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Entrepreneurship Education, Personality Traits, and Entrepreneurial Intention of Engineering Students in Technical and Vocational Education and Training Institutions in Kenya

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Abstract
This study proposes that entrepreneurship education affects entrepreneurial intention through the moderating role of personality traits. The study adopted the hierarchical regression analysis to examine the hypothesis. The study population comprised 265 students taking engineering courses at diploma level in Technical and Vocational Education and Training institutions in Kenya. A total of 239 valid questionnaires, representing 90% of the sample, were fully filled in and analyzed. The results revealed that personality traits moderate the effect of entrepreneurship education on entrepreneurial intention. This study contributes to knowledge by addressing research gaps in previous studies regarding the direct effect of entrepreneurship education on entrepreneurial intention. Second, by reporting moderating role of personality traits on the relationship between entrepreneurship education and entrepreneurial intention, the research proposes the need to align entrepreneurship education curriculum by taking cognizance of individuals' personality traits.
Keywords: entrepreneurship education; entrepreneurial intention, mediating effect

1. Introduction

Entrepreneurship education is a learning process that is meant to influence attitudes, behavior and values or intentions towards entrepreneurship as a career option or as a means to participate in the development of the individual's role in the community (Mwasalwiba, 2010). The role of entrepreneurship education in the generation of entrepreneurial intention is currently gaining academic attention (Entrialgo & Iglesias, 2016; Fayolle & Gailly, 2015). Extant literature suggests that the past two decades have witnessed significant growth in entrepreneurship education programs in most countries (Carey & Matlay, 2008). This could be attributed to the vital role of entrepreneurship education in inculcating positive attitudes towards entrepreneurial activities and in developing thinking skills which enable the students to develop entrepreneurial intention (Fayolle, Gailly, & Lassas-Clerc, 2006). Consequently, the concept of entrepreneurial intention has become popular among scholars for its usefulness in predicting entrepreneurial behavior.

Entrepreneurial intention refers to one's desire to own a business at some time or in the future (Bae, Qian, Miao, & Fiet, 2014) or to start a business (Krueger, Reilly, & Carsud, 2001). Intentions have been used to describe a self-prediction of individuals to engage in a behavior (Ajzen, 2005). Thus, once the formation of intentions occurs in an individual, actual behavior is expected to follow. Intentions are said to be a strong predictor of future entrepreneurial intention (Linan & Chen, 2009; Souitaris, Zerbinati, & Al-Laham, 2007). In this sense, entrepreneurship education acts as a force that propels entrepreneurial intention and behavior (Fayolle et al., 2006). However, in a separate argument, McClleland (1965) posits that some individuals have certain personality traits that determine whether or not one finds the tasks or roles of entrepreneurship attractive and viable.

Personality traitsrefer to an individual's persistent and consistent reaction caused by stimulation of external environment or situational factors (Ajzen 2005). Some studies argue that personality traits of an individual may serve as a catalyst which influences one's innovativeness, locus of control and the risk perception of entrepreneurs in decision making (Chausin, Hermand, & Mullet, 2007; Rauch & Frese, 2007). The most frequently cited personality traits that are closely associated with entrepreneurial values and behavior include: need for achievement, internal locus of control, and innovativeness (Rauch & Frese, 2007; Chausin et al., 2007) hence their choice for the study.

2. Statement of the Problem

Literature on entrepreneurship education suggests that education can contribute to increase in the number of entrepreneurs (Wilson, Vyakarnam, Volkmann, Mariotti, & Rabuzzi, 2009; Rodriguez, Dinis, do Paco, Ferreiras, & Raposo, 2010). The theory of planned behavior postulates that individuals' attitudes influence their entrepreneurial intention and consequently their behavior and action (Ajzen, & Fishbein, 2005). However, other scholars suggest that while education may lead to development of entrepreneurial intention, this relationship may be contingent upon one's personality traits (Pillis & Reardon, 2007). The studies observe that the individual's personality traits provide the impetus to high will-power that drives the entrepreneur's passions, desire for achievement and innovativeness (Kurucz, Colbert & Wheeler, 2008).This paper sought to analyze the moderating

role of personality traits on the relationship between entrepreneurship education and entrepreneurial intention.

3. Objective of the Study

The study sought to determine the influence of personality traits on the relationship between entrepreneurship education and entrepreneurial intention of engineering students in TVET institutionsin Kenya.

4. Significance of the Study

The researcher envisaged that the study would provide and empirically validate a multi-level conceptual framework about the effect of personality traits on the relationship between entrepreneurship education and entrepreneurial intention. Such literature would be of use to academics interested in understanding and or investigating entrepreneurial intention of students.

The findings and recommendations would also be useful to policy makers in developing appropriate entrepreneurship education curriculum that would be content focused and pedagogically sensitive while taking cognizance of the role of personality traits in enhancing entrepreneurial intention. Thus, the practical significance of this study would reflect on its implication for entrepreneurship education practice.

5. Assumptions of the Study

The study was premised on assumptions that: the students had no prior entrepreneurship education before joining the TVET institution; the intentions had been developed in the students at the time of study and that these intentions in future would turn into actual behavior, and respondents would voluntarily participate in the study and give accurate and reliable responses.

