Journal of Management Info

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Research Article

Decomposing the causal relationship between entrepreneurship education and intentions

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ABSTRACT

The purpose of this study is to decompose the causal relationship between entrepreneurship education (EE) and entrepreneurial intentions. The study segregates the "undifferentiated whole" of entrepreneurship education and finds out whether the components of entrepreneurship education (objectives of EE, content/curricula of EE, methodology of EE, and environment of the university) have a similar or different influence on entrepreneurial intentions as suggested by recent studies. Data was collected from 344 students who were enrolled in the final semester of BBA and MBA programs at 14 federally chartered public-sector universities in Islamabad, Pakistan through a closed-ended questionnaire. Partial Least Square Structural Equation Modelling (PLS-SEM) was used to analyze the data in SmartPLS software. The study results indicate that constituents of entrepreneurship education influence entrepreneurial intentions in a similar manner as an undifferentiated whole of entrepreneurship education. Hence, it clarifies the illusion that heterogeneity of the construct of entrepreneurship may contaminate the established entrepreneurship education-intention relationship. However, the magnitude of influence of each constituent varies.

Keywords: *Entrepreneurship Education; Entrepreneurial Intention; PLS-SEM; SmartPLS*

Submitted: 08 January 2023 *Revised: 20 March 2023* *Accepted: 28 March 2023*

1. INTRODUCTION

Education has a significant impact on employment (Riddell, & Song, 2011). Particularly, a higher education/academic degree increases the likelihood of short and long-term employment (Núñez, & Livanos, 2010). Education enhances adaptability and skills and signals potential abilities, therefore, employers are keen to hire educated individuals (Capelleras, Contín-Pilart, Larraza-Kintana, & Martin-Sanchez, 2016). However, the universally increasing graduate unemployment rate during the last two decades has questioned this premise (Organization for Economic Co-operation and Development, 2017). Consequently, we have witnessed the explosion of entrepreneurial education (Dickson & Solomon 2008; Solomon, 2007), as it develops entrepreneurial attitudes, abilities, knowledge, and skills among the students to launch new business ventures (Piperopoulos & Dimov, 2015; Fayolle & Gailly, 2015). The belief that entrepreneurship lubricates economic growth and hooks unemployment bull, lies beneath this mounting curiosity in entrepreneurial education (Nabi & Liñán, 2011; Rideout & Gray, 2013). Specifically, the role of entrepreneurship education in the entrepreneurial career choice of students has gained an increasing amount of interest in the first quarter of the 21st century. Most of the studies

https://doi.org/10.31580/jmi.v10i1.2705

in this domain have used students' entrepreneurial intentions as the immediate outcome of entrepreneurship education (Nabi, Liñán, Fayolle, Krueger, & Walmsley, 2017). Furthermore, they have treated entrepreneurship education as an 'undifferentiated whole' and measured its impact in an atomistic manner. Theory of Planned Behavior (TPB), and Entrepreneurial Event Model (EEM) were predominantly used as theoretical foundations in such studies (Adam, & Fayolle, 2016).

The findings of the meta-analytical study of Martin, McNally, and Kay (2013) on entrepreneurial education outcomes have made the impact of entrepreneurship education on entrepreneurial intentions dubious. Entrepreneurial education appears to influence entrepreneurial intention and behavior (Liñán & Fayolle, 2015; Bae, Qian, Miao & Fiet, 2014; Mwasalwiba, 2010; Karimi, Biemans, Lans, Chizari, & Mulder, 2016). However, such a relationship seems contaminated if entrepreneurial education is being considered as an "undifferentiated whole" i.e. ignoring the heterogeneity within the universal construct of entrepreneurial education (Piperopoulos & Dimov, 2014; Fayolle & Liñán, 2014). Hence, a deep and multidimensional investigation of such causation is required to have a clear view (Martin, McNally, & Kay, 2013; Adam & Fayolle, 2016). Little knowledge exists regarding the potential causal link between each entrepreneurship education (EE)' variables (objectives of EE, the contents/curricula of EE, the methodology of EE, and the university environment) and entrepreneurial intention and behavior (Fayolle & Gailly, 2015; Fayolle & Liñán, 2014). For instance, how do the objectives, teaching methodology, contents of course/program, and environment of the university, bear upon the entrepreneurial intention and behavior of its participants? (Nabi et al., 2017). This study is aimed at decomposing the undifferentiated whole of entrepreneurial education and measuring the impact of each variable of entrepreneurial education on entrepreneurial intentions.

