Personality Traits, Entrepreneurship Education and Opportunity Recognition. A Moderating Relationship

Ahmed Aliyu Palladan[1], Muhammad Ahmad Adamu[2]
[1] School of Business, FCET Gombe, Nigeria
aapalladan@live.com
[2] School of Business, FCET Gombe, Nigeria
muhammedkashere@gmail.com

Abstract

The paper investigates whether individual personality traits (Innovativeness INN, Locus of Control LOC, Need for Achievement NAC, Self-Efficacy SEF and Tolerance to Risk TOR) have any effects on individual Opportunity Recognition ability OPR. The moderating effect of Entrepreneurship Education ETE between the traits and opportunity recognition was also assessed. Survey was administered to undergraduate students in four different tertiary institutions in Gombe state Nigeria and SEM PLS 3 software was used for the analyses. The results suggest a positive and **si**gnificant effect of INN, LOC, NAC, SEF, and TOR on OPR. None moderating effect of ETE with the five trait dimensions with exception of INN was also discovered

Keywords: Entrepreneurship Education, Opportunity recognition, Personality Traits, Undergraduate Students, Gombe States.

1 Introduction

According to Martin and Ingrid, (2001) it is indeed difficult for several aspiring entrepreneurs to achieve their initial expectations because of huge number of failure recorded among start-ups. Right opportunities identification and selection for the establishment of new businesses are among the most essential abilities of a successful and vibrant entrepreneurship (Timmons, et al. 1987). Opportunity recognition connotes the ability of an individual or firms based on their previous knowledge and experiences to identify new ideas, goods, services, raw materials, markets and organizing methods for profitable formulation of new means, ends, or means–ends relationships (Baron, 2006; Phillips & Tracey, 2007). Lumpkin and Lichtenstein (2005, p.457) concurred that opportunity recognition entails "the ability to identify a good idea and transform it into business concepts that add value and generate revenue". Thus, Shane and Venkataramn (2000) opined that 'without opportunities there is no entrepreneurship'. Hence in this paper opportunity recognition is considered synonymous with entrepreneurial intention (Baručić, & Umihanić, 2016; Shahbani, Bakar & Azmi, 2017).

Creation of a new venture is a multifarious, idiosyncratic process that begins with aspiration by a potential entrepreneur assembling several resources that may not be necessarily at the disposal and control of the entrepreneur (Venkataraman & Sarasvathy, 2001). Opportunities are said to be available when an individual displays distinct understanding of unusual openings and act to grasp them. That action of his led to 'entrepreneurial rent'; while failing to act result to entrepreneurial loss (Alvarez & Barney 2000).

An important question continuously being discussed in the field of entrepreneurship is "why entrepreneurs recognize opportunities that non-entrepreneurs fail to recognize". Dyer et

al. (2088) argued that largely, differences in social networks, personality traits, and cognitive styles are the factors that predict individual opportunity recognition ability. Individuals with entrepreneurial traits are success driven, and are more likely to partake in the relevant opportunity recognition and exploitation that leads to accomplishments (Kerr, Kerr & Xu, 2018; Lim, 2018; Wasdani & Mathew, 2014); and individual's traits suggest their desire to perceive and pursue potential opportunities (Wang, Ellinger & Wu, 2013). Gartner (1990, p.27) concurred that "Entrepreneurs are distinguished by their propensity to recognize opportunities". Short et al., (2010) stated that 'a potential entrepreneur can be enormously creative and hard-working, but with the absence of proper identification of opportunities, entrepreneurial activities cannot take place' (pp.40). More so, literature affirms that establishment of an entrepreneurial firms is an outcome of individual decision and traits (Herath, 2014). Hence, individual level of these traits plays a dominant role in the success of his new venture. Individuals possessing certain traits have a greater level of inclination to entrepreneurship than those who do not (Shane et al. 2003). For long, the entrepreneurship literatures has recognized entrepreneurship traits as potential means that enhance entrepreneurs competitive advantages and equally boost innovative performance (De Carolis & Saparito, 2006; Herath, 2014). Traits like self-confidence, innovativeness, need for success, locus of control and risk taking had been documented as important components that form good entrepreneurship skills that enable opportunity recognition (Stevenson et al 1985; Fairlie & Holleran, 2012; Wang, Ellinger & Wu, 2013; Kerr, Kerr & Xu, 2018; Lim, 2018). Examining traits influencing entrepreneurial motivations in multiethnic and multicultural society like Nigeria is pivotal in comprehending entrepreneurial intentions among individuals; since the personality of entrepreneur is basically what predict his behaviour and reaction towards the business environment (Ayoade, Ogunnaike & Adegbuyi, 2018; Palladan & Ahmad, 2019).