6. LITERATURE REVIEW

Personality traits are an individual's consistent reaction caused by stimulation of external environment or situational factors (Ajzen, 2005). Scholars argue that individual personality of entrepreneurs provides the impetus to high will power that drives their passions, desire to achieve, innovativeness and interactions (Kurucz et al., 2008). In another argument, McClleland (1965) posits that some individuals have certain psychological or personality characteristics that determine whether or not one finds the tasks or roles of entrepreneurship attractive and viable.

This argument is supported by the proposition that endowed with relevant entrepreneurship education, one's entrepreneurial traits are likely to be reactivated, making the person more likely than before, to develop entrepreneurial intention and pursue an entrepreneurial opportunity (Gurel, Altinay, and Danielle, 2010). Furthermore, Mwiya (2014) suggests that personality traits are partly developed by environmental factors such as innate nurturing, socialization and education. The widely documented personality traits in previous studies include internal locus of control, need to achieve and innovativeness (Rauch & Frese, 2007; Koh, 1996), hence their selection for the study.

6.1. Locus of Control and Entrepreneurial Intention

Locus of control is considered as one of the personality traits in entrepreneurial activities. Locus of control is described as the ability perceived by an individual to control events in his or her life (Colakoglu & Gozukara, 2016). It can be internal or external in nature. People with an internal locus of control believe that success and failure depend on the amount of effort invested and that they can control their fate. In contrast, people with an external locus of control believe that their fate is determined by chance or luck and not within their control (Lii & Wong, 2008).

Literature includes several studies suggesting a relationship between internal locus of control and entrepreneurship. A comparative study on personality traits based on the attitudes of university students toward entrepreneurship in Turkey, found a positive correlation between internal locus of control and entrepreneurial intention of students (Colakoglu & Gozukara, 2016). In support of positive correlation between locus of control and entrepreneurial intentions, Hsiao, Lee, and Chen (2016) found that people with internal locus of control tend to positively face challenges and obstacles, resolving problems by seeking constructive solutions. Compared with people with an external locus of control, people with an internal locus of control exhibit higher achievement motivation; consequently they are more willing to learn and hence their capabilities and knowledge when encountering entrepreneurial challenges (Hsiao et al., 2016).

6.2. Need for Achievement and Entrepreneurial Intention

Need for achievement construct is an internally driven strong desire to compete, to excel against self-imposed standards, and to pursue and attain challenging goals (McClleland, 1965). Individuals who possess need for achievement wish to solve issues on their own, establish own targets, and make personal efforts to achieve these targets, and they perform better when their set targets are challenging (Colakoglu & Gozukara, 2016). Need for

achievement involves expectations to perform better than others or than one's own previous performance (Colakoglu & Gozukara, 2016). More specifically, McClleland argued that individuals with a high need for achievement are more likely to be entrepreneurial (McClleland, 1965). Previous studies report a positive correlation between need for achievement and entrepreneurial intention (Gurol & Atsan, 2006; Colakoglu & Gozukara, 2016).

6.3. Innovativeness and Entrepreneurial Intention

Innovativeness is the process that turns an invention into marketable product (Mueller & Thomas, 2001) hence a vital tool for an entrepreneur (Mueller & Thomas, 2001). Mueller and Thomas (2001) posit that innovation in business is related to perceiving and acting upon business activities in new and unique ways hence innovativeness plays a significant role in new venture creation. Innovativeness represents a disposition to engage in new ideas and create new things that are different from the existing practice (Colakoglu & Gozukara, 2016). An entrepreneur is in this sense, a thinker and an action oriented person. Entrepreneurs sense opportunities for a new product or a way of problem solving and implement it in a situation where non-entrepreneurs would see nothing. Extant literature includes studies demonstrating a correlation between innovativeness and entrepreneurial intention. In a study focusing on the influence of psychological traits on entrepreneurial intention among university students in hospitality and tourism studies in UK, Altinay, Madanoglu, Daniele, & Leslie (2012) report that innovativeness positively influences entrepreneurial intention. In separate studies, various scholars (Pillis & Reardon, 2007; Rauch & Frese, 2007) confirm that innovativeness positively and significantly influences entrepreneurial intention. In the light of theoretical and empirical reviews on entrepreneurship education, personality traits, and entrepreneurial intention, the hypothesis of the study is developed as follows:

H1: The effect of entrepreneurship education on entrepreneurial intention is moderated by personality traits.

7. RESEARCH METHODOLOGY

Using a cross-sectional survey design, primary data was collected from a sample of 239 students in TVET institutions in Kenya. Simple random sampling was done in stages to select the respondents. The statistical formula suggested by Kothari (2004) was used to arrive at the number of participating institutions and the number of student participants. The sub-sample from each institution was arrived at by use of the formula suggested by Krejcie and Morgan (1970). The specific respondents from each institution were selected through systematic sampling where the *Kth* student leaving the lecture room was picked. The sampled students were assembled in a classroom where the research instrument was administered. Data was collected through a questionnaire containing Likert type scale questions which were validated by two experts from the Faculty of Commerce, Egerton University in Kenya. Using the Cronbach Alpha, the reliability of the instrument was established at 0.9 which was above the recommended threshold of 0.7 (Nunnally & Bernstein, 1994). The study hypothesis was analyzed by use of hierarchical multiple regression analyses. Three regression models (i, ii, and iii) specified below were used to test the hypothesis:

$Y = \beta o + \beta_1 X + \varepsilon$ ----------(i)

$Y = \beta o + \beta_1 X + \beta_2 Z + \varepsilon$ ----------(ii)

$Y = \beta o + \beta_1 X + \beta_2 Z + \beta_3 XZ + \varepsilon$ ----------(iii)

Where:

Y is the dependent variable (entrepreneurial intention)

β_1 is beta coefficient for X (entrepreneurship education)

β_2 is beta coefficient for Z (personality traits)

β_3 is beta coefficient for XZ (cross product of entrepreneurship education and personality traits)

X is the independent variable (entrepreneurship education)

Z is the moderating variable (personality traits)

XZ is the cross-product of the independent variable and moderator (interaction term)

ε is the regression error term

In the first equation (i), entrepreneurial intention was regressed on the independent variable, entrepreneurship education; the second equation (ii) has the dependent variable, entrepreneurial intention, the independent variable, entrepreneurship education, and the potential moderator (personality traits). Finally, in the last equation (iii), the dependent variable was regressed on independent variable, moderator, and the cross-product of the independent variable and moderator, that is, the interaction term. The cross-product was used to determine the effect of the interaction between the independent variable and moderator on the dependent variable.

8. DATA ANALYSIS, FINDINGS AND DISCUSSION

8.1. Background of Respondents

The respondents in this study were engineering students taking diploma courses in their third year of study, drawn from 27 public TVET institutions across the country. Frequencies and percentages were used to examine the

distribution of the respondents by course of study, gender and region. The profile of the respondents is shown in Table 1.

Table 1: Distribution of Respondents by Course, Gender and Region

Feature	Aspect	Frequency	Percent	Valid Percent
Course	Electrical Engineering	73	30.5	30.5
	Quantity Surveying	9	3.8	3.8
	Civil Engineering	25	10.5	10.5
	Architecture	2	.8	.8
	Building and Construction	25	10.5	10.5
	Mechanics and Automotive Engineering	56	23.4	23.4
	Plumbing	2	.8	.8
	Land Survey	18	7.5	7.5
	Others	29	12.1	12.1
Gender	Male	176	73.6	73.6
	Female	63	26.4	26.4
Region	Mount Kenya	30	12.6	12.6
	Nairobi	93	38.9	38.9
	Western	71	29.7	29.7
	North Rift	28	11.7	11.7
	Coast	17	7.1	7.1

The study sought to establish the distribution of students on the basis of course of study. As shown in Table 1, majority of students were taking Electrical Engineering (30.5%), followed by Mechanical and Automotive Engineering (23.4%). The students enrolled for Civil Engineering and Building Construction Engineering stood at 10.5% respectively. A total of 7.5% enrolled for Land Survey while 3.8% were taking Quantity Survey. The least popular courses were Architecture and Plumbing (0.8%) respectively. The distribution of respondents by gender indicated that the majority of respondents (73.6%) were male while only 26.4% were female. This was expected as most of engineering courses are popular with males than they are with females not only in TVET institutions, but also in other institutions of higher learning in Kenya. The study also sought to establish the distribution of respondents by region. From Table 1, Nairobi Region had the highest enrollment (38.9%) followed by Western Region (29.7%). While Mt. Kenya Region had an enrollment of 12.6%, North Rift Region registered only 11.7%. Finally, Coast Region had the least population of only 7.1%.

8.2 Entrepreneurship Education

The study sought to describe entrepreneurship education acquired by students. Table 2 presents the results of the analysis.

Table 2: Mean and Standard Deviation for Measures of Entrepreneurship Education

Course content

Statements	**N**	**Min**	**Max**	**Mean**	**Std. Dev**
Course content				**4.38**	
The entrepreneurship course increases my understanding of generating innovative ideas	239	1	5	4.34	.795
The entrepreneurship course increases my understanding of environmental assessment of entrepreneurial ventures	239	1	5	4.11	.879
The entrepreneurship course increases my understanding of financial preparation for entrepreneurial ventures	239	1	5	4.31	.871
The entrepreneurship course increases my understanding of planning a business	239	1	5	4.44	.752
The entrepreneurship course increases my understanding of market research for entrepreneurial ventures	239	1	5	4.16	.884
Entrepreneurship course increases my understanding of attitudes of entrepreneurs (how they view entrepreneurship and why they act)	239	1	5	3.94	.942
Entrepreneurship course increases my understanding of importance of entrepreneurship to both society and individuals	239	1	5	4.27	.747
Entrepreneurship course increases my understanding of personal characteristics of entrepreneurs (risk taking, innovation , innovativeness, locus of control)	239	1	5	4.32	.772