2. LITERATURE REVIEW

2.1. ENTREPRENEURSHIP EDUCATION

Entrepreneurship education is a well-known phenomenon, as it has grown dramatically over the last six decades, mainly because entrepreneurship is deemed a catalyst for economic growth and employment around the world (Amoros & Bosma, 2014). The roots of entrepreneurial education can be traced back to Harvard Business School, where Myles Mace taught the first course of entrepreneurship in 1947 to a class of 188 students. The evolution of entrepreneurial education over the past 60 years can be classified into three streams: the genesis phase, the apprentice phase, and the academic phase (Brush, Neck & Greene, 2015).

Like its parent construct, entrepreneurship, a generally accepted definition of entrepreneurial education is lacking. The broad spectrum of objectives of entrepreneurial education is a primary hindrance in defining and setting up the boundaries of the field (Matlay, 2005). Hence, different concepts, approaches, perspectives, and rationales, prevail in this fragmented field (Fayolle & Gailly, 2008; Mwasalwiba, 2010). In the context of this research endeavor, entrepreneurial education is defined as "all educational activities

(program, course, and/or process) meant for the development of entrepreneurial intentions, abilities, behaviors, and skills" (Fayolle, Gailly, & Lassas-Clerc, 2006).

The upswing of entrepreneurship as an academic entity resulted in an explosion of entrepreneurial courses and programs in higher education institutions (Dickson & Solomon, 2008). But there are massive differences in the content and context of courses designed and delivered. This heterogeneity of courses/ programs stems from their objectives, contents, teaching methodologies, and context. It hinders the measurement of the true impact of these courses/programs along with difficulty in comparisons among these programs (Matlay, 2005; Solomon, 2007). Neck and Greene (2011) is of opinion that this heterogeneity makes the entrepreneurial education field more ambiguous and imprecise, thereby, bringing weak links in empirical studies. For instance, although the majority of the studies confirm the positive impact of entrepreneurship education on the probability of becoming entrepreneurs, however, some studies reflect an insignificant relationship (Souitaris, Zerbinati, & Al-Laham, 2007; Radu, & Loué, 2008; Galloway, Anderson, Brown, & Wilson, 2005) and even a negative impact (Von Graevenitz, Harhoff, & Weber, 2010; Oosterbeek, Van Praag, & Ijsselstein, 2010). Such research results call for a deep digging into such a relationship by making fundamental categorization of entrepreneurial education elements.

The teaching model framework proposed by Fayolle and Gailly (2008) demarcates the scope of entrepreneurship education by stating its components/constituents. These components address the territories of entrepreneurship education: what we taught (contents), why we taught (objectives), how it's being taught (methodology), whom it's being taught (participants), and the expected results (assessment). The research model of the present study encompasses all these elements of entrepreneurship education.

2.2. Objectives of Entrepreneurship Education

Setting the objectives of an entrepreneurial education program is one of the first steps in entrepreneurial education as it will influence the design and evaluation of the program. Jamieson (1984) provided a seminal framework to classify entrepreneurial education objectives into three broad categories. The first category, "education *about* enterprise", deals with teaching theoretical perspectives of entrepreneurship. The second type, "education *for* enterprise", seeks to provide practical skills and knowledge. The last classification, "education *in* the enterprise", aspires to train established entrepreneurs in certain areas (Piperopoulos & Dimov, 2015). This categorization of objectives (educating *for, about, in* entrepreneurship) has got significant attention from scholars and researchers like Co and Mitchell (2006), Kirby (2004), Hytti and O'Gorman, (2004). Co and Mitchell (2006) describe that educating *for* entrepreneurship inculcates the entrepreneurial mindset among current and potential entrepreneurs by equipping them with tools to start a new business, which is a desirous but highly debated outcome.

