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Assessing the role of entrepreneurship education in regulating emotions and fostering implementation intentions: Evidence from Nigerian Universities.

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Abstract

Notwithstanding the volume of literature assessing the link between entrepreneurship education and individuals' entrepreneurial behaviour, the mechanism underlying this relationship remains misunderstood. In fact, a combination of inconclusive findings and a narrow focus on western contexts duly compel further research in this area. In the current study, we argue that individuals' emotions could be the missing link to explain contrasting findings and uncover how education affects entrepreneurial activity. To test our argument, we investigate a sample of 1,314 Nigerian students from five universities across the country. We find that entrepreneurship education enhances entrepreneurial intention by regulating students' emotions. However, not all emotions bridge this link. Our findings hold important implications for practice. Policy makers and entrepreneurship educators can draw on these findings to tailor their initiatives and programmes so that the relevant emotions are regulated and entrepreneurship activity enhanced.

Key Words: Entrepreneurship Education; Entrepreneurial Intention; Emotions; Nigeria.

Introduction

There is consensus in the literature that entrepreneurship education (EE) enables economic growth and development through appropriate skills acquisition and entrepreneurial action (Laukkanen, 2010; Henry, 2015; Rae et al., 2014). Thus, with evidence that EE harnesses individuals' entrepreneurial potential which, by the same token, enhances nations' comparative advantage (Young, 2014), numerous countries have made substantial investment to build entrepreneurial capacity (Sánchez, 2013; Walter and Block, 2016) as policymakers increasingly factor EE strategies into fiscal initiatives (Department for Business Innovation and Skills, 2009; European Commission, 2015). Similarly, within higher education, there is global evidence of rapid introduction and expansion of EE programmes (Zaring et al., 2019). Consequently, contemporary research is now focusing on the effectiveness of EE in enhancing entrepreneurial behaviour (Nabi et al., 2017).

In spite of the aforementioned, empirical studies on the link between EE and entrepreneurial intention (EI) remain inconclusive (Walter and Block, 2016; Mukesh et al., 2019; Nowiński et al., 2019; Zaring et al., 2019). Although most studies find a positive impact (e.g. Bae et al. 2014; Kautonen et al., 2015; Rauch and Hulsink, 2015; Sánchez, 2013; Walter et al., 2013), others report a negative and disabling role of EE (e.g. Oosterbeek et al., 2010; von Graevenitz et al., 2010), hence undermining our understanding of how and why EE shapes entrepreneurial intention (Mukesh et al., 2019). However, an explanation of such conflicting evidence could be the existence of several intervening factors in the EE-EI relationship that may alter the outcome (Nowiński et al., 2019).

The theory of human learning posits that learning is acquired through a combination of emotions, thoughts and actions (Jarvis, 2006). Thus, learning is achieved through the embodiment of 'knowledge, skills, attitudes, values, emotions, meanings, beliefs and senses' (Lackéus, 2014: 376). Yet, despite the highly emotional nature of entrepreneurship (Cardon

et al., 2012), the effectiveness of EE in regulating emotion-based factors have been largely overlooked (Sánchez, 2011; Nabi et al., 2017). This void is perceptibly due to methodological limitations in the body of work explaining the relationship between EE and EI (Lorz et al., 2013, Nabi et al., 2018). Hence, the current study is a timely response to the call for further research to investigate how, why, and when EE increases EI (Lackéus, 2014; Nabi et al., 2018). Following a review of 159 articles on the impact of EE in higher education published between 2004 and 2016, Nabi et al. (2017) drew attention to knowledge gaps in EE impact research to advance the field. In their view, a pressing knowledge gap needing to be closed is the impact of EE indicators on emotion and mind-set. Lyons et al. (2015) confirm that there is a lack of clarity on the role of entrepreneurial passion; a form of emotion, in EE. Notably, Nabi et al. (2017) also stress the scarcity of EE research investigating emotion-based indicators such as passion (Gielnick et al., 2015), inspiration (Souitaris et al., 2007), uncertainty and ambiguity tolerance (Lackeus, 2014) and dispositional optimism (Crane, 2014). On the premise that entrepreneurial behaviours are emotionally-driven (Cardon et al., 2012), the notion is that these indications may constitute the missing link between EE and EI. This gap in the literature presents opportunities to extend understanding on the EE-EI relationship. Investigating this void is pertinent to validating scholars' view that action-based EE enhances entrepreneurial behaviour (Mwasalwiba, 2010; Neck and Greene, 2011; Pittaway and Thorpe, 2012). More importantly, identifying the missing factors will provide answers to divergent findings on the effectiveness of EE and assist educators to more effectively optimise their programs for the desired outcomes.