There is little evidence in the literature to suggest that the combination of these traits (innovativeness, locus of control, need for achievement, self-efficacy and tolerance to risk) had been studied together in order to test how they co-relate to determining the opportunity recognition ability of undergraduate students in Nigeria. Thus, such an oversight repudiates researchers, practitioners as well as policymakers the ample opportunity of comprehensively understanding how the knowledge of entrepreneurship could shape the behaviour of individual potential entrepreneur.

More so, several studies suggest that access to relevant information plays a tremendous role on opportunity recognition. Entrepreneurs actively sought for information through publications that aid them to recognize more business opportunities (Hills & Shrader, 1998). Lim (2018) argued that previous empirical and anecdotal studies portrayed knowledge on entrepreneurship as a cognitive resource for entrepreneurship; hence linking knowledge with other entrepreneurial factors warrants further empirical investigations. More so, Siegel and Renko (2012) opined that still unclear in the literature, are the mechanisms through which knowledge boosts opportunity recognition in entrepreneurship. Hence, the paucity of studies that moderate the effect of personality traits on opportunity recognition creates a literature gap (Lim, 2018).

2 Literature review

This section highlights the broad concepts of personality traits, entrepreneurship opportunity recognition and entrepreneurship education as the moderating variable of the study. The personality traits covered here are innovativeness, locus of control, need for achievement, self-efficacy and tolerance to risk. Narrow personality traits have been recognized as good predictors of industrious behaviours as well as agile actions of entrepreneurs (Llewellyn & Wilson, 2003). These narrow traits herein were deliberately selected because they are found to predicts better outcome of entrepreneurship intentions than the broad traits like Extraversion and Conscientiousness (McAdams, 1992; Rauch & Frese, 2007; Fairlie & Holleran,

2012; Leutner, Ahmetoglu, Akhtar & Chamorro-Premuzic, 2014; Fayolle & Liñán, 2014; Liñán & Fayolle, 2015). This couple with limitations associated with the Big-5 framework in coherently describing entrepreneur portrait (Kamfer, 1992; Rauch, 2014; Kerr, Kerr & Xu, 2018).

However, there is also counter argument suggesting that psychological traits of individuals are stable, hence exposure to external interventions cannot alter them (CobbClark & Schurer, 2012). Scholars like Llewellyn and Wilson, (2003) equally cast doubt on the projecting power of psychological traits on entrepreneurial opportunity recognition. However, it is imperative to quickly explain that in contrast to the present study, findings from the aforementioned studies were heavily rooted on the big five personality attributes (Fayolle & Liñán, 2014; Liñán & Fayolle, 2015). Hence they are subjected to some limitations.

2.1 Innovativeness

In general view, innovativeness connotes how individual respond to new things (Goldsmith & Foxall, 2003). Innovative capabilities of an individual come to bare when he develops personal mastery that comprise of intellectual and social capital (Littunen, 2000). Gregoire and Shepherd, (2012) opined that innovativeness on its self cannot serve as an end but add to entrepreneur's drive in exploiting more opportunities. A sustainable entrepreneurship development is achieved when innovative initiatives gradually empowers the entrepreneurs to discover and exploit available opportunities through their creativity by creating/modifying new products or services. Extant literature suggest that in their quest for opportunity exploitation, entrepreneurs after discovering an opportunity, they prepare decision templates on which to act upon, that contains the novel and creative ideas related to what they want to exploit (Wood & Williams, 2014).