Entrepreneurship course gives me a sense that entrepreneurship is achievable	239	1	5	4.26	.811
Entrepreneurship course increases my understanding of the motives of engaging in entrepreneurial activities (money, self-achievement, and social status)	239	1	5	4.16	.790
Entrepreneurship course enhances my ability to develop networks (obtaining useful information from lecturers, guest speakers or classmates)	239	1	5	4.07	.983
The creative atmosphere in the entrepreneurship class inspires my entrepreneurial mind	239	1	5	4.01	1.006
Views of external speakers inspire my entrepreneurial mind	239	1	5	3.87	1.037
The entrepreneurial experience of the entrepreneurs enhances my understanding of the entrepreneurial process	239	1	5	3.97	.835
Entrepreneurship course enhances my skills to develop business plans	239	1	5	4.48	.697
Entrepreneurship course enhances my skills to handle an entrepreneurship project	239	2	5	4.31	.695
Entrepreneurship course enhances my skills to deal with risks and uncertainties	239	1	5	4.18	.832
Entrepreneurship course enhances my skills to allocate resources (e.g. money personnel and time)	239	2	5	4.33	.720
Entrepreneurship course enhances my ability to identify a business opportunity	239	1	5	4.48	.782
Pedagogical Approaches				**3.16**	
The instructor frequently gave the class case studies	239	1	5	3.20	1.182
Guest speakers/lecturers were often invited to give lectures	239	1	5	3.03	1.241
Group discussions were commonly used during lectures	239	1	5	3.09	1.247
The lecturer frequently used traditional lecture method	239	1	5	2.70	1.219
The class would perform role plays to enhance lectures	239	1	5	3.26	1.111
The lecturer would give the class individual project work	239	1	5	3.40	1.263
The lecturer would use real world situations (simulation) in teaching	239	1	5	3.88	1.111
During the class I had the chance to listen to entrepreneurs' field reports (e.g entrepreneurs' speeches, Lecturer's reports)	239	1	5	3.34	1.284
There were frequent field visits to established businesses	239	1	5	2.69	1.335
Our lectures were computer based	239	1	5	2.84	1.306
The class frequently interacted with practicing entrepreneurs	239	1	5	2.95	1.335
Overall mean					
Valid N (listwise)	239			**3.71**	

As shown in Table 2, the mean score for the course content dimension was 4.26. The items with the highest score were "entrepreneurship course enhances my skills to develop business plans" (M = 4.48, SD = 0.697) and "entrepreneurship course enhances my ability to identify a business opportunity" (M = 4.48, SD = 0.782). The item with the lowest score was "views of external speakers inspire my entrepreneurial mind" (M = 3.87, SD = 1.04).

These results show that the respondents strongly agreed with the statements regarding entrepreneurship education in their institutions. These results were interpreted to mean that entrepreneurship education course content is adequate and is capable of creating entrepreneurial intentions. Thus, the entrepreneurship education curriculum content offered in TVET institutions is effective and comprehensive enough to impart "know what", 'know who", "know why" and "know what" skills. However, Wilson, Vyakarnam, Volkmann, Mariotti, and Rabuzzi (2009) propose that in building curricula to encourage and empower future entrepreneurs, it must be recognized that "one size does not fit all." This means that there is no perfect content and therefore the curriculum content should be based on the learning needs of students.

The mean for pedagogical approaches is 3.16. The item with the highest score was "the lecturer would give the class group project work" (M = 3.49, SD = 1.19); the item the lowest score was "there were frequent field visits to established businesses" (M = 2.69, SD = 1.34). The low score on pedagogical approach items was as a result of inadequate learning approaches utilized by instructors. Evidently there was lack of involvement of external practicing entrepreneurs who could be role models. Further, the instructors rarely utilized student field visits to successful business enterprises to complement classroom lectures. The overall mean score for entrepreneurship education was 3.71.

In inculcating entrepreneurial skills, lecturers require several innovations in the mode of teaching (Solomon,

2007). The findings in this study reveal that pedagogical methods are entirely based on traditional approach, especially, classroom lecture. This practice contradicts the suggestion by Mwiya (2014) that effective entrepreneurs are exceptional learners. They learn from everything. They learn from customers, suppliers and especially competitors. They learn from employees and associates. They learn from other entrepreneurs. They learn from experience and by doing. The above discussion shows that a variety of pedagogical approaches are essential for effective delivery of the curriculum.

8.3 Entrepreneurial Intention

The study sought to describe the entrepreneurial intention of students in TVET institutions in Kenya. Table 3 presents the results of the analysis.

Table 3: Mean and Standard Deviation for Entrepreneurial Intention

Statement	N	Min	Max	Mean	Std. Dev
Self-prediction				**4.26**	
I am ready to do anything to be an entrepreneur	239	1	5	3.90	1.085
My professional goal is becoming an entrepreneur	239	1	43	4.08	2.720
I will make every effort to start and run my own firm	239	1	5	4.38	.801
I have got the intention to start a firm some day	239	1	5	4.35	.790
I am determined to create a firm in the future	239	1	5	4.42	.763
I have very seriously thought of starting a firm	239	1	5	4.33	.896
I have got the intention to start a firm some day	239	1	5	4.29	.850
Desirability				**3.96**	
I desperately want to work for myself	239	1	5	3.68	1.307
The idea of owning my own business is very appealing to me	239	1	5	4.24	.950
I cannot imagine working for someone else	239	1	5	3.25	1.326
Working in my own business would be very personally satisfying	239	1	6	4.35	1.006
Valid N (listwise)	239				

As shown in Table 3, the mean score for self-prediction dimension was 4.26. The item "I am determined to create a firm in future" had the highest mean score (M = 4.42, SD = 4.08), while the item "my professional goal is becoming an entrepreneur" scored the lowest mean (M = 4.04, SD = 2.72).