In light of the above, our study aims to address the mediating role of emotion-based indicators in the EE-EI nexus. Furthermore, EI is conceptualised in this study through the implementation intention notion initiated by Gollwitzer (1999). An implementation intention is considered as a self-regulatory strategy (Fayolle and Liñán, 2014), it specifies “the when,

where and how of responses leading to goal attainment” (Gollwitzer, 1999: 494). Fayolle and Liñán (2014) call for future entrepreneurship studies to adopt this measure as a better predictor of behaviour. They argue that individuals who express an implementation intention have a greater likelihood to perform that behaviour. Krueger (2017: 61) posits that “at a minimum, it would certainly be important for scholars to simply notice the distinction between goal intent and implementation intent: Is someone’s “entrepreneurial intention” a goal intent (they intend to begin the process) or an implementation intent (they intend to actually get the venture launched).

This paper begins with a brief account of the context of this study followed by a theoretical background. Thereafter, the method of data collection and findings are explained and complemented with derived conclusions and key implications of the inquiry.

Context of the Study

The current study is set in Nigeria. It is evident that the current EE literature has examined western countries far more than the developing world (Nowiński et al., 2019). Despite the intensification of entrepreneurial research in general, the African context needs greater attention (George et al., 2016). Although findings from western contexts have considerably extended our understanding of EE, their relevance for developing and emerging countries is undetermined (Jones et al., 2018). Harrison et al. (2018) explain that entrepreneurs in developing countries are exposed to significant challenges stemming from high poverty levels, lack of education, lower incomes and uneven support policy compared with their counterparts in developed nations. Moreover, peculiarities of the African context are likely to influence existing knowledge and trigger new theories in management research (George et al., 2016). Therefore, contextualising EE research in the African context constitutes an additional contribution of this paper. Nigeria, colloquially branded the giant of Africa for its

higher population and economic might on the continent, is still a largely petroleum-based economy (Oppong, 2019). However, the country's entrepreneurial traction, particularly in the creative arts, has pricked the interest of international observers. The United Nations Educational, Scientific and Cultural Organization (UNESCO) reported that Nigeria surpassed Hollywood as the world's second largest film producer as per number of new releases (Ikuomola, 2018). Furthermore, in its global entertainment and media outlook for 2018-2022, PricewaterhouseCoopers (2018) valued the Nigerian entertainment and media market at \$3.8 billion, and forecast a 21.5% compound annual growth rate that will generate \$9.9 billion by 2022. Nigeria, already the most populous African nation, is expected to double in size to 400 million people by 2050 (United Nations, 2019). Understandably, its superior population is matched by the size of its economy. In 2008, it outstripped South Africa as the continent's largest marketplace and has since retained this position with a GDP of \$397.27 billion in 2018, over South Africa's \$366.29 billion (World Bank, 2019). These entrepreneurial, social and economic undercurrents make Nigeria an alternative yet dynamic scene to investigate the EE-EI connection. According to George et al. (2016), population explosion and urbanisation in Africa offer great business opportunities, necessitating timely entrepreneurship research to investigate how firms can seize them [opportunities] and deliver value. Yet, in the meantime, the rising population has caused significant unemployment, especially among graduates (Baldry, 2016). To this end, the fulfilment of Nigeria's potential is, in part, contingent on the role of African universities to encourage entrepreneurship activity which addresses unemployment (Ogbuanya and Chukwuedo, 2017). Besides, effective entrepreneurship in Africa is reliant on a robust entrepreneurship education system (Kabongo and Okpara, 2018; Jones et al., 2018).