Innovativeness has been affirmed by prior literature to facilitate courage, risk-taking, flexibility as well as intrinsic motivation in entrepreneurial activities (Lorenz, Ramsey & Richey Jr, 2018). These factors and others, according to Debic et al, (2015) have been found to be part of an entrepreneur job assignments Laden by uncertainty and constrained by limited resources, entrepreneurs as opportunity exploiters need to be creative and agile. Auersweld, (2009) further posited that innovation lead to value creation, a platform that offer solutions through a systematic combination of capabilities that consist of products, processes and technology.

2.2 Locus of Control

Locus of Control (LOC) is the degree of how an individual exercise control over his life (Karabulut, 2016). People with higher internal LOC believe that their actions can control their environment, hence they tend to take risks by grabbing opportunities through the creation of new business ventures. An individual that possess internal LOC believes that their lives is control by their own decisions, while on the contrary a person with external LOC accept that the true factors that control his life are fate, chance or other environmental feature beyond his control. People with internal LOC have confidence and believe that they have control over outcomes that affect their lives through their own effort, ability and skills, instead of believing that external forces control these outcomes.

Previous studies reported posited relationships between internal control and entrepreneurial opportunity recognition (c.f. Gartner, 1985; Perry, 1990; Shaver & Scott, 1991). On the other hand, studies indicates that entrepreneurs possess grater level of locus of control than non-entrepreneurs (Brockhaus et al., 1986; Hansemark, 1998; Mueller & Thomas, 2001), and businesses that survive for three or more years must have had individuals with higher locus of control behind them (Horwitz 1986).

2.3 Need for Achievement

Need for Achievement originated from the works of McClelland (1985) "acquired-needs theory". The notion was initially promulgated by Murray (1938), and later enhance and propagated by McClelland (1961). According to Kerr, Kerr & Xu, (2018) the need for achievement connotes individual's desire for meaningful accomplishment, mastering of skills, and success in challenging goals. Scholars had argued that entrepreneurs need to possess high need for achievement, since establishing a new venture from the scratch suggests individual capability or ability to swim amid difficult terrain in putting together system responsibilities that are diffuse. Need for achievement has equally been pointed as one of the fundamental elements influencing individual actions in a place of work.

Prior literatures have discovered that a high level of need for achievement facilitate venturing into entrepreneurship for opportunity recognition. Mueller and Thomas (2000) discovered that entrepreneurs from Switzerland possess higher need for achievement than entrepreneurs from the United Kingdom, indicating the trait differs across countries and cultures. In their own part, Stewart and Roth (2007) posits from their meta-analysis that entrepreneurs demonstrate greater level of achievement motivation than managers irrespective of country they came from. More so, other researchers recognized the link that exist between the need for achievement and venture performance. For example, Collins et al. (2004) and Rauch and Frese (2007) observed that both projective and self-reported indicators of achievement motivation influences entrepreneurial intentions and performance.

2.4 Self-Efficacy

Self-efficacy relates to individuals' conscious beliefs that by using their own abilities and capabilities they can carry out a particular task (Bandura, 1986). Self-efficacy connotes one's "belief that he can perform tasks and fulfill roles, and is directly related to expectations, goals and motivation" (Cassar & Friedman, 2009). Normally, individuals tend to avoid tasks which they have low self-efficacy on; while giving more emphasis on tasks they believe they have higher level of self-efficacy (Forbes, 2005). Several studies had hypothesized the strongness of personal self-efficacy on entrepreneurship intention and growth. Literature on self-efficacy in the context of entrepreneurship posts that the variable can predict individuals' intentions of starting a new venture (Krueger & Brazeal, 1994; Luthje & Franke, 2003; Pittaway et al., 2010; Radipere, 2012). More so, literature also asserts that high level of self-efficacy is associated with work-related performance (Stajkovic & Luthans, 1998), growth of small business (Baum & Locke, 2004), lecturers job performance (Palladan, 2018), as well as career choice (Lent & Hackett, 1987).

Those individuals who want to venture into entrepreneurs must see themselves as capable and psychologically equipped in order to function properly and remain motivated. Numerous intention-based models theories were developed supporting the effectiveness of self-efficacy, e.g. Ajzen's (1991) planned behaviour theory, as well as Shapero's (1982) model of entrepreneurial event are good examples. Empirical results suggesting positive relationships between entrepreneurship self-efficacy and opportunity recognition were equally documented. Students from three business study programs were surveyed by Chen et al. (1998) and found that self-efficacy is more pronounced on entrepreneurship students in field of management, marketing and financial management than other students from psychology and management. Again, Chen et al. (1998) also discovered that self-efficacy trait enhance entrepreneurs innovation and risk-taking abilities.