The score for desirability dimension was 3.96. The highest mean was for the item on "Working in my own business would be very personally satisfying" (M = 4.35, SD = 1.01) while the item with the least score was "I cannot imagine working for someone else" (M = 3.25, SD = 1.33). The overall mean for entrepreneurial intention was 4.12. This score indicates that a majority of the respondents strongly agreed that they had entrepreneurial intentions.

8.4. Personality Traits

The study sought to describe personality traits of students. The aspects of personality traits included need to achieve, internal locus of control and innovativeness. Each item had a 5-point Likert-type scale, ranging from 'strongly disagree' (1) to 'strongly agree' (5). The responses were analyzed using mean scores and standard deviations. Higher mean scores indicated strong agreement on the item and lower mean score implied disagreement. The responses were analyzed using mean scores, standard deviations and coefficient of variation. Higher mean scores indicated strong agreement on the item and lower mean score implied disagreement. Table 4 presents the results of the analysis.

Table 4: Mean and Standard Deviation for Personality Traits

Statement	N	Min	Max	Mean	Std. Dev
Need for Achievement				**3.83**	
I take pleasure in responding to challenges, so competition makes me work harder.	239	1	5	4.26	.991
I do not like a well-paid job if I cannot derive a sense of achievement and satisfaction from it.	239	1	5	3.69	1.143
I want to earn only as much as possible to attain a comfortable way of life.	239	1	5	3.81	1.183
I do not mind routine, unchallenging work if the pay is good.	239	1	5	3.06	1.377
When I do something, I see to it that it does not only get done but is done with excellence.	239	1	5	4.35	.910
Internal Locus of Control				**3.32**	
My success depends on whether I am lucky enough to be in the right place at the right time.	239	1	5	3.77	1.290
To a great extent my life is controlled by accidental happenings.	239	1	5	2.16	1.251
When I get what I want, it is usually because I worked hard for it.	239	1	5	4.23	.981
My life is determined by own actions.	239	1	5	4.20	.976
It is not wise for me to plan too far ahead, because things turn out to be a matter of bad fortune.	239	1	5	2.66	1.362
Whether or not I am successful in life depends mostly on my ability.	239	1	5	3.89	1.120
I feel that what happens in my life is mostly determined by people in powerful positions.	239	1	5	2.38	1.414
I feel in control of my life.	239	1	5	4.05	.973
Success in business is mostly a matter of luck.	239	1	5	2.55	1.373
Innovativeness				**3.36**	
I often surprise people with my novel ideas.	239	1	5	3.34	1.176
People often ask me for help in creative activities.	239	1	5	3.66	1.111
I obtain more satisfaction from mastering a skill than coming up with a new idea.	239	1	5	3.07	1.218
I prefer work that requires original thinking.	239	1	5	3.81	1.167
I usually continue doing a new job in exactly the way it was taught to me.	239	1	5	3.28	1.211
I like a job which demands skill and practice rather than inventiveness.	239	1	5	3.62	1.140
I am not a very creative person.	239	1	5	2.16	1.249
I like to experiment with various ways of doing the same thing.	239	1	5	3.92	1.024
Overall mean				**3.50**	
Valid N (listwise)	239				

As shown in Table 4, the mean score for the need to achieve dimension was 3.83. The mean score for internal locus of control dimension was 3.32. For innovativeness dimension, the mean score was 3.36. The overall mean score for personality traits was 3.50. These results suggest that most of the respondents agreed with the statements regarding their personality traits. These results were interpreted to mean that the respondents' personality traits differ and this difference in personality traits may cause them to behave in different ways.

9. Test of Hypotheses

This section presents the results of inferential statistical analyses and interpretations of the results in relation to the research hypothesis.

The objective of the study was to determine the influence of personality traits on the relationship between entrepreneurship education and entrepreneurial intention. The corresponding hypothesis (H1) postulated that: *personality traits moderate the relationship between entrepreneurship education and entrepreneurial intention.* This was tested using hierarchical regression analysis. Dimensions of personality traits that were considered in this study were internal locus of control, need for achievement, and innovativeness. The dimensions were collapsed to form a composite score for personality traits that was used in the analysis. First, the dependent variable (entrepreneurial intention) was regressed on the independent variable, entrepreneurship education; second, the dependent variable (entrepreneurial intention), the independent variable (entrepreneurship education), and the moderator (personality traits) were entered into the equation. Finally, the dependent variable was regressed on independent variable, moderator, and the cross-product of the independent variable and moderator, that is, the interaction term. The cross-product was used to determine the effect of the interaction between the independent variable and moderator on the dependent variable. The results were as shown in Table 5.