The bibliometric analysis of 29 articles, conducted for this research shows that there are two main objectives of entrepreneurial education; one is to create awareness about entrepreneurship, and the other is to encourage new "start-ups". The "education for

awareness" refers to changes in "soft" outcomes like mindsets, attitudes, and desirability by providing a sound knowledge base in entrepreneurship. It is meant for students who had no experience in launching a venture and it creates a preference in their minds to choose entrepreneurship as a future career (Slavtchev, Laspita, & Patzelt, 2012). "Start-up education" deals with changes in students' concrete knowledge and skills in venture creation (Liñán & Santos, 2007).

The current study has used the aforementioned typology of entrepreneurial education's objectives (education for awareness and start-up education). That is, it took an encompassing approach by including both typologies in the conceptual definition and operationalized it accordingly. The present study is aimed at exploring the direct effect of 'encompassing' objectives of entrepreneurship education on the entrepreneurial intentions of the students.

2.3. Content/ Curricula of Entrepreneurship Education

The contents of entrepreneurial courses vary extensively and are a subjective phenomenon (Maritz, De Waal, & Verhoeven, 2011). There are no agreed "contents" of an entrepreneurial course as every institution has developed its entrepreneurship curricula, which results in wide variations in entrepreneurship modules (Hills,1988; Fiet, 2000a, b). Such heterogeneity of content is attributed to the non-existence of a consensual definition of entrepreneurship and the divergent needs of the students (Hynes, 1996; Bennett, 2006). Hence, it is difficult to ascertain the course contents of typical entrepreneurship. Mwasalwiba (2010) took this challenge and after reviewing 21 articles on the subject, come up with the 9 most popular subjects which are being taught in entrepreneurship courses around the globe.

The literature on the contents of entrepreneurship courses has also highlighted a rift between the proponents of "theory" oriented courses and "practice" oriented courses (Brand, Wakkee, & van der Veen, 2007). Both contents types have their own pros and cons (Liñán, León, & Zarnowska 2008; Liñán, Rodríguez-Cohard, & Rueda-Cantuche, 2011) and should not be mutually exclusive for an encompassing entrepreneurial education (Fiet, 2000b). The current paper measures the direct relationship of 'encompassing' contents/curricula of entrepreneurship education on entrepreneurial intention.

2.4. Methodology of Entrepreneurship Education

In addition to the contents of an entrepreneurial course, the teaching methodology is central to its effectiveness in today's dynamic environment (Neck & Greene, 2011; Fayolle, 2008) as it is viewed as a means to achieve the objectives of the entrepreneurial course (Fayolle & Gailly, 2008). The dependency of methodology on course contents is reflected in following the discussion of pedagogical methods, as it also incorporates the theoretical vis-a-vis practical perspective to classify teaching methodologies. Pedagogical methods vary with variations in the course contents but a particular pedagogy (traditional or non-traditional) cannot be associated with a particular course content typology (theory or practice). It means that theoretical content does not essentially ask for more "traditional" teaching methods (such as lectures), and, correspondingly, practical content is not always

taught with more experimental methods (such as business simulations) (Fiet, 2000a, b; Taatila, 2010). Fayolle (2010) ascertains that both (traditional and non-traditional) approaches are equally being used as teaching and training pedagogies.

Like everything, there are certain pros and cons of both traditional and non-traditional pedagogies of entrepreneurial education. (Mwasalwiba, 2010; Fayolle, 2010; Tasnim, 2013; Balan, 2014). The review of literature has shown that researchers use different nomenclature but primarily they wrote about and classify entrepreneurial teaching methods into two broad categories: (1) Traditional/ Passive/ Teacher-Centered/Lecture-based, and (2) Non-traditional/ Active/ Student-Centered/ Innovative Methods (Mwasalwiba, 2010; Tasnim, 2013). The present study conceptually defines and operationalizes an all-inclusive teaching methodology, which uses both traditional and non-traditional methods.

