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Examination of the Mediation Role of Entrepreneurial Traits between Entrepreneurship Education and Entrepreneurial Attitudes

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Abstract:

Nations and training institutions have adopted entrepreneurship education widely as a means for promoting entrepreneurial businesses which in return contribute to economies via; employment creation, payment of taxes, and innovation of goods and services. While the past few decades since 1980s witnessed a growing disregard of entrepreneurial traits in entrepreneurship education's impact assessment, few studies remain skeptical and call for mediation in predicting entrepreneurship using entrepreneurial traits. Intrigued with this contradiction, the current study examined the mediation role of entrepreneurial traits between entrepreneurship education and entrepreneurial attitudes.

A quasi experimental case study design was used in this study by adopting Mwakujonga and Sesabo (2012)'s sample of 60 finalist students who specialized in entrepreneurship, and marketing at Mzumbe University of Tanzania. Applying linear regression analysis with bootstrap and joint significance tests proposed by Judd et al., (2014), the study found a significant mediation role of entrepreneurial traits on effect of entrepreneurship education on entrepreneurial attitudes. Perhaps even unique to the body of knowledge, a partial complimentary typology of the entrepreneurial traits' mediation role is determined and its implications are discussed.

Keywords: *Entrepreneurship education, entrepreneurial traits, entrepreneurial attitudes, mediation role*

1. Introduction

Instilling entrepreneurial traits is acknowledged often, as one of the expected outcomes of entrepreneurship education. Alberti et al., (2004) identify stimulation of an affective socialization which involve among others, inculcation of a psychological mindset needed to execute the entrepreneurial role as one of the objectives of entrepreneurship education. More or less similar, Gibb & Price (2014) specify entrepreneurial behaviour, attitude and skill development which include personal characteristics like; an achievement orientation, an incremental risk taking, personal locus of control or autonomy and opportunity seeking as one of the entrepreneurial learning outcomes. These personal characteristics are regarded as entrepreneurial characteristics (Ferreira et al., 2012; Robinson et al., 1991). Also, Jones & English (2004) cite personal development including characteristics of an entrepreneur as part of the intended objectives of the University of Tasmania curriculum. So, it is obvious entrepreneurship education intends to inculcate among other things, entrepreneurial traits.

Most studies on the impact of entrepreneurship education (Fayolle et al., 2006; Fayolle & Gailly, 2015; Hattab, 2014; Izquierdo, 2008; Karimi et al., 2014; Kruger et al., 2000; Lorz, 2011; Mwatshika & Sankhulani, 2016; Rodriguez et al., 2012; Yaqub et al., 2015) however, do not signify any particular role of entrepreneurial traits in nurturing entrepreneurial behavior (business start up). Instead, only entrepreneurial attitudes are reported to mediate the effect of entrepreneurship education on entrepreneurial intentions which determine business start up in the end. This means, entrepreneurship education has a direct effect on entrepreneurial attitudes, a relationship in which entrepreneurial traits play no significant role. Contrary to this popular view, Mwakujonga & Sesabo (2012) and Yan (2010) report on mediation of entrepreneurial traits between entrepreneurship education and entrepreneurial attitudes. Implicitly, entrepreneurship education ought to influence entrepreneurial traits first in order to nurture the desired entrepreneurial attitudes and business start ups in the end.

Whether the entrepreneurial traits play no significant role or mediate the nurturing of entrepreneurial attitudes is still debatable. In particular, the conception about the mediation role of entrepreneurial traits between entrepreneurship education and entrepreneurial attitudes has neither been replicated adequately nor its nature has been studied adequately. As a result, questions about the significance and type of the mediation role of entrepreneurial traits on the effect of entrepreneurship education on entrepreneurial attitudes are yet to be answered adequately. To contribute in addressing this gap, the current study examines the entrepreneurial traits' mediation role between entrepreneurship education and entrepreneurial attitudes using contemporary mediation analysis techniques suggested in Preacher & Hayes (2004) and Judd et al., (2014). Henceforth an account on; literature review, research methodology, research results, discussion, and conclusions and recommendations is made.

2. Literature Review

2.1. Effect of Entrepreneurship Education on Entrepreneurial Traits

Research on the effect or impact of entrepreneurship education on entrepreneurial traits seems to be driven by two lines of thoughts. Concurrent to Gartner (1988) and Kruger et al., (2000), one line of the thoughts regard entrepreneurial traits weak determinants of entrepreneurship. Entrepreneurship education's impact studies, following this line of thought (Kruger et al., 2000; McStay, 2008; Mwasalwiba, 2010) exclude entrepreneurial traits in their frameworks in favour of intention based constructs. The other considers entrepreneurial traits significant determinants of entrepreneurship (Bulsara et al., 2010; Leutner et al., 2014; Rauch & Frese, 2000; Stephan et al., 2015; Xie, 2014). Even though the former line of thought has dominated impact assessments on entrepreneurship education (Mwasalwiba, 2010), still educators consider entrepreneurial traits worthy including in an entrepreneurship education curricula (Alberti et al., 2004; Jones & English, 2004; Gibb & Price, 2014) and there are evidences about the positive effect of entrepreneurship education on entrepreneurial traits (Mwakujonga & Sesabo 2012; Remeikiene et al., 2013).