2.5 Tolerance to Risk

Another important trait that predict opportunity recognition is entrepreneur's tolerance to risk. Ahmed, (1985) define propensity to risk-taking as ability to handle uncertainties and the degree of readiness to bear them. In their quest for success, entrepreneurs take on significant

risk for them to achieve high growth. Karabulut (2016) stated that tolerance to risks is an essential trait for entrepreneurs to succeed. As anybody else, entrepreneurs shoulder the burden of taking care of their families as well as other responsibilities, yet they decide to take the risk by investing their resources to establish their own ventures. This could not be possible without element of risk tolerance. Schumpeter argued that entrepreneurs take risks when making decisions, and that risk taking attitude is what makes him different from managers or employees (Iversen et al, 2008). Jain and Ali (2013) concurred that risk taking is a psychological variable reflecting entrepreneur's ability to accept calculated risks and realistic challenges.

Prior empirical and anecdotal literatures posits that the risk taking propensity of an entrepreneur is a key factor to understanding his drive for opportunity recognition and exploitation (Gürol & Atsan, 2006; Tang & Hull, 2012). In their study, Sánchez, (2011) discovered that risk taking influences entrepreneurial intention. Drawing from sample of Swedish SMEs, Naldi, et al. (2007) also confirm that risk taking is a distinct dimension of entrepreneurial orientation in family businesses and has positively correlation with innovation and proactiveness. Covin and Slevin, (1991) in their model described entrepreneurship as a dimension of strategic posture represented by business enterprise risk-taking propensity in terms of tendency competitive aggressiveness, pro-activeness, and reliance on product innovation.

2.6 Entrepreneurship Education as Moderating Variable

Entrepreneurship education has been defined by Wilson (2009) as the development of behaviours, competencies and attitudes that individual will apply during his career as an entrepreneur. Considerable number of literature affirms the import and relevance of entrepreneurship education in modelling behaviours related to entrepreneurship (c.f. Fretschner & Weber, 2013; Liñán & Fayolle, 2015; von Graevenitz, Harhoff & Weber, 2010). Equally important to note is that the success of such educational programmes is contingent to individual's acquiescent entrepreneurial traits (Radipere, 2012; Weber, 2013). Again, in addition to the essentiality of entrepreneurship education programs across campuses, individual differences and characteristics are also essential toward entrepreneurship opportunity recognition ability (Hsu & Powell 2014); since psychologist are on the agreement that everything individuals does depends on his mental processes (Costa, Santos, Wach & Caetano, 2018). Hence, the linkage between entrepreneurship and aforementioned traits buttresses the argument that entrepreneurs possess unique attributes (Zhao & Seibert, 2006; Carland, Hoy, Boulton, & Carland, 2007). Weber, (2013) and Ndofirepi, (2020) further affirm that upon all the essential roles that entrepreneurship education plays in modelling entrepreneurship related behaviours, the success of the programme depends on the traits harbored by individuals.

Radipere, (2012) further argued that one's openness to entrepreneurship supports depends upon his psychological traits. Thus, Hansemark, (2003) posits that people endowed with traits like need self-efficacy, innovativeness, locus of control, risk taking and need for achievement have been perceived to be more agreeable to certain entrepreneurship education outcomes like boosting of opportunity recognition ability. Some domain experiences like contacting with case studies and other entrepreneurial academic related activities have also been found to be crucial in developing entrepreneurial mindsets (Politis 2005; Krueger 2007). Krueger and Brazeal (1994) and Nowiński et al., (2019) opined that entrepreneurship knowledge enhance confidence and increase the level of self-efficacy, which subsequently affect potential entrepreneurs perception on entrepreneurship and foster their ability to recognize opportunities. In their study, Nowiński et al., (2019) discovered that entrepreneurship education has succeeded in enhancing women's intention to partake in entrepreneurship despite their low entrepreneurship self-efficacy

More so, findings from Dickson, et al. (2008) suggest positive relationship between entrepreneurship education and individual choice to become an entrepreneur as well as entrepreneurship education and entrepreneurial success. Study by Saini and Bhatia (1996) equally

disclosed that entrepreneurs that took a training on entrepreneurship portrayed higher level of performance in job creation and sales; in comparison to those that did not.