2.5. Environment of University

Entrepreneurship education has four elements, which are: why (objectives), what (content), how (methodology), and where (university and its environment). The fourth pillar or W of entrepreneurship education (where) describes the environment of the university, where entrepreneurial education is being provided. The environment of the university consists of characteristics the university that encourage the development of entrepreneurial activities among students, including university policies, entrepreneurial infrastructure, and other support systems (Yar Hamidi et al. 2008; Nurmi & Paasio, 2007; Kuratko 2005; Rothaermel & Thursby 2005).

The present research endeavor chooses the Resource-Based View (RBV) perspective and explores how the facilitative university environment is instrumental in upholding the use of entrepreneurial education. Under the RBV perspective, universities pledge their resources (physical and human) to develop and maintain an entrepreneurship-friendly environment. The university policies, entrepreneurial infrastructure, and other support systems are core ingredients of the conducive environment that nurtures entrepreneurial activities among students (Yar Hamidi et al. 2008; Nurmi & Paasio 2007; Kuratko 2005; Rothaermel & Thursby 2005). In a such university environment, the emphasis is placed on entrepreneurship at the strategic and tactical level by devising policies that encourage an entrepreneurial mindset and assurance of the availability of all necessary resources. At the operation level, the implementation of strategic plans is guaranteed by taking action like making the subject of entrepreneurship a compulsory part of curricula. In such an institutional environment, everyone talks about entrepreneurship, innovation, and university-industry linkage. Here the students are provided the opportunity to interact with entrepreneurial gurus to share and refine their budding business ideas (Rengiah, 2013). Integrated internship programs are another example of such initiatives in which students get hands-on experience before their graduation. Such awareness of the real business world is advantageous to all students as they acquire the necessary skills for setting up a business, which will be an asset to them in the future (Cheung, 2008).

Based on the above-mentioned gaps following hypotheses are set for testing

H1. The entrepreneurship education objectives have a direct effect on entrepreneurial intentions.
H2. Entrepreneurship education contents/curricula have a direct effect on entrepreneurial intentions.
H3. The teaching methodology of entrepreneurship education has a direct effect on entrepreneurial intentions.
H4. The environment of the university has a direct effect on the entrepreneurial intentions of the students.

Figure 01 presents the theoretical framework of the study, it shows the variables of the study and their hypothesized relationship along with number of items/questions used to measure each variable.