How and perhaps when, entrepreneurship education affects entrepreneurial traits and business start up in the end, is still ambivalent. Some authors (Van der Kuip & Verheul, 2003; Dahmann & Anger, 2014) suggest entrepreneurship education is more effective when offered earlier in one's life because childhood is more malleable to learning. This is because traits are considered stable or hard to change (Kimble & Garnezy 1963; Krech & Crutchfield 1958). However, entrepreneurship education at university level has also been effective (Mwakujonga & Sesabo, 2012; Remeikiene et al., 2013).

Pedagogically, active or practical oriented training methods are thought to be the most effective in realizing the objectives of entrepreneurship education (Gibb & Price, 2007; Mwasalwiba, 2010; Pounder, 2014). Mechanism wise, Remeikiene et al., (2013) and Pounder (2014) imply a direct causation or effect of entrepreneurship education on each entrepreneurial trait. Even though right, this conception does not account for the effect of entrepreneurship education on entrepreneurial traits in its totality. This is important because, Chell (2008) opines that, entrepreneurship is determined by one's total personality rather than a single trait. Consistent to this opinion thereof, a direct effect of entrepreneurship education on enterprising tendency/entrepreneurial orientation which, integrates several entrepreneurial traits can be inferred.

2.2. Effect of Entrepreneurship Education on Entrepreneurial Attitudes

Entrepreneurial attitudes are confused for entrepreneurial traits often. In the European Union (2012), attitudes consist of perceptions on risk taking, self efficacy, need for achievement, sense of initiatives and structural behavior which, together with knowledge and skills are called entrepreneurial competences. Similarly, ASTEE (2014) regard attitudes as involving acquisition of characteristics like; initiative, independence, innovation, risk propensity, ambition etc., and calls them, together with perceived entrepreneurial knowledge and skills or competences as entrepreneurial competences. Psychologically however, traits are regarded as enduring characteristics of the individual manifested in a consistent way of behaving in a wide variety of situations (Kimble & Garnezy, 1963; and Krech & Crutchfield, 1958). As a result, individual or personal characteristics which are common to entrepreneurs, including; need for achievement, locus of control, innovativeness, and risk taking propensity are called entrepreneurial traits or characteristics (Bulsara et al., 2010; Ferreira et al., 2012; Kirby, 2004; Robinson et al., 1991). Therefore, ASTEE (2014)'s and EU (2012)'s attitudes are entrepreneurial traits and not entrepreneurial attitudes.

With respect to attitude, Ajzen (1991) in his influential theory of planned behavior considers them behavioral aspects part of antecedents to intention. Other antecedents of intention are; perceived social norms and perceived behavioral control. Attitude is also called personal attitude (Rodriguez et al., 2012), attitude towards entrepreneurship (Fayolle et al., 2006; Karimi et al., 2014; Mwatshika & Sankhulani, 2016) or perceived desirability (Kruger et al., 2000; Shapero & Sokol, 1982). Perceived behavioral control is also called self-efficacy or entrepreneurial self-efficacy (Mwatshika & Sankhulani, 2016; Izquierdo, 2008) or perceived feasibility (Kruger et al., 2000). Perceived social norms are also simply called social norms (Karimi et al., 2014) or propensity to act (Shapero & Sokol, 1982). In spite of differences in terms and categories, all antecedents of intention are perceptions or feelings. Since attitude describes a settled ways of thinking or feeling about something (<http://en.oxforddictionaries.com>), this study generalizes all antecedents of entrepreneurial intention including perceived; feasibility, social norms and desirability as entrepreneurial attitudes because they are all attitudinal.

Entrepreneurship education's impact studies which exclude entrepreneurial traits as weak determinants of entrepreneurship (Fayolle et al., 2006; Izquierdo, 2008; Karimi et al., 2014; Mwatshika & Sankhulani, 2016; Rodriguez et al., 2012; Yaqub et al., 2015) conceptualise a direct positive effect of entrepreneurship education on entrepreneurial attitudes. However, the significance of the effect per entrepreneurial attitudes' construct is ambivalent. For Tung (2011) and Yaqub et al., (2015), the effect is significant for all the constructs. But, for Fayolle et al., (2006) and Mwatshika & Sankhulani (2016), the effect is significant only on perceived feasibility. Despite this ambivalence on significance of the effect of entrepreneurship education on the constructs of entrepreneurial attitudes, the theory of planned behaviour upon which these constructs are derived is relevant (Fayolle et al., 2006; Krueger et al., 2000; Mwatshika & Sankhulani, 2016; Tung, 2011). This means all the constructs of entrepreneurial attitudes are relevant, except where context proves otherwise.

