8.207[a]	1	0.004		
Continuity correction[b]	7.533	1	0.006		
Likelihood ratio	8.143	1	0.004		
Fisher's exact test				0.006	0.003
Linear-by-linear association	8.182	1	0.004		
No. of valid cases	329				

Notes. [a] 0 cells (0.0%) have expected count less than five. The minimum expected count is 43.09. [b] Yates's continuity correction has been used to reduce the error in approximating the binomial frequencies of the contingency table by the continuous $\chi 2$ distribution.

Results of the chi-square test of independence show that there is a significant association between entrepreneurial education and owning a business ($\chi^2 = 8.207$, $p = 0.004$). Hence people who took entrepreneurial education were found to be significantly more likely to start their own business in future thus accepting Hypothesis 2.

Discussion

This study aimed to explore the association between EE and EI and found that EE is significantly associated with both EI and EA, proving both the hypotheses H1 and H2. Thus, successful administration of EE is related to EI and EA occurrence. These associations tell us that the two samples are not independent and that people who have received EE are more likely to report EI and EA. These associations between EE and EI/EA can be because of two reasons. First, a successful EE program can induce and trigger EI and EA. On the other hand, people who

might already have EI and EA could be seeking EE to acquire certain skills or polish the existing ones further. In both cases, the importance of EE cannot be overlooked in serving either or both purposes.

The findings of this study also signify the importance of EE for non-managerial students as most of the previous studies have focused on management students to establish the role of EE in the development of EI and EA. The results of this study confirm that EE and EI/EA are not independent of each other even in the case of students for communication sciences at a HE institute.

Furthermore, EE focuses on what to teach but not on how to teach it. To ensure successful EE one must also address the issues regarding the content, techniques, and methodology used to impart knowledge and skills. When it comes to EE, many scholars argue that action-based and student-oriented learning and teaching methodologies can significantly change entrepreneurial intentions and develop entrepreneurial skills (Linton & Klinton, 2019). Thus, even though this study provides further proof of the relevance of EE in different settings, managers at HE institutes need to be aware of the role that materials and methodologies play in the effectiveness of EE.

Limitations

Like all studies this study also has limitations. Being specific and focused on its approach, this study has not included other possible predictors of EI or outcomes of EA or possible moderators or controls in the framework.

The sample size is also limited as this study was aimed at one department of the university. This study has also utilized one item nominal scale whose psychometric properties cannot be explored and reported. Furthermore, this study has focused on the association between the investigated variables and cause-and-effect relationships are not studied in this paper.

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