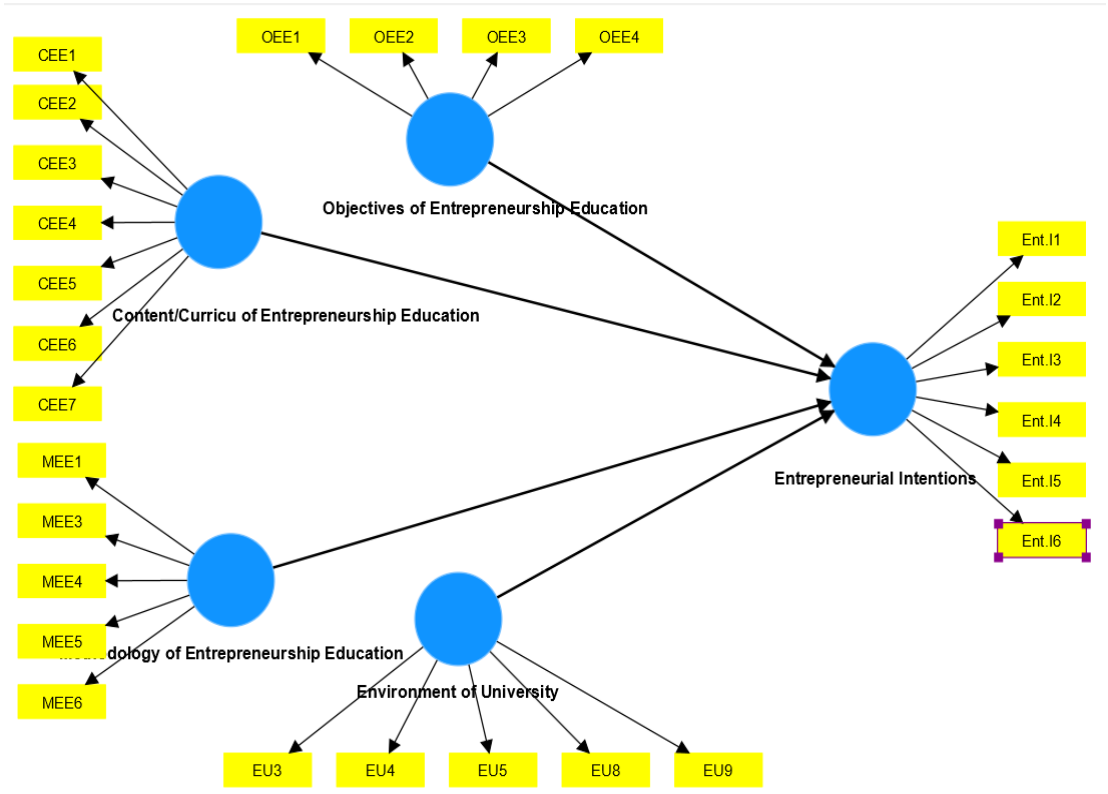

Fig. 1. Theoretical Framework

3. METHODOLOGY

All those students who are enrolled in BBA and MBA programs at 14 federally chartered public-sector universities in Islamabad, Pakistan, constitute the population for the study. However, the target population of the study comprised those students who are in the final semester (Spring 2017) of their educational programs. We have chosen final semester students, as they are the ones, who have to make their career choice in the next six months. Furthermore, they have already taken maximum courses in entrepreneurship during their course of study. Presently, 20 federally chartered universities are operating in Islamabad. Among these 20 universities, 14 are public-sector universities, and the rest are owned by the private sector. Eleven universities, out of these 14 public-sector universities are offering BBA and/or MBA programs. Using a stratified random sampling strategy, the study uses a

quantitative research design to analyze the data of the 344 students using SmartPLS software for Structural Equation Modelling (SEM). The primary data was gathered through a closed-ended, self-reported questionnaire comprising valid and reliable scales.

Table 1. **Table 1:** Composition of Questionnaire

Sr. No.	Variables/ Constructs	Adopted/Adapted	No. Items	Source
1	Objectives of Entrepreneurship Education	Adapted	4	Müller (2008)
2	Content/ Curricula of Entrepreneurship Education	Adopted	9	Rengiah (2013)
3	Methodology of Entrepreneurship Education	Adopted	9	Rengiah (2013)
4	Environment of University	Adopted	9	Rengiah (2013)
8	Entrepreneurial Intention	Adopted	6	Liñán and Chen (2009)

4. DATA ANALYSIS AND RESULTS

The data analysis was carried out in two phases: first, a preliminary analysis was carried out to screen data for errors, identify missing values, test univariate normality (Skewness and Kurtosis), and check common method variance bias (Harman's single factor score). The missing values were replaced by mean and skewness and kurtosis were between +2 and -2 for all items. Similarly, no single factor explains a common variation of more than 50% in Harman's single-factor score.

The second phase of analysis i.e. application of PLS-SEM uses a two-stage approach. In the first stage, the adequacy of the measurement model/outer model was assessed. Whereas, the second stage (structural model/inner model) accounts for the recursive relationships (paths) among the latent constructs.