Entrepreneurship education's impact studies which integrate entrepreneurial traits (Mwakujonga & Sesabo, 2012; Yan, 2010) conceptualise the effect of entrepreneurship education on entrepreneurial attitudes through entrepreneurial traits. Alternatively, Batool et al., (2015) found self efficacy (antecedent of intention) affects entrepreneurial intention (self employment intention) through creativity (an entrepreneurial trait). This conceptualisation is also reflected in Luthje & Frank (2003)'s Structural Model of Entrepreneurial Intention (SMEI) where entrepreneurial traits are confirmed to be antecedents of entrepreneurial attitudes, with risk

taking propensity showing stronger effect than locus of control. Logically, if entrepreneurship education affects entrepreneurial traits and entrepreneurial traits are antecedents of entrepreneurial attitudes, then it suffices to conceptualise entrepreneurial traits as mediators of the effect of entrepreneurship education on entrepreneurial attitudes as in figure 1. This conceptualisation however, has not been replicated empirically adequately. Towards this end therefore, the current study tests this conception empirically via the hypothesis: “*entrepreneurship education affects entrepreneurial attitudes through entrepreneurial traits*”. In addition, the typology of the resultant mediation is examined.

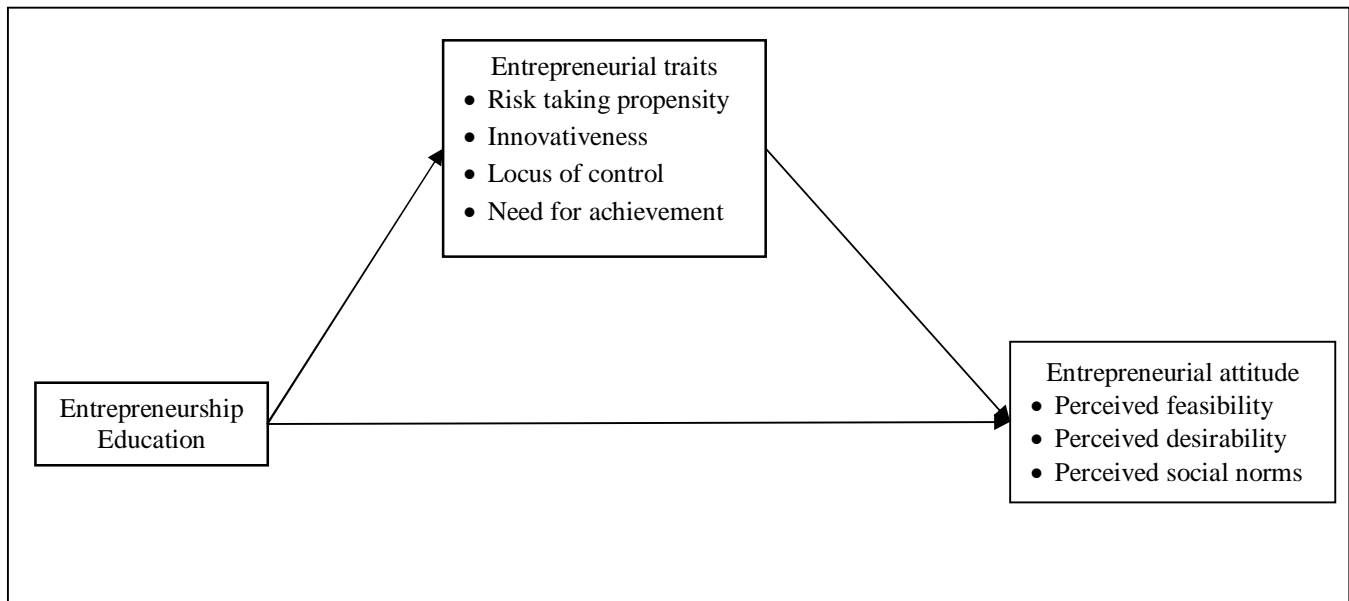


Figure 1: Conceptual Framework

Source: Author

2.3. Nature of Entrepreneurial Traits' Mediation between Entrepreneurship Education and Entrepreneurial Attitudes

This study found no scholarly material addressing the nature of entrepreneurial traits' mediation between entrepreneurship education and entrepreneurial attitudes. Generically however, Baron & Kenny (1986) identify full mediation and partial mediation. In partial mediation, the partial effect of the predictor is significant while in full mediation it is not. In addition to these, suppression occurs when the partial effect of the predictor remains significant but changes its sign (Little et al., 2007). Zhao et al., (2009) on their sides identify; complementary mediation, competitive mediation, indirect only mediation, direct only non mediation, and no effect none mediation. Respectively, these mediations occur when; both the mediation and predictor effects are significant and with similar signs; both the mediation and predictor effects are significant but opposite in signs; the mediation effect is significant while effect of the predictor is not; the mediation effect is not significant while the effect of the predictor is; and neither the mediation effect nor the effect of the predictor is significant.

This brief literature on nature of mediation indicates heterogeneity in the criteria used to classify mediation and so the results. The current study integrates two criteria in classifying mediation. Firstly, it adopts comparison of signs of the mediation and predictor effects in Zhao et al., (2009) as one of the criteria for classifying mediation. But, unlike Zhao et al., (2009) it omits all types of mediation which involve either no effect to be mediated or no significant mediation effect because they are not mediation effects at all (Baron & Kenny, 1986; Preacher & Hayes, 2004). The resultant typology of mediation are; complementary mediation and competitive mediation. Secondly, the resultant complementary and competitive mediations are bisected using Baron & Kenny (1986)'s significance of the effect of the predictor when controlling for the mediator, as an addition criterion for classifying mediation. The outcome is a unique typology of mediation shown in figure 2.