At the macro level, Udefuna et al. (2013) expound inadequate capacity and the perennial policy failures of the Ministry of Education, the Tertiary Education Fund and the National

Universities Commission as converging issues impeding the effectiveness of EE programmes in Nigeria. On the current state of research, in their systematic review of 213 articles on EE in Nigeria, Lemun et al. (2018) observe that studies are more inclined to track entrepreneurial awareness and, consequently, overlook students' entrepreneurial intention. For example, Dakung et al. (2017) study the appropriateness of EE curriculum for the needs of disabled students and Olaniran and Mncube (2018) explore the challenges of enrolment and completion rates. Thus, recognising the shortage of studies on entrepreneurial intention in Nigeria, we add fresh voice to the body of work appraising the outcomes of EE in the country's higher education.

Theoretical Background

The direct link between EE and EI has been mostly argued as positive (Sánchez, 2013; Walter et al., 2013; Bae et al. 2014; Kautonen et al., 2015; Rauch and Hulsink, 2015; Nowinski et al., 2019). However, theoretical and conceptual frameworks depicting how EE affects entrepreneurial behaviour (i.e. the indirect influence) are still not well established (Mukesh et al., 2019). Predominantly, the theory of planned behaviour (TPB) is used to explain entrepreneurial activity and has been leveraged to demonstrate the influence of EE on entrepreneurial intentions (Krueger and Carsrud, 1993; Karlsson and Moberg, 2013). However, most contemporary applications of TPB in entrepreneurship, with the exception of Karimi (2020) and Bouderbala (2019), do not consider emotions, even though Ajzen (2011) does not exclude the interaction of emotions with TPB. In this regard, Fishbein and Ajzen (2010) argue that such emotions are considered background factors in models of behavioural prediction. Yet, interestingly, the authors also argued that such factors would only have a relatively weak effect on intentions and behaviour while admitting that 'this issue has not yet been systematically investigated' (Fishbein and Ajzen, 2010: 248).

Furthermore, a widely used theoretical approach for studying the impact of education is the social cognitive theory (SCT). SCT infers 'reciprocal causation' between cognition, behaviour and the environment (Bandura, 2001: 14). It explains human conduct within the lens of cognitive inclinations, personal attributes and external events (Bandura, 1986, 1989, 2001, 2006; Wood and Bandura, 1989; Ogbuanya and Chukwuedo, 2017). While cognition is the 'framework through which individuals interpret information' (Stenholm et al., 2013: 181), behaviour captures entrepreneurially biased psychological traits (Katz, 1992; Bygrave and Hofer, 1991). These two, cognition and behaviour, persist within an environment of culture at national, ethnic, institutional and community levels as tempered by social norms, role models and access to capital (Krueger, 2000; McDonald, 2002; Crane, 2014).

In expounding SCT, Biraglia and Kadile (2017) identify three dimensions of person, the environment and individual behaviour. Accordingly, the person dimension encompasses physical characteristics, expectations, beliefs, emotions and cognitive ability. Equally, the environmental dimension captures influences of sociocultural settings and events while the behavioural dimension defines actions and intentions. Hence, collectively, SCT provides a theoretical framework wherein the interaction of the three components explain career choices. To address the aforementioned limitations of the current literature, this paper focuses on the person-behaviour nexus, and with particular emphasis on emotions and intentions. Recent evidence has highlighted the direct influence of emotional factors on entrepreneurial intentions (Bouberbala, 2019).

To proceed, the succeeding sections will appraise key emotion-based factors in the relationship between EE and EI by way of a review. According to Nabi et al. (2017), the extant literature considers inspiration, uncertainty, ambiguity tolerance, dispositional optimism and entrepreneurial passion among the most important influences of EE. Therefore, the current study investigates these factors as intervening variables in the EE-EI relationship.

Passion

Evoking the SCT construct, passion is primarily an emotional state within the person dimension that empowers individuals to persist with venture creation activities in the face of adversity (Bandura, 1989; Biraglia and Kadile, 2017). Passion, which encompasses individuals' intense obsession with a commercial idea, is a much-cited entrepreneurial quality in new venture and value creation (Thorgren and Wincent, 2015; Murnieks et al., 2014; Turner and Gianiodis, 2018; Cardon et al., 2005; Baron et al., 2012). According to Cardon et al. (2017: 25), entrepreneurial passion arouses 'positive and intense feelings experienced from engagement in activities associated with roles that are meaningful to the self-identity of entrepreneurs'. Hence, entrepreneurs' positive feelings generate strong motivation to launch new ventures and grow existing ones (Biraglia and Kadile, 2017), and explain their greater tolerance for risk and the pursuit of economic success (Cardon et al., 2009). Passion manifests in commercial pride (Bierly et al., 2000), love (Baum and Locke, 2004) and enthusiasm (Smilor, 1997) that excite entrepreneurs to stay committed, persistent and engaged in their ventures (Cardon et al., 2017).