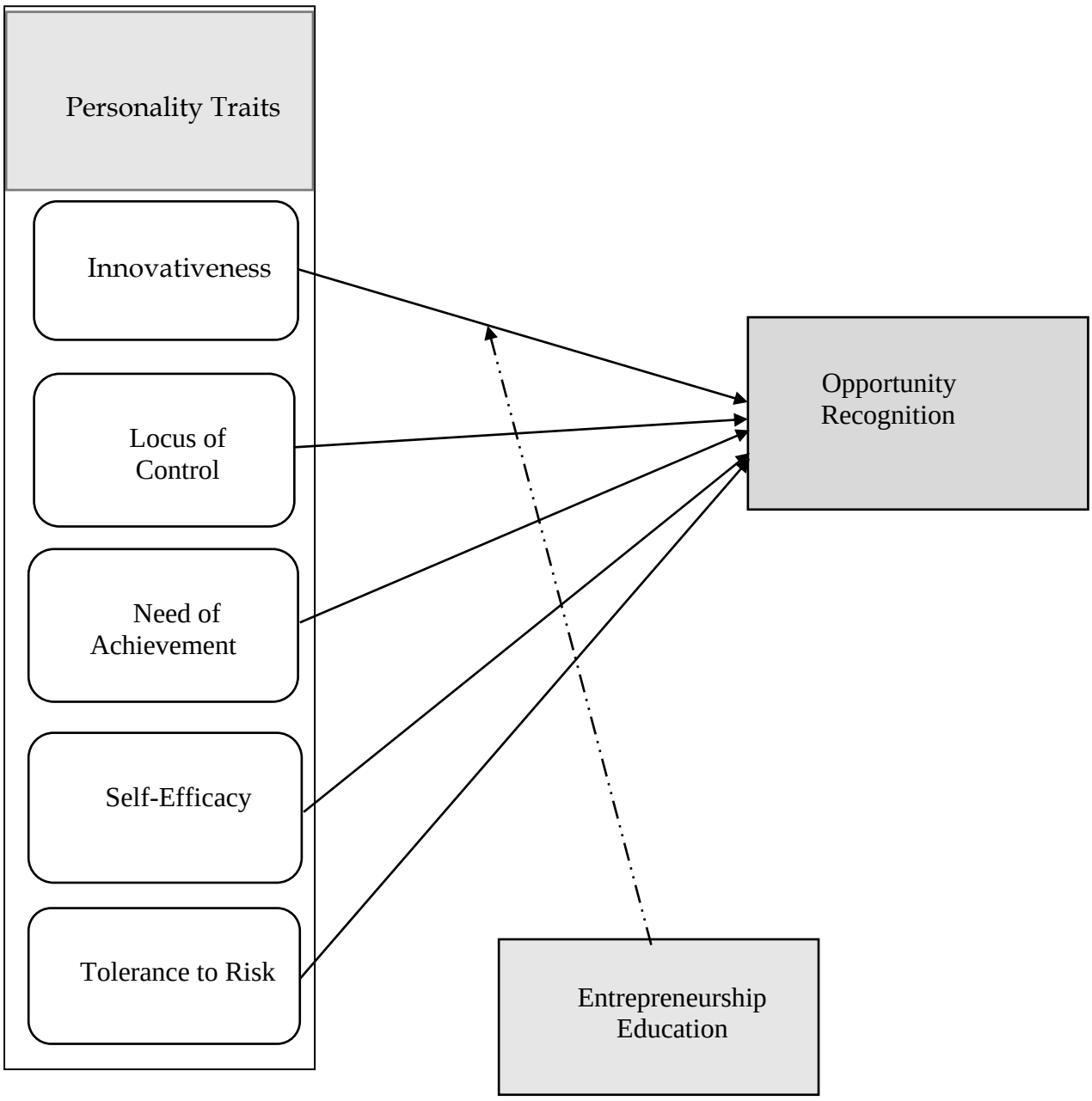

Figure 1
The Research Model Showing the Directs and Indirect Relationships

Based on the literature reviewed above, the following hypotheses were postulated:
Hypothesis 1: Innovativeness is positively related with opportunity recognition
Hypothesis 2: Locus of control is positively related with opportunity recognition
Hypothesis 3: Need of achievement is positively related with opportunity recognition
Hypothesis 4: Self-efficacy is positively related with opportunity recognition
Hypothesis 5: Tolerance to risk propensity is positively related with opportunity recognition
Hypothesis 6: Entrepreneurship education moderates between innovativeness and opportunity

recognition

Hypothesis 7: Entrepreneurship education moderates between locus of control and opportunity recognition.

Hypothesis 8: Entrepreneurship education moderates between need for achievement and opportunity recognition

Hypothesis 9: Entrepreneurship education moderates between self-efficacy and opportunity recognition

Hypothesis 10: Entrepreneurship education moderates between tolerance to risk and opportunity recognition.

3 Methods/Materials

The final pooled sample consisted of 242 undergraduate students offering Entrepreneurship courses in tertiary institutions situated in Gombe state of Nigeria. Hemmasi and Hoelscher (2005) suggest that samples drawn from students are similar to the sample of actual entrepreneurs provided they have high entrepreneurial potentials. Non-probability convenience sampling procedure was adopted by the study. Several previous studies on entrepreneurship equally used this sampling technique in their studies (c.f Wilson, Kickul & Marlino 2007; Thompson 2009; Wilson et al. 2009; Nowiński et al., 2019). Based on this, Coviello and Jones (2004) despite acknowledging the generalization issue relating to non-probability sampling, argued that the technique could lead to good data and samples with high response rates. He also posited that employing convenience sampling permits the researcher to be assured of his respondent's suitability.