Signs of the direct and mediation effects are similar	Full complementary mediation	Partial complementary mediation
	Full competitive mediation	Partial competitive mediation
Signs of the direct and mediation effects are opposite	Full competitive mediation	Partial competitive mediation
	Controlling for the mediator, the partial effect of the predictor is insignificant	Controlling for the mediator, the partial effect of the predictor is significant

Figure 2: Typologies of Mediation
Source: Author

3. Research Methodology

3.1. Research Design

This study employed a quasi experimental quantitative case study design in which, secondary data were obtained after reviewing a comparative sample 60 University students in Mwakujonga & Sesabo (2012). The students were in their final year of study in a 1/0.6 female to male and 1.2/1 BBA-Marketing to BBA-Entrepreneurship ratios. Being quantitative and case based, the design enables rigour and in-depth statistical analysis respectively (Kothari, 2004). The comparative sample minimizes the effect differences in size and nature of studies while allowing ordinal distinction of entrepreneurship education between the students.

3.2. Variables and Measurements

Entrepreneurship education was measured using ordinal scale “more” for students specializing in entrepreneurship and “less” for marketing cohorts. Ordinal quantification is one of the techniques used in measuring entrepreneurship education (Tung, 2011). Enterprising tendency was used as a generic measure of entrepreneurial traits which include; need for achievement, locus of control, innovativeness, and risk taking propensity. These traits are common to entrepreneurs (Ferreira et al., 2012; Bulsara et al., 2010; Robinson et al., 1991). Each trait was measured using 2-3 items screened from Mwakujonga & Sesabo (2012), which assessed students’ feelings of possessing the qualities associated with entrepreneurial traits on a 5 point likert scale. Score 1 represented strong disagreement to the feeling of possessing the qualities associated with entrepreneurial traits and 5, a strong agreement to the feeling. The technique has been successful used to measure individual’s predisposition towards entrepreneurship in previous studies such that, the more the qualities associated with entrepreneurial traits one has, the more enterpreneurial she or he is considered (Bulsara et al., 2010).

Two constructs namely perceived desirability and feasibility were used to determine entrepreneurial attitudes. Perceived social norm was not included because it has been found insignificant in many cases (Kruger et al., 2000; Rauch & Hulsink, 2015). Each construct was measured using 4 items selected from Mwakujonga & Sesabo (2012) which, assessed students’ feelings on possession of qualities of entrepreneurial attitudes on a 5 point likert scale. An exemplary item on perceived desirability was “being an entrepreneur is very advantageous to me” and on perceived feasibility was “I know the procedures of starting a viable firm”. Score 1 represented strong disagreement to the feeling of possessing the qualities of entrepreneurial attitudes, and 5 represented a strong agreement. Previous studies, also used likert in this case (Fayolle et al., 2006; Luthje & Franke, 2003; Shapero & Sokol, 1982). The two constructs’ measures were then averaged to reflect total personality. Total personality, not a single construct matters in entrepreneurship decisions (Chell, 2008).

3.3. Data Collection and Analysis

Data were collected through review of documentation in Mwakujonga & Sesabo (2012). These data are still relevant because the focus of the study is process of occurrence of effect rather than timely intervention. Relevant and adequate secondary data are a cheap source of information (Aaker et al., 2001; Kothari, 2004).

A minimum Cronbach’s α test score of 0.7 was maintained (see table1) to ensure internal consistency and increased chance of validity of data (Tavakol & Dennick, 2011). Linear regression equations..... (i) (ii) and (iii) were adopted from Judd et al., (2014) and analysed with bootstrap technique using SPSS 18. In these equations the; criterion variable (Y) is entrepreneurial attitudes; predictor variable (X) is entrepreneurship education and moderator variable (M) is entrepreneurial traits. A significant; c in equation (i) indicates presence of an effect to be mediated (Preacher & Hayes, 2004) and c' in equation (iii) verifies mediation. Significance of c' was tested using ‘a’ and ‘b’ joint significance tests which, according Judd et al., (2014) give results free from type I error. Bootstrap technique is effective for small samples (Preacher & Hayes, 2004). Further more, the overall mediation model fit is fairly high, with explanatory power of 38.3% (R Square = 0.383) in variation of entrepreneurial attitudes as shown in table 2.

$$Y_i = b_{01} + cX_i + e_{1i} \dots\dots\dots (i)$$

$$M_i = b_{02} + aX_i + e_{2i} \dots\dots\dots (ii)$$

$$Y_i = b_{03} + c'X_i + bM_i + e_{3i} \dots\dots\dots (iii)$$

Construct	No. of items	χ^2
Need for achievement	3	0.9
Internal locus of control	2	0.7
Innovativeness	2	0.7
Risk taking propensity	3	0.7
Perceived desirability of entrepreneurship	4	0.8
Perceived feasibility of entrepreneurship	4	0.8