Consistent with the contention that entrepreneurship can be learnt (Zimmerer and Scarborough, 1998; Henry et al., 2005; Mitra and Matlay, 2004; Fretschner and Weber 2013), Kuratko and Hodgetts (2004) affirm that education can ignite the passion for venture creation. Similarly, Kerrick et al. (2014) assert that entrepreneurship training programmes enhance entrepreneurial passion. Furthermore, these arguments are corroborated by control and self-regulation theories that confirm the positive effect of progress making on positive emotions such as passion (Bandura, 1997; Carver and Scheier, 1982; Locke and Latham, 2002). In this regard, Gielnik et al. (2017) find that entrepreneurship training programmes

drive individuals' entrepreneurial passion as Mageau et al. (2009) concur that practice, engagement and progress boost entrepreneurial passion.

Effectively, passion triggers entrepreneurial intention for value creation (Ma and Tan, 2006), and it is a building block for the complex, time-lagged and non-linear process from entrepreneurial awareness to action (Noorderhaven et al., 2004; Krueger, 2000). Hence, Turner and Gianiodis (2018) stress that entrepreneurial passion has a positive relationship with entrepreneurial intention. Equally, Grichnik et al. (2010) find that entrepreneurial passion forms and alters individuals' perception towards action. Informed by the conclusions on the role of EE in igniting passion, and consistent with the SCT view that personal dimensions [emotions] influence behaviour [intentions], we hypothesise that:

H1. Entrepreneurial passion mediates the link between EE and EI.

Optimism

In SCT, optimism is captured in the person dimension (Bandura, 1989; Crane, 2014; Biraglia and Kadile, 2017). As a trait, optimism is the expectation of positive rather than negative outcomes (Scheier and Carver, 1987; Scheier and Carver, 1992; Urbig and Menson, 2012, Crane, 2014). An optimistic mind-set supports persistence in adversity, goal achievement and a rise in success expectation (Gollwitzer, 2003). Nonetheless, amidst practical realities and faced with business risks, it is common for individuals to be less optimistic in managing threats as pessimism and self-doubt creep in to reduce entrepreneurial intention and goal setting (Schwarzer, 1999). Therefore, Krueger (2000) cites optimism as a commitment manifest in goal-directed behaviours, as Scheier et al. (1994) believe it is a coping mechanism for persistent engagement in entrepreneurial ventures.

In spite of studies citing optimism as a driver of entrepreneurial resilience, coaxing optimism in the pedagogy has not been addressed by EE. Accordingly, Hytti and O'Gorman (2004)

observe that EE focuses more on business skills and neglects vital individual and psychological traits like optimism. To this end, Crane and Crane (2007) posit that even though optimism mediates the relationship between entrepreneurship education and entrepreneurial behaviour, the link is not verified by empirical research. However, in relation to its influence on EI, several studies comparing samples of entrepreneurs and non-entrepreneurs find that entrepreneurs are considerably more optimistic in business situations than the general population (Palich and Bagby, 1995; Hatten, 1997; Baron, 1998; Armor and Taylor, 2003; Ivanova and Gibcus, 2003; Ucbasaran et al., 2010). To clarify this occurrence in the context of the categorisation theory, Palich and Bagby (1995) allude to the mental prototype or schema of entrepreneurs as being more receptive and tolerant of business propositions. Where pessimism exceeds optimism, there is noticeable fear for the future to the extent that entrepreneurialism is negated (Crane, 2014). Thus, the prevailing suggestion is that optimism bears a positive relationship with entrepreneurial intention (Baron, 2000; Crane and Sohl, 2004; Crane and Crane, 2007). Marques et al. (2018) also found that optimism is a cognitive factor that advances entrepreneurial intention. Informed by the foregoing, we propose a second hypothesis to prove or disprove the claim that EE can teach and increase optimism:

H2. Dispositional optimism mediates the link between EE and EI.