Table 5: Hierarchical Regression Results for Moderating Effect of Personality Traits on the Relationship between Entrepreneurship Education and Entrepreneurial Intention

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.365[a]	.133	.129	.61808	.133	36.227	1	236	.000
2	.459[b]	.211	.204	.59090	.078	23.212	1	235	.000
3	.466[c]	.217	.207	.58973	.006	1.936	1	234	.165

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.840	1	13.840	36.227	.000[b]
	Residual	90.158	236	.382		
	Total	103.998	237			
2	Regression	21.944	2	10.972	31.424	.000[c]
	Residual	82.054	235	.349		
	Total	103.998	237			
3	Regression	22.618	3	7.539	21.678	.000[d]
	Residual	81.380	234	.348		
	Total	103.998	237			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	2.312	.294		7.862	.000					
	Entrepreneurship Education	.475	.079	.365	6.019	.000	.365	.365	.365	1.000	1.000
2	(Constant)	1.689	.309		5.459	.000					
	Entrepreneurship Education	.218	.093	.167	2.352	.019	.365	.152	.136	.666	1.502
	Personality Trait	.449	.093	.342	4.818	.000	.439	.300	.279	.666	1.502
3	(Constant)	-.293	1.458		-.201	.841					
	Entrepreneurship Education	.751	.394	.576	1.905	.058	.365	.124	.110	.037	27.387
	Personality Trait	1.019	.420	.776	2.426	.016	.439	.157	.140	.033	30.640
	Entrepreneurship Education Personality Trait	-.152	.109	-.754	-1.391	.165	.442	-.091	-.080	.011	87.776

a. Predictors: (Constant), Entrepreneurship Education

b. Predictors: (Constant), Entrepreneurship Education, Personality Trait

c. Predictors: (Constant), Entrepreneurship Education, Personality Trait, Entrepreneurship Education Personality Trait

d. Dependent Variable: Entrepreneurship Intention

As shown in Table 5, in model 1, entrepreneurial intention was regressed on entrepreneurship education and the R^2 was 0.133. This indicates that 13.3% of the variation in entrepreneurial intention is explained by variation in entrepreneurship education. The ANOVA results indicate that Model 1 is statistically significant ($F = 36.227$; $p < 0.05$). The standardized coefficients show that the effect of entrepreneurship education on entrepreneurial intention is positive and significant ($b = 0.365$; $t = 6.019$; $p < 0.05$).

Model 2 shows that when entrepreneurial intention was regressed on personality traits and added to the model, R^2 increased to 0.211, indicating that 21.1% of the variation in entrepreneurial intention is explained by variation in entrepreneurship education and personality traits. The model shows that personality traits explains additional 7.8% variation in entrepreneurial intention (R^2 change = 0.078). The additional variation in entrepreneurial intention explained by personality traits is thus significant (F change = 23.212, $p < 0.05$). The standardized coefficients show that the effect of entrepreneurship education on entrepreneurial intention is positive and significant ($b= 0.342$, $t = 4.818$, $p < 0.05$).

In model 3, the interaction (entrepreneurship education * personality traits) was introduced. The R^2 increased to 0.217 indicating that 21.7% of variation in entrepreneurial intention is explained by variation in entrepreneurship

education and personality traits and the interaction term. The model also shows that change in R^2 is 0.006; indicating that 6% of the variation in entrepreneurial intention is explained by the interaction between entrepreneurship education and personality traits. The model also indicates that the additional variation in entrepreneurial intention attributed to the interaction term as predictor variables is significant ($F = 21.678$, $p < 0.05$). Regarding the relative effect of the predictor variables in explaining variation in entrepreneurial intention, standardized coefficients in model 3 revealed that personality traits had the greatest effect ($b= 0.776$, $t = 2.426$, $p < 0.05$) followed by interaction term ($b = -0.754$, $t = -1.391$, $p <0.05$) and entrepreneurship education ($b= 0.576$, $t = 1.905$, $p < 0.05$). Further, standardized coefficients show that both predictor variables have a significant positive effect on entrepreneurial intention. The results show that personality traits is a significant moderator of the relationship between entrepreneurship education and entrepreneurial intention, hence Hypothesis $H0_2$ which postulated that personality traits do not moderate the relationship between entrepreneurship education and entrepreneurial intention is rejected.

10. Discussion of Results

This section discusses the results of this study to show the extent to which the results are consistent or inconsistent with existing theories and the results of past studies. The discussion is based on existing theories, past studies and hypotheses.

The study sought to determine the influence of personality traits on the relationship between entrepreneurship education and entrepreneurial intention. The hypothesis (H1)postulated thatpersonality traits moderate the relationship between entrepreneurship education and entrepreneurial intention. The hypothesis was tested by hierarchical regression analysis. The regression results showed that the interaction between entrepreneurship education and personality traits resulted in a significant increase in R^2 (change in $R^2 = 0.217$, F change = 21.678, $p < 0.05$). These results support the hypothesis that the effect of entrepreneurship education on entrepreneurial intention is moderated by personality traits.

The results support the argument from scholars (Kurucz et al., 2008) who contend that individual personality of entrepreneurs provides the impetus to high will power that drives their passions, innovativeness and interactions. The finding also echoes theoretical argument that some individuals have certain psychological characteristics that determine whether or not one finds the tasks or roles of entrepreneurship attractive and viable (McClleland, 1965).