Table 1: Chronbach’s alpha scores for various research constructs
Source: Author

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
dimension1	1	.619 ^a	.383	.350
a. Predictors: (Constant), Entrepreneurship education, Entrepreneurial traits				
b. Dependent variable: Entrepreneurial attitudes				

Table 2: Model Summary
Source: Author

4. Analysis or Study or Results

4.1. Entrepreneurial Traits’ Mediation Role between Entrepreneurship Education and Entrepreneurial Attitudes

Table 3 indicates presence of the effect to be mediated because the effect of entrepreneurship education on entrepreneurial attitudes (B = 0.986) is significant (lies between 0.607 and 1.338 which is significantly different from zero at 95% confidence level). When the predictor significantly effects the criterion, there is an effect to be mediated (Baron & Kenny, 1986).

Model	B	Bootstrap ^a				
		Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval	
					Lower	Upper
1 (Constant)	4.530	-.002	.137	.001	4.247	4.803
Entrepreneurship education	.986	.006	.188	.001	.607	1.338

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Table 3: Effect of Entrepreneurship Education on Entrepreneurial Attitudes
Source: Author

Shown in table 4, the effect of entrepreneurship education (predictor) on entrepreneurial traits (mediator) is 0.752 (B = 0.752). This effect is significant at 95% confidence interval as it ranges 0.341 to 1.154 which does not include zero. Thus, entrepreneurship education has a positive significant effect on entrepreneurial traits.

Model		B	Bootstrap ^a				
			Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval	
						Lower	Upper
1	(Constant)	4.208	.006	.167	.001	3.875	4.552
	Entrepreneurship education	.752	.002	.198	.001	.341	1.154

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples
 b. Dependent variable: Entrepreneurial traits

Table 4: Effect of Entrepreneurship Education on Entrepreneurial Traits

Source: Author

Also, as indicated in table 5 is a positive effect of entrepreneurial traits (B = 0.118) on entrepreneurial attitudes, controlling for entrepreneurship education. This effect is significant at 95% confidence interval as it ranges from 0.071 to 0.184 which does not include zero. Thus, when entrepreneurship education is controlled, entrepreneurial traits have a positive significant effect on entrepreneurial attitudes.

Model		B	Bootstrap ^a				
			Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval	
						Lower	Upper
1	(Constant)	2.810	-.047	.420	.001	1.722	3.435
	Entrepreneurship education	.721	.003	.200	.002	.312	1.099
	Entrepreneurial traits	.118	.003	.028	.001	.071	.184

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Table 5: Effect of Entrepreneurial Traits on Entrepreneurial Attitudes, Controlling for Entrepreneurship Education

Source: Author

From ‘a’ and ‘b’ joint significance tests, we multiply the effect of the predictor on mediator (0.752) as ‘a’ and effect of mediator on criterion while controlling for the predictor (0.118) as ‘b’ = 0.752*0.118 = 0.089. According to Judd et al., (2014), if the coefficients of the predictor on the mediator and mediator on the criterion are all significant, their product is also significant which confirms mediation. This confirms the study’s hypothesis on the significant mediation effect of entrepreneurial traits on the effect of entrepreneurship education on entrepreneurial attitudes.

4.2. Nature of Entrepreneurial Traits’ Mediation between Entrepreneurship Education and Entrepreneurial Attitudes

Table 3 in section 4.1 of this study shows a positive effect of entrepreneurship education on entrepreneurial attitudes (B = 0.986) which ranges from 0.607 to 1.338 and thereby significant at 95% confidence interval as it differs from zero. Controlling for the mediator (entrepreneurial traits), table 5 shows a reduction on the effect of entrepreneurship education on entrepreneurial attitudes to 0.721 (B = 0.721). This effect is still significant at 95% confidence interval, as it lies between 0.312 and 1.099 which does not include zero. This is partial mediation which occurs when the effect of the dependent variable drops by a nontrivial amount but remains significant, controlling for the mediator (Preacher & Hayes, 2004).

On the other hand, the sign of the coefficient of the predictor (entrepreneurship education) on entrepreneurial attitudes (criterion) is indicated to be **positive** (0.986) in table 3. Also, the sign of the mediation effect calculated in section 4.1 of this study is **positive** (0.089). Comparatively, both the sign of the coefficient of the predictor and mediation effect are **positive**. This is complementary mediation (Zhao et al., 2009). Based on figure 2, partial mediation and complementary mediation integrates into partial complementary mediation. This means the entrepreneurial traits’ play the partial complementary mediation role (partial complementary mediators) between entrepreneurship education and entrepreneurial attitudes.