4.1. Measurement Model

The measurement model in SmartPLS assesses the reliability and validity of the research construct. In Table 4.1.1, all Cronbach's Alpha values of more than 0.70, composite reliability (CR) and rho values of above 0.708 indicate the internal consistency of the constructs. Similarly, outer loadings of above 0.40 for each indicator are a confirmation of the reliability of the indicators.

Table 2. Measurement Model Analysis

Constructs	Items	Loading	AVE	CR	rho	Cronbach's Alpha
Objectives of Entrepreneurship Education	OEE1	0.686	0.502	0.795	0.755	0.701
	OEE2	0.466				
	OEE3	0.846				
	OEE4	0.778				
Contents/Curricula of Entrepreneurship Education	CEE1	0.603	0.503	0.875	0.856	0.834
	CEE2	0.611				
	CEE3	0.732				
	CEE4	0.703				
	CEE5	0.789				
	CEE6	0.704				
	CEE7	0.795				
Methodology of Entrepreneurship Education	MEE1	0.630	0.562	0.864	0.837	0.808
	MEE3	0.814				

Constructs	Items	Loading	AVE	CR	rho	Cronbach's Alpha
	MEE4	0.785				
	MEE5	0.742				
	MEE6	0.763				
Environment of University	EU3	0.595	0.514	0.840	0.766	0.849
	EU4	0.738				
	EU5	0.716				
	EU8	0.781				
	EU9	0.742				
Entrepreneurial Intentions	EI1	0.692	0.507	0.790	0.751	0.861
	EI2	0.765				
	EI3	0.506				
	EI4	0.475				
	EI5	0.504				
	EI6	0.756				

The average variance extracted (AVE) above 0.50 for all the constructs in Table 4.1.1 shows the presence of convergent validity. Likewise, the Fornell-Larcker criterion (Table 4.1.2) and Hetro Trait Mono-Trait (HTMT) ratio (Table 4.1.3) are applied to establish discriminant validity. The results in Table 4.1.2 has shown that the square root of AVE is greater than the correlations among constructs; hence, discriminant validity is established. In addition to that, the HTMT ratio of correlations was calculated in Table 4.1.3 and the result shows that all the constructs have an HTMT value less than 0.90; hence, it suggests that the measurement model exhibited sound discriminant validity.

Table 3. Table 3: Fornell and Lacker Criterion

Variables	Objectives of EE	Contents of EE	Methodology of EE	Environment of University	Entrepreneurial Intentions
Objectives of EE	0.709				
Contents of EE	0.628	0.709			
Methodology of EE	0.673	0.614	0.749		
Environment of University	0.647	0.600	0.709	0.717	
Entrepreneurial Intentions	0.601	0.696	0.656	0.690	0.729

Table 4. Hetro Trait Mono-Trait Ratio (HTMT)

Variables	Objectives of EE	Contents of EE	Methodology of EE	Environment of University	Entrepreneurial Intentions
Objectives of EE					
Contents of EE	0.851				
Methodology of EE	0.886	0.727			
Environment of University	0.870	0.742	0.884		
Entrepreneurial Intentions	0.874	0.735	0.813	0.863	

4.2. Structural Model

The structural model is the second stage of PLS-SEM, where the hypotheses of the study are tested to explore the causal relationship among the constructs. The structural model validation comprises structural model path coefficients (β), coefficient of determination (R^2), Effect Size f^2, and Blindfolding and predictive relevance Q^2. Table 4.2.1 shows that Objective of EE (β=0.340, t-value=7.054), content of EE (β=0.206, t-value=5.039),

methodology of EE (β=0.268, t-value=6.750), and environment of the university (β=0.187, t-value=3.883) have positive and positive relationship with entrepreneurial intention.

The coefficient of determination (R^2) shows the predictive accuracy of the model. R^2 of 0.738 reflects the cumulative effects of exogenous latent variables on the endogenous latent variable. That is, there will be a 0.738 change/variance in entrepreneurial intentions due to one unit change in the exogenous variables of the study. An R^2 value of 0.738 shows a 'large' predictive accuracy. Furthermore, the effect size (f^2) was also calculated and it shows the effect of a specific exogenous construct. The objective of EE (0.199) has a *medium* effect size, whereas the other three independent variables have a *small* effect size. The Q^2 measures the predictive relevance of the model and a $Q^2 > 0$ establishes the construct's relevance.