The questions measuring the constructs of this study were adapted from previous studies with little modification to suite the context of the study. To determine whether the procedure adopted in distributing the survey could have hampered the result, a t-tests were conducted for all items as well as the model. Partial Least Square Structural Equation Modeling (PLS version 3) (Ringle, Wende, & Becker 2015) was used to assess the model. PLS SEM was employed instead of covariance-based, because SEM was known for exploring complex relationships.

4 Results/Findings

4.1 Presenting the measurement mode

The study consist of three constructs, one multi-dimensional and two unidimensional. The two exogenous variables (personality traits and entrepreneurship education) are as well as the indigenous variable (opportunity recognition) were all reflective.

Table 1: Discriminant validity of the constructs

	1	2	3	4	5	6	7
ETE	0.639						
INN	0.357	0.656					
LOC	0.221	0.152	0.682				
NAC	0.419	0.515	0.103	0.735			
OPR	0.593	0.435	0.304	0.536	0.766		
SEF	0.332	0.497	0.137	0.462	0.385	0.871	
TOR	0.344	0.399	0.324	0.236	0.434	0.113	0.754

Note: Values on diagonal represent the square root of the AVE

To measure their reliability, composite reliability and Cronbach's alpha was used, while in assessing convergent validity of the constructs, average variance extracted (AVE) was adopt-

ed. As depicted in Table 1. All the measures look pretty good. Again, to achieve Fornell and Larcker criterion (1981) on discriminant validity, square root of AVE must be above the correlations of the remaining constructs. The result suggests this criterion has been fulfilled (values of AVE square roots are on the diagonal).

Table 2. Measurement model items for the reflective constructs

	Cronbach's alpha	Composite Reliability	AVE	VIF
ETE	0.756	0.827	0.709	1.356
INN	0.786	0.787	0.630	1.740
LOC	0.738	0.740	0.520	1.201
NAC	0.856	0.795	0.594	1.554
OPR	0.765	0.850	0.587	1.463
SEF	0.706	0.835	0.617	1.456
TOR	0.848	0.769	0.526	1.441

Additionally, we ascertained wether multicollinearity problems exist through the assessment of the VIFs. These were equally found to be below 5, with the highest at 1.6 as portrayed on Table 2

4.2 The Structural model

Upon validating the measurement model, the structural model was equally assessed. Table 3 presents the results of the tested directs hypotheses (H1–H5) as well as their statistical significance level obtained from the structural model. While Table 4 depicts the tested results of the moderating relationships among the variables (H6 – H10).