5. Discussion

The study examined the mediation role of entrepreneurial traits on the effect of entrepreneurship education on entrepreneurial attitudes. Synthesis of results in table 3-5, confirm the hypothesis on the significant mediation effect of entrepreneurial traits on the effect of entrepreneurship education on entrepreneurial attitudes. The results conquer with Mwakujonga & Sesabo (2012) and Yan (2010). Also they support assertions of entrepreneurial traits being antecedents of entrepreneurial attitudes as put forth in Luthje & Franke (2003) and Batool et al., (2015). But, they contradict the exclusion of entrepreneurial traits in entrepreneurship education’s impact assessments by most studies (Fayolle et al., 2006; Fayolle & Gailly, 2015; Hattab, 2014; Karimi et al., 2014; Lorz, 2011; Mwatshika & Sankhulani, 2016; Rodriguez et al., 2012; Yaqub et al., 2015). The conflict is perhaps due to exclusion of entrepreneurial traits in most entrepreneurship education’s impact studies without empirical verification, rather based on critics from previous studies especially of the 1980s. Considering recent developments in measurement and specificity in traits, Rauch & Frese (2000) dilutes the critics.

The type of mediation role played by entrepreneurial traits on the effect of entrepreneurship education on entrepreneurial attitudes is illustrated in table 5 to be partial complementary mediation. Therefore, a small but significant part of the effect of entrepreneurship education on entrepreneurial attitudes passes through entrepreneurial traits (partial mediation property) which renders it improved (complementarities property). This typology is the unique contribution of the current study to the literature, as no other study was

found to have described it. Generally however, these results support the idea that, entrepreneurship (business start up) depends on multiple factors ranging from personal to environmental (Franke & Luthje, 2004; Xie, 2014).

6. Conclusion

Contrary to previous entrepreneurship education's impact studies (Fayolle et al., 2006; Fayolle & Gailly, 2015; Hattab, 2014; Izquierdo, 2008; Karimi et al., 2014; Kruger et al., 2000; Lorz, 2011; Mwatshika & Sankhulani, 2016; Rodriguez et al., 2012; Yaqub et al., 2015) in which the role of entrepreneurial traits in nurturing entrepreneurs is ignored, this study confirms the partial complementary mediation role of the entrepreneurial traits on the effect of entrepreneurship education on entrepreneurial attitudes. Thus, entrepreneurship education programs that inculcate traits, attitudes and intentions together are more effective in nurturing entrepreneurial business start up than those focusing on attitudes and intentions only.

Theoretically these results reinforce the significance of entrepreneurial traits in explaining the cognitive process and resultant entrepreneurial business start up behavior. Therefore there is a need for using multiple approaches including at least the; psychological, cognition and behavioral approaches to explaining the nurture of entrepreneurship (business start up behavior). As observed in Yan (2010), any theory or framework ignoring the role of entrepreneurial traits in entrepreneurship is incomplete. This is seemingly in the case for entrepreneurship education's impact conceptual frameworks as well. Consequently, entrepreneurship educators are also challenged to incorporate entrepreneurial traits in their curriculum's contents, pedagogies and evaluation.

Limitation wise, this study used cross sectional data and non randomized sample. So, neither the impact of entrepreneurship education could be traced progressively nor selection bias could be omitted. Yet, comparative samples used in the study had been successful used in other studies (Tung, 2011). Also, the self assessment questions used, could have exaggerated the results towards socially desirable answers. But, respondents were asked to be honest. Moreover, the study used summative rather than individual entrepreneurial traits' and attitude construct's measure. So, the relative mediation effect of individual traits was not examined. Further studies may replicate this study longitudinally for more rigorous causal explanations (Baker, 2000) and compare mediation effects of various entrepreneurial traits to enhance their prioritization.

7. References

- i. Aaker, D. A., Kumar, V & Day, S. G. (2001). *Marketing research*, (7th Ed.). New York: John Willey & Sons.
- ii. Ajzen, I. (1991). The theory of planned behaviour. *Organisational behaviour and human decision processes*, 50, 177-211.
- iii. Alberti, F., Sciascia, S., & Poli, A. (2004). Entrepreneurship education: Notes on an ongoing debate. Paper presented at the 14th Annual IntEnt Conference. University of Napoli Federico II. 4-7 July 2004. Napoli, Italy.
- iv. ASTEE (2014, June). ASTEE project report: How to assess and evaluate the influence of entrepreneurship education. Retrieved from www.ntsnet.dk/sites/default/files/ASTEErapportJune2014.pdf [Accessed on 10 July 2017].
- v. Baker, L. J. (2000). *Evaluating the impact of development projects on poverty: A handbook for practitioners*. Washington D.C: The International Bank for Development and Reconstruction.
- vi. Baron, M. R., & Kenny, A. D (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- vii. Bulsara, P. H., Gandhi, S., & Porey, P. D (2010). A Comparative study of enterprising tendency with the help of select cases in India. *International Journal of Trade, Economics and Finance*, 1(4), 392-399.
- viii. Batool, H., Rasheed, H., Malik, I. M., & Hussain, S. (2015). Application of partial least square in predicting e-entrepreneurial intention among business students: Evidence from Pakistan. *Journal of Innovation and Entrepreneurship*, 4(6), 1-16. DOI.10.1186/s13731-015-0019-3
- ix. Chell, E. (2008). *The entrepreneurial personality: A social construction*, (2nd Edn.). Retrieved from <http://dl4a.org/uploads/pdf/0415328098.Psychology.Press.The.Entrepreneurial.A.Social.Construction.Jun.2008.pdf> [Accessed 9 February 2017].
- x. Dahmann, S., & Anger, S. (2014). The impact of education on personality: Evidence from a German school reform. Retrieved from <http://ftp.iza.org/dp8139.pdf> [Accessed 28 April 2017].
- xi. European Union.(2012, March). *Effects and Impact of Entrepreneurship Programmes in Higher education*. Retrieved from <http://ec.europa.eu/DocsRoom/documents/375/attachments/1/transactions/en/renditionas/native> [Accessed on 07 July 2017].
- xii. 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. doi: 10.1111/jsbm.12065
- xiii. Fayolle, A., Gailly, B., & Lassas-Clerc, N. (2006). Effect and counter-effect of entrepreneurship education and social context on student's intentions. *Estudios de Economia Aplicada*, 24(2), 509-523.
- xiv. Ferreira, J.J., Raposo, L. M., Rodrigues, G. R., Dinis, A., & do Paco. A. (2012). A model of entrepreneurial intention: an application of the psychological and behavioral approaches. *Journal of Small Business and Enterprise Development*, 19 (3), 424-440.
- xv. Franke, N., & Luthje, C. (2004). Entrepreneurial intentions of business students: A benchmarking study. *International journal of innovation and technology management*, 1(3), 269-288.
- xvi. Gartner, W. B. (1988). Who is an entrepreneur? Is the wrong question. *Entrepreneurship Theory and Practice*, 12(2), 47-68.
- xvii. Gibb, A., & Price, A. (2014). *A compedium of pedagogies for teaching entrepreneurship*, (2nd Edn.), 1-215. Retrieved from <http://ncee.org.uk/wp-content/uploads/2013/12/Compendium-of-Pedagogies.pdf> [Accessed 14 May 2017].