Inspiration

Entrepreneurial inspiration refers to ‘changing hearts and minds towards entrepreneurship’ (Nabi et al., 2018: 454). In line with SCT, various environmental factors, including role models (Nowiński and Rialp 2016) and EE (Souitaris et al. 2007) can inspire individuals to notice opportunities and develop their motivation to become entrepreneurs (Thrash and Elliot, 2003; Nowiński and Haddoud, 2019). According to Johannisson (1991), inspiration

represents the level of conceptualisation learning for why entrepreneurs act. Xie and Wang (2014: 88) contend that ‘to produce entrepreneurs, we need to inspire students: arousing their emotions and transforming their mind-sets’. Similarly, Souitaris et al. (2007) task universities to evaluate their EE provision using the inspiration factor. However, notwithstanding its importance to EE, entrepreneurial inspiration remains under-researched (Nabi et al., 2017). Regarding its impact on EI, Souitaris et al. (2007) found that inspiration increases the entrepreneurial intention of science and engineering students. Correspondingly, Nabi et al. (2018) determined inspiration to be a major element of EE and the entrepreneurial intention of first year university students. To this extent, we hypothesise that:

H3. Entrepreneurial inspiration mediates the link between EE and EI.

Tolerance of ambiguity

Lane and Klenke (2004) called for the expansion of SCT to include ambiguity tolerance as an intervening variable to accommodate the handling of complex situations. Typically, entrepreneurial decisions are taken in situations of uncertainty without full identification or understanding of situations (McLain, 2009). It has been argued that entrepreneurs require tolerance of ambiguity in the presence of limited information (Cromie, 2000). Tolerance of ambiguity is simply ‘the tendency to perceive ambiguous situations as desirable’ (Budner, 1962: 29; Begley and Boyd, 1987; Gurel et al., 2010). As with all human traits, individuals exhibit different levels of ambiguity tolerance (Pulford and Colman, 2008; McLain, 2009). Following the logic of SCT, it is conjectured that students’ tolerance for ambiguity can be modified to develop entrepreneurial intentions when embedded in real environments [in this case EE programmes]. Indeed, extant research supports this expectation. For instance, examining the influence of emotional events on entrepreneurial competencies with data from an action-based EE programme staged in Sweden, Lackeus (2014) found that participants’

tolerance for ambiguity was enhanced by EE. Intrinsically, entrepreneurship stirs up uncertainty, ambiguity, unknown outcomes, high responsibility and an immense workload (Covin and Slevin, 1991; Wiklund, 1999, Aldrich and Martinez, 2001, Uy et al., 2013). Others have also cited the stress faced by entrepreneurs as they are compelled to take pressing opportunity recognition and problem-solving decisions (Douglas and Shepherd, 2000; Patzelt and Shepherd, 2011), manage turbulent operations (Rahim, 1996; Jamal, 1997; Harris et al., 1999) and negotiate in complex settings (Hoang and Gimeno, 2010) all at once. In effect, EE programmes empower individuals to manage ambiguity to the extent that they become more likely to pursue entrepreneurship. Hence, we can hypothesise that:

H4. Tolerance for ambiguity mediates the link between EE and EI.

Method

Data

In this study, data were collected from five public Universities in four Nigerian counties of Borno [the University of Maiduguri], Kaduna [Ahmadu Bello University and Kaduna State University], Kano [Bayero University] and Plateau [the University of Jos]. In total, 1,314 completed questionnaires were obtained and a local survey company was contracted for this purpose. The field distribution was conducted by a team of research assistants who interacted face-to-face with respondents using digital devices. The sample universities were selected for proximity to the survey company and the approach was a non-probability convenience procedure as is prevalent in entrepreneurship studies (Coviello and Jones 2004; Ahl 2006; Nowiński et al., 2019). Other studies in the field employing convenience sampling are Wilson et al. (2007), Wilson et al. (2009), Mitchelmore and Rowley (2013), Kautonen et al. (2015) and Nowiński et al. (2019). However, the current study does not exclude the likely generalisability issue that may arise from non-probability sampling. To offset this, the

researchers endeavoured to approach a high number of participants. In this respect, Coviello and Jones (2004) argue that despite the generalisability limitation of non-probability sampling, the technique still generates quality data when samples are characterised with high response rates and participation levels. Notwithstanding the sample universities' proximity to the survey company, the national representativeness of the data is not undermined due to active ethnic, gender and social mobility across Nigeria's public universities and institutions (Jinadu, 2005; Edewor et al., 2014). Indeed, there is extant evidence suggesting demographic diversity in the sampled counties especially in Kaduna and Plateau (Abah et al., 2009). Thus, the chosen universities are likely to represent Nigeria's overall student population.