Table 5. Structural Model Results.

Hypothesis	Relationship	Beta	T-value	Decision	R^2	f^2	Q^2
H_1	OEE→EI	0.340	7.054	Supported	0.738	0.199	0.265
H_2	CEE→EI	0.206	5.039	Supported		0.085	
H_3	MEE→EI	0.268	6.750	Supported		0.111	
H_4	EU→EI	0.187	3.883	Supported		0.058	

5. DISCUSSION AND CONCLUSION

The objective of this study was to decompose the "undifferentiated whole" of entrepreneurship education" (EE) and find out whether the components of entrepreneurship education (objectives of EE, content/curricula of EE, methodology of EE, and environment of the university) have a similar impact on entrepreneurial intentions as suggested by Fayolle and Liñán (2014). To meet this objective, the study proposed one hypothesis for each entrepreneurial education' component and four hypotheses (H1 to H4) in total. Results (b=0.340, t = 7.054) suggest that the objectives of EE have a direct and positive impact on entrepreneurial intention. H1 is accepted. These findings corroborate with results of previous studies by Piperopoulos and Dimov (2014), Mwasalwiba (2010), Hytti and O'Gorman (2004), and Slavtchev, Laspita, and Patzelt (2012). All these studies have used a qualitative approach (interviews) to establish the relationship between entrepreneurship education with entrepreneurial intention. The findings of the current study, substantiate that the set objectives are an important element of entrepreneurship education as it influences its outcomes.

Results of the H2 testing show that the contents/curricula of entrepreneurship education have a direct influence on the entrepreneurial intention of the students. In other words, what we teach in entrepreneurship has a significant role in developing entrepreneurs. H2 is accepted. This finding was also reported by Oyugi (2014) and Sheta (2011). Oyugi's study is a case study, which has used a qualitative approach. Whereas, Sheta' study is a differential study that measures the difference between theory-oriented and practice-oriented content. The present study has opted for a balanced and holistic approach to contents/curricula of entrepreneurship education by taking into account both elements; theory and practice and then measuring its impact on entrepreneurial intention. Results of

hypothesis (H3) show that the teaching methodology of entrepreneurship education has a direct influence on entrepreneurial intention. H3 is accepted. This study supports evidence from previous observations (e.g. Neck & Greene, 2011; Rengiah, 2013; Nekka & Fayolle, 2010; Laguador, 2013). These studies compare traditional and non-traditional entrepreneurship teaching methods and measure their impact on entrepreneurial intentions. Whereas, the present study has used an encompassing teaching methodology (a blend of traditional and non-traditional methods) and indicated a significant role in students' entrepreneurial intentions. The result of the last hypothesis states that the environment of the university has a direct effect on the entrepreneurial intentions of the students. In other words, the student's intention to become an entrepreneur gets influenced by the environment of the university, from 'where' they are seeking entrepreneurship education. H4 is accepted. This finding was also reported by Rengiah (2013).

The study has theoretical, practical, and policy implications. Theoretically, it clarifies the illusion that heterogeneity of the construct of entrepreneurship may contaminate the established entrepreneurship education-intention relationship. It has also practical implications for managers at the Higher Education Commission of Pakistan and universities to reevaluate the components of entrepreneurship education.

Author Contributions:

Conceptualization/introduction, literature review and discussion section is carried out by Dr. Bilal Ahmed Abbasi and methodology and data analysis was done by Dr. Ambreen Gul.

Funding:

This research received no external funding.

Institutional Review Board Statement:

Not applicable.

Informed Consent Statement:

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement:

Primary data gathered for the study is available with authors and can be made on request.

Acknowledgments:

Not Applicable.

Conflicts of Interest:

Not Applicable.

Reference:

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