- xviii. Hattab, W. H. (2014). Impact of entrepreneurship education on entrepreneurial intention of university students in Egypt. *The Journal of Entrepreneurship*, 23 (1), 1–18. doi:/abs/10.1177/0971355713513346
- xix. Izquierdo, E., & Buelens, M. (2008). Competing models of entrepreneurial intentions: The influence of entrepreneurial self-efficacy and attitudes. Paper presented at the IntEnt2008 Conference, Internationalizing Entrepreneurship Education and Training, 17-20 Julio 2008, Oxford, Ohio, USA.
- xx. Jones, C., & English, J. (2004). A contemporary approach to entrepreneurship education. *Education + Training*, 46 (8/9), 416-23.
- xxi. Judd, C.M., Yzerbyt, Y.V., & Muller, D. (2014). Mediation and moderation. In Reis, H., & Judd, M. C. (Ed.), *Hand book of research methods in personality and social psychology: 2nd Edn* (pp. 653-676). Cambridge, England:Cambrige University Press.
- xxii. Karimi, S., Biemans, J. A. H., Lans, T., Chizari, M., & Mulder, M. (2014). The impact of entrepreneurship education: A study of Iranian students' entrepreneurial intentions and opportunity identification. *Journal of Small Business Management*, 1-23. doi: 10.1111/jsbm.12137
- xxiii. Kimble, G.A., & Garnezy, N. (1963). *Principles of general psychology*, (2nd ed.). New York: The Ronald Press Company.
- xxiv. Kirby, D. (2004). Entrepreneurship education: Can business schools meet the challenge? *Education and Training*, 46 (8/9), 510-519.
- xxv. Kothari, R. C. (2004). *Research methodology: Methods and techniques*, (2nd Revised Edn.). New Delhi: New Age International.
- xxvi. Krech, D., & Crutchfield, R.S. (1958). *Elements of psychology*. New York: Alfred A. Knopf.
- xxvii. Krueger Jr., N. F., Reully, M.D. & Carsrud, A.L. (2000). Competing models of entrepreneurial intensions. *Journal of business venturing*, 15, 411- 432.
- xxviii. Leutner, F., Ahmetoglu, G., Akhtar, R., & Chamorro-Premuzic, T. (2014). The relationship between the entrepreneurial personality and the big five personality traits. *Elsevier Journal of Personality and Individual Differences*,63, 58-63.
- xxix. Little, T. D., Card, N. A., Bovaird, J. A., Preacher, K. J., & Crandall, C. S. (2007). Structural equation modeling of mediation and moderation with contextual factors. Retrieved from http://www.quantpsy.org/pubs/little_card_bovaird_preacher_crandall_2007.pdf [Accessed on 07 February 2017].
- xxx. Lorz, M., Volery, T., & Muller, A. C. (2011). *The impact of entrepreneurship education on entrepreneurial intention: PhD thesis*. University of St. Gallen, Germany.
- xxxi. Luthje, C., and Franke, N. (2003). The making of an entrepreneur: testing a model of entrepreneurial intent among engineering students at MIT. In *R&D Management*, 33(2), 135-147.
- xxxii. McStay, D. (2008). *An investigation of undergraduate student self-employment intention and the impact of entrepreneurship education and previous entrepreneurial experience: PhD thesis*. Bond University Business School, Australia. Retrieved from <http://epublications.bond.edu.au/cgi/viewcontent.cgi?article=1066&context=theses> [Accessed on 07 February 2017].
- xxxiii. Mwakujonga, J., & Sesabo, J. Y. (2012). *Entrepreneurship education: The specialization in entrepreneurship education on entrepreneurial intentions of university students in Tanzania*. Saarbrücken, Germany: LAP LAMBERT Academic Publishing.
- xxxiv. Mwasalwiba, S. E. (2010). *Entrepreneurship Education: a review of its objectives, teaching methods and impact indicators*. *Education and training*, 52 (1), 20- 47.
- xxxv. Mwatsika, C., & Sankhulani, E. (2016). Effect of entrepreneurship education on students' orientation towards entrepreneurship at the Malawi polytechnic. *International Journal of Business and Economics Research*. 5 (6), 235-245. doi: 10.11648/j.ijber.20160506.17
- xxxvi. Pounder, P. (2014). Teaching entrepreneurship: Insights into the students of the SEED programme and their perception of its non-traditional facilitation. *Caribbean Teaching Scholar*, 4 (1), 39-50.
- xxxvii. Preacher, J.K., & Hayes, F.A (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments & Computers*, 36 (4), 717-731.
- xxxviii. Rauch, A., & Frese, M. (2000). In C.L. Cooper & I.T. Robertson (Ed.), *Psychological approaches to entrepreneurial success: A general model and an overview of findings*. *International Review of Industrial and Organizational Psychology* (pp. 101-142). Chichester:Wiley.
- xxxix. Rauch, A., & Hulsink, W. (2015). Putting entrepreneurship education where the intention to act lies: An investigation into the impact of entrepreneurship education on entrepreneurial behavior. *Academy of Management Learning & Education*, 14 (2) 187–204. doi:org/10.5465/amle.2012.0293
- xl. Remeikiene, R., Startiene, G., & Dumciuviene, D. (2013, June 19-21). Explaining entrepreneurial intention of university students: The role of entrepreneurial education. 2013 Management, knowledge and Learning International Conference on active citizenship by knowledge management and innovation, (pp.299-307). Zadar: Croatia, MakeLearn Publishing.
- xli. Shapero, A. & Sokol, L. (1982). The encyclopedia of entrepreneurship. In Kent, C., Sexton, D. and Vesper, K. (Ed.), *Social dimensions of entrepreneurship* (pp. 72–90). Eagle wood cliffs, NJ:Prentice Hall.
- xlii. Robinson, P.B., Stimpson, D.V., Huefner, J.C., & Hunt, H.K. (1991). An attitude approach to the prediction of entrepreneurship. *Entrepreneurship Theory and Practice*, 15(4), 13-31.
- xliii. Rodrigues, G. R., Dinis, A., do Paço, A., Ferreira, J., & Raposo, M. (2012). The effect of an entrepreneurial training programme on entrepreneurial traits and intention of secondary students: Entrepreneurship-born, made and educated.