The finding also lends credence to prior studies (Nga & Shamuganathan, 2010; Zhao, 2010) which found out that certain traits such as risk propensity, locus of control, innovativeness and need to achieve are positively and significantly associated with entrepreneurial intention. However, unlike prior studies which examined the role personality traits play as Zhao (2010); Rauch and Frese, (2007), this study focused on the moderating effect of personality traits on the relationship between entrepreneurship education and entrepreneurial intention. The study contributes to knowledge by showing empirically that personality traits are a necessary condition for the effect of entrepreneurship education on entrepreneurial intention.

11. Conclusion and Implications

The objective of the study was to determine the influence of personality traits on the relationship between entrepreneurship education and entrepreneurial intention. The findings revealed that personality traits moderate the relationship between entrepreneurship education and entrepreneurial intention. This means that if entrepreneurship education is imparted on an individual who possesses particular personality traits, chances that the individual will form entrepreneurial intention will be enhanced. The finding of the study has implication for entrepreneurship education theory and for management policy and practice.

The study revealed that personality traits moderate the effect of entrepreneurship education on entrepreneurial intention. This finding supports the arguments of personality traits theory which posits that entrepreneurs possess peculiar traits which distinguish them from non- entrepreneurs (McClelland, 1965). Thus, this study adds to the empirical support of the personality traits theory that interaction of personality traits such as internal locus of control, innovativeness, and need for achievement and entrepreneurship education constructs such as course content and pedagogical approaches results in higher entrepreneurial intention outcomes.

The study revealed that personality traits moderate the relationship between entrepreneurship education and entrepreneurial intention. This implies that curriculum developers and course instructors should understand which personality traits enhance entrepreneurial spirit. This will assist them in looking for ways of not only capitalizing on these entrepreneurial traits but also in finding ways of exploiting these traits right from curriculum development point to choice of pedagogical approaches to be used in entrepreneurship skills delivery.

12. Limitations of the Study

All research has limitations and this study is of no exception. First, due to budget constraints, the study was limited to a population of only 265 third year engineering students taking diploma programs. The findings are therefore specific to only engineering students and cannot be generalized to students in other disciplines or levels of

education. Respondents from other academic disciplines or levels of education such as undergraduate and master university students might have different perceptions about entrepreneurial intention. Second, this study is cross-sectional and, therefore, the findings may be time specific and lack generalizability over time. The third limitation is in relation to research context. The study used empirical data from a single developing country and, thus, the findings may be limited to Kenya and not generalizable to developed countries as a result of cultural settings. Fourth, this study focused on entrepreneurial intention, not actual entrepreneurial action. Intention is the best predictor of a behavior that requires careful planning, such as entrepreneurship. Based on this, the main stream of entrepreneurship research has focused on entrepreneurial intentions. To assess the effectiveness of entrepreneurship education, the most explicit way could be to measure the impact of education components on entrepreneurial intention and finally actual start-up actions. The intentions may not after all be implemented.

13. Recommendations for Further Research

This study contributes to the understanding of the relationship between entrepreneurship education and entrepreneurial intention and the effect of personality traits and attitudes on the relationship. However, further research is necessary to address some of the limitations of this study.

The study was a cross sectional survey. A longitudinal study could increase understanding of the influence of contingency factors on relationship between entrepreneurship education and entrepreneurial intention. Future studies may consider employing a longitudinal research design to evaluate the veracity of the moderating role of personality traits on the relationship between entrepreneurship education and entrepreneurial intention over time, both at the beginning and at the end of the entrepreneurship education program.

The study should be replicated in non TVET public institutions of higher learning such as universities and colleges in different countries. Thus, respondents could be drawn from different academic disciplines or different levels of education. Such studies will confirm whether the results of this study can be generalized to other institutions with different contextual conditions. This will help to identify how different education settings affect entrepreneurship learning and perceptions of students. Future research could also address the link between nascent entrepreneurial intention and implementation intention.

References

Ajzen, I. (2005). *Attitudes, Personality and Behavior.* Maidenhead: McGraw-Hill Education.

Ajzen, I., Fishbein, M., (2005). The Influence of Attitudes on Behavior, *The Handbook of Attitudes* 173-221.

Altinay, L., Madanoglu, M., Daniele, R. & Lashley, C. (2012). The Influence of Family Tradition and Psychological Traits on Entrepreneurial Intention. *International Journal of Hospitality Management* , 31 (2), 489-499.

Bae, T. J., Qian, S., Miao, C. & Fiet, J. O. (2014). The Relationship between Entrepreneurship Education and Entrepreneurial Intentions: A Meta-Analytic Review. *Entrepreneurship Theory and Practice* , 38 (2), 217-254.

Carey, C., &Matlay, H. (2008). Creative Disciplines Education: A Model for Assessing Ideas in Entrepreneurship Education? *Education & Training,* 52, 8-9.

Chaucin, B., Hermand, D., and Mullet, E. (2007), Risk Perception and Personality Facets. *Risk Analysis* 27(1), 171–185.

Colakoglu, N., &Gozukara, I., (2016). A comparison study on personality traits based on the attitudes of university students toward entrepreneurship.*Procedia – Social and Behavioral Sciences*, 229, 133-140.