Measures

The measures in the study were adopted from extant research. Entrepreneurial intention was conceptualized through Gollwitzer's (1999) implementation intention paradigm and the instrument for measurement was sourced from Sniehotta et al. (2005). The latter captures a specific plan detailing where, when and how the desired behavior (of starting a business in this case) will be performed (Fayolle and Linan, 2014). As for the emotion-based variables, optimism was measured using three positive items adapted from Scheier et al. (1994). Ambiguity tolerance was assessed using reverse statements from Xu and Tracey (2014), inspiration was captured by instruments in Souitaris et al. (2007) and passion was measured with items adapted from Biraglia and Kadile (2017). Lastly, entrepreneurship education was assessed through a composite construct asking respondents whether they participated in the following: Entrepreneurship programmes, courses, workshops and training, guest lectures, competition and simulation. The full list of items is presented in appendix A.

To assess common method bias, a post-hoc Harman's one-factor test was applied (Mattila and Enz, 2002; Lings et al., 2014). The single factor accounted for 15.7% of the total

variance. Therefore, the results depict no major signs of common method biases. Finally, the study controlled for several aspects including participants' age, gender, year and field of study. In this regard, previous evidence has shown that males display higher levels of entrepreneurial intention compared to females, as entrepreneurship is considered a typical masculine career (Shinnar et al., 2014). Likewise, older individuals exhibited a lower intention to act entrepreneurially than younger individuals (Hatak et al., 2014). In addition, Nowinski et al. (2019) explained that entrepreneurship knowledge gained from earlier years of education or business-related studies could potentially impact entrepreneurial behaviour. Lastly, Solesvik (2013) maintains that education major has an impact on entrepreneurial intention, where students in the business discipline develop a higher entrepreneurial intention than their non-business counterparts.

Analysis

The focus of this study is to clarify the relationship between entrepreneurial education and individuals' entrepreneurial behaviour. Hence, the proposed hypotheses are tested with linear regression PLS-SEM using SmartPLS 3.27 (Ringle et al., 2015). The PLS-SEM approach is adopted as an optimal analytic method for explaining the link between variables (Evermann and Tate, 2016; Hair et al., 2017). Unlike the traditional covariance approach, the PLS technique maximises the explained variances (Richter et al., 2016), and captures the total variance of the observed indicators as opposed to the sole focus on the correlations between the indicators (Sarstedt et al., 2016). Next, the measurement and structural models are described.

Constructs' Reliability and Validity

The reliability and validity of the construct are assessed here. Reliability captures the ability of a measure to provide consistent outcomes under the same conditions. This is typically examined through composite reliability (CR) and Cronbach's Alpha (α) (see Table 1). Furthermore, the individual reliability of all the indicators [see appendix A] should also be assessed using a Confirmatory Factor Analysis PLS approach. A construct's validity shows the extent to which indicators measure what they are meant to measure (Hair et al., 2016), while checking both convergent and discriminant validities. The former is examined through the average variance extracted (AVE) as depicted in Table 1, and the latter is based on the square roots of AVEs.

Table 1 about here.

Table 1 indicates that all CR and α scores exceed the 0.7 threshold (Mackenzie et al., 2011), with the exception of optimism which is below the threshold. However, according to Hair et al. (2016), Cronbach's alpha can be sensitive to low number of items and in such situations composite reliability should be assessed instead. As for convergent validity, Table 1 shows that all AVE scores are greater than the 0.5 cut-off value (Schmiedel et al., 2014). Regarding discriminant validity, all AVE square roots were greater than the diagonal which indicate sufficient discriminant validity. Finally, collinearity problems have also been checked through the VIF. Table 1 also reveals no collinearity issues, since all variables score below the 5 threshold value (Hair et al., 2011). As for EE, the variable