- Retrieved from <http://www.intechopen.com/pdfs/31835/inTech-the-effect-of-an-entrepreneurial-training-programme-on-entrepreneurial-traits-and-intention-of-secondary-students.pdf> [Accessed on 10 July 2017].
- xliv. Stephan, U., Hart, M., Mickiewicz, T., & Drews, C. (2015). Understanding motivations for entrepreneurship. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/408432/bis-15-132-understanding-motivations-for-entrepreneurship.pdf [Accessed on 07 February 2017].
- xlvi. Tavakol, M & Dennick, R. (2011). Making sense of Cronbach’s alpha. *International Journal of Medical Education*, 2, 53-55.
- xlvi. Tung, L. (2011). The impact of entrepreneurship education on entrepreneurial intention of engineering students: PhD thesis. City University of Hong Kong, China. Retrieved from lbms03.cityu.edu.hk/thesis/c_ftt/phd-meem-b40869337f.pdf [Accessed on 09 July 2017].
- xlvii. Van der Kuip, I., & Verheul, I . (2003). Early development of entrepreneurial qualities: The role of initial education. Retrieved from <http://ondernemerschap.panteia.nl/pdf-ez/n200311.pdf> [Accessed 28 April 2017].
- xlvi. Xie, C. (2014). Why do some people choose to become entrepreneurs? An integrative approach. *Journal of Management Policy and Practice*, 15(1), 25-38.
- xlix. Yan, J. (2010). The impact of entrepreneurial personality traits on perception of new venture opportunity. *New England Journal of Entrepreneurship*, 13(2:4). Retrieved from <http://digitalcommons.sacredheart.edu/neje/vol13/iss2/4> [Accessed on 10 July 2017]
1. Yaqub, K. M., Mufti, A. N., Ali, S., & Khaleeq, U. M. (2015). Impact of entrepreneurship education on attitudes of students towards entrepreneurship. *Journal of Basic & Applied Sciences*, 11, 590-595. Retrieved from www.lifescienceglobal.com/pns/index.php/jbas/article/viewFile/2885/1977 [Accessed on 10 July 2017].
- li. Zhao, X., Lynch Jr., J. G., & Chen, Q. (2009). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. Retrieved from <http://rhowell.ba.ttu.edu/mediation2.pdf> [Accessed on 19 March 2017].