Entrialgo, M., & Iglesias, V. (2016). The Moderating Role of Entrepreneurship Education on the Antecedents of Entrepreneurial Intention. *International Entrepreneurship Management Journal,* (2016) 12:1209–1232 DOI 10.1007/s11365-016-0389-4

Fayolle, A., & Gailly, B. (2015). The impact of entrepreneurship education on entrepreneurial attitudes and intention: hysteresis and persistence. *Journal of Small Business Management,* 53(1), 75–93.

Fayolle, A., Gailly, B., &Lassas-Clerc, N. (2006). Assessing the Impact of Entrepreneurship Education Programmes: A New Methodology. *Journal of European Industrial Training* , 30(9), 701-720.

Fayolle, A., &Gailly, B. (2008). From Craft to Science: Teaching Models and Learning Processes in Entrepreneurship Education. *Journal of European Industrial Training*, 32(7), 569-593.

Gurel, E., Altinay, L., and Danielle, R. (2010). Tourism Students' Entrepreneurial Intentions. *Annals of Tourism Research* , 37(3), 646-669.

Hsiao, C., Lee, Y., & Chen, H., (2016). The Effects of Internal locus of Control on Entrepreneurship: The Mediating Mechanisms of Social Capital and Human Capital. *The International Journal of Human Resource Management*, 2016 Vol. 27, No. 11, 1158–1172, http://dx.doi.org/10.1080/09585192.2015.1060511.

Koh, H. C. (1996). Testing Hypotheses of Entrepreneurial Characteristics: A Study of Hong kong MBA Students. *Journal of Managerial Psychology* , 11(3), 12-25.

Kothari, C. R. (2004). *Research Methodology: Methods and Techniques.* . New Age International (P) Limited

Publishers.
Krejcie, R., V., & Morgan, D., W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30, 607-610.
Krueger, N. F., Reilly, M. D., &Carsud, A.L. (2001). Competing Models of Entrepreneurial Intentions. *Journal of Business Venturing* , 15(5-6), 411-432.
Kurucz, E. C., Colbert, B. A., & Wheeler, D. C. (2008).*The Oxford Handbook on Corporate Social Responsibility, Seigel (eds.),*. London: Oxford University.
Lii, S. Y., & Wong, S. Y. (2008). The antecedents of overseas adjustment and commitment of expatriates. The International Journal of Human Resource Management, 19, 296–313. doi:10.1080/09585190701799861
Linan, F. & Chen, Y. (2009). Temporal Stability of Entrepreneurial Intentions: A Longitudinal study . *4th European Summer Conference on Entrepreneurship.* Bodo: European Summer Conference on Entrepreneurship.
McClelland, D. (1965). Achievement and Entrepreneurship: A Longitudinal Study. *Journal of Personality and Social Psychology* , 1 (4), 389.
Mueller, S. L. & Thomas, A.S. (2001). Culture and Entrepreneurial Potential: A Nine Country Study of Locus of Control and Innovativeness. *Journal of Business Venturing* , 16:51-75.
Mwasalwiba, E. S. (2010). Entrepreneurship Education: A Review of its Objectives, Teaching Methods, and Impact Indicators. *Education & Training* , 52(1), 20-47.
Mwiya, B. M. (2014). *The Impact of Entrepreneurship Education on the Relationships between Institutional and Individual Factors and Entrepreneurial Intention of University Graduates: Evidence from Zambia.* Zambia.: University of Wolverhampton .
Nga, J. K. H. &Shamuganathan, G. (2010). The Influence of Personality Traits and Demographic Factors on Social Entrepreneurship Start-up Intentions. *Journal of Business Ethics* , 95 (2), 259-282.
Nunnally, J. & Bernstein (1994). *Psychometric Theory.* New York: NY.
Pillis, E. & Reardon, K. K. (2007). The Influence of Personality Traits and Persuasive Messages on Entrepreneurial Intention. *Career Development International* , 12(4), 382-396.
Rauch, A. &Frese, M. (2007). Let's Put the Person Back into Entrepreneurship Research: A Meta-Analysis on the Relationship between Business Owners' Personality Traits, Business Creation, and Success. *European Journal of Work & Organizational Psychology* , 16(4), 353-385.
Rodgriguez, R.G., Dinis, A., Do Parco, A., Ferreira, J., &Raposo, M. (2010). *The Effect of Entrepreneurial Training Programme on Entrepreneurial Traits and Intention of Secondary Students, Entrepreneurship – Born, Made and Educated.* In Tech.
Solomon, G. (2007). An Examination of Entrepreneurship Education in the United States. *Journal of Small Business and Enterprise Development* , 14(2) 168-18.
Souitaris, V., Zerbinati, S., & Al-Laham, A. (2007). Do Entrepreneurship Programmes Raise Entrepreneurial Intentions of Science and Engineering Students? The Effects of Learning Inspiration and Resources. *Journal of Business Venturing* , 22(4), 566-591.
Wilson, K., Vyakarnam, S., Volkmann, C., Mariotti, S., Rabuzzi, D.(2009). *Educating the Next Wave of Entrepreneurs: Unlocking Entrepreneurial Capabilities to Meet the Global Challenges of the 21st Century.*In*: World Economic Forum:* A Report of the Global Education Initiative, April 2009.
Zhao, H. S. (2010). The Relationship of Personality to Entrepreneurial Intentions and Performance: A Meta-Analytic Review. *Journal of Management* , 36 (2), 381-404.