Table 3 Results of hypothesis testing via bootstrapping

Direct path	Path coefficient	T Statistics	P Values	Decision
H1: INN_ -> OPR	1.980	1.789	0.030	Supported
H2: LOC -> OPR	2.272	2.462	0.014	Supported
H3: NAC -> OPR	2.201	2.464	0.014	Supported
H4: SEF -> OPR	2.199	1.245	0.013	Supported
H5: TOR -> OPR	2.217	2.111	0.035	Supported

Table 4 Moderation analysis

Indirect path	Path coefficient	T Statistics	P Values	Decision
H6: INN -> ETE -> OPR	2.281	3.076	0.002	Supported
H7: LOC -> ETE -> OPR	1.192	1.123	0.262	Not Supported
H8:NAC -> ETE -> OPR	1.122	0.916	0.360	Not Supported
H9: SEF -> ETE -> OPR	1.066	0.248	0.804	Not Supported
H10:TOR -> ETE -> OPR	1.087	1.067	0.286	Not Supported

5 Discussion and conclusion

This study explored the effects of different personality traits on OPR along with moderating effect of entrepreneurship education. In line with this, hypothesis testing were conducted in order to verify the links between the variables. A hypothesis is considered to be significant if its path coefficient is higher than 1.96 and its p-value under 5%. For the direct relationships (Table 3), INN, LOC, NAC, SEF and TOR were found to have positive effects on OPR with p values 0.030; 0.014, 0.014, 0.013, 0.035 respectively. From the Table, SEF was found to have highest effect on OPR with P value 0.013, while TOR has the least effect with p value 0.035. The results suggest that student's innovative ability, both internal and external locus of control, need for achievement, self-efficacy as well as propensity to take risk have determine their ability to recognize business opportunities. Hence these traits need to be harness. These findings are supported by studies conducted by Yan, (2010) and Öztaş, Kasımoğlu and Şirin, (2017) who discovered a positive directional significant relationships between personality traits and entrepreneur practices. Nonetheless, they are not in congruent with study carried out by Hmieleski and Corbett (2006) that discovered no such relationships.

But to a greatest surprise, only innovativeness out of the five variables was found to have been statistically and significantly moderated by entrepreneurship education and opportunity recognition as shown on Table 4. Thus, ETE have been found to moderate the relationship between INN and OPR with path Coefficient 2.281 and p value 0.002. This finding clearly indicate the contribution of entrepreneurial education on enhancing innovative ability of students to recognize more opportunities as well as exploit them. The finding is in line with Wei, Liu and Sha, (2019) who found mediating role of entrepreneurship education to innovativeness. More so, other prior studies argued that exposing students to entrepreneurship knowledge strengthened their innovative ability (Hansemark, 2003), and that a strong innovative ability enhance opportunity recognition and exploitation (Dinis et al., 2013).

5.1 Implication of the study

Findings from the study have both practical and theoretical implications. One of the important implication for researchers is how the study highlight the essentiality of personality traits in entrepreneurial research which hitherto "falsely assumed did not offer it anything useful" (Frese & Gielnik, 2014, p. 414). While in practical term, this study posed a serious question on the effectiveness of teaching methods used in teaching entrepreneurship education in tertiary institutions domiciled in Gombe state, considering the absence of moderating effects between the four personality traits and opportunity recognition. Previous empirical and anecdotal evidences had recognized the positive and significance role of entrepreneurship education in predicting and boosting entrepreneurship activities (Radipere, 2012; Weber, 2013; Hsu & Powell 2014; Ndofirepi, 2020). Hence there is need for entrepreneurship educators in Gombe state to revisit their teaching strategies. For instance, teaching methods could be planned in a way they ignite students' consciousness on the benefits associated with partaking in entrepreneurship, rather than trying to push into their throats how to start a business after graduation. Again, educators could give more emphasis on the learning contents that heightens the students need to pursue goals that are important and meaningful to their life through entrepreneurial opportunity recognition. Lastly, practical teaching strategies including the use of mentors, advisors and role models could be of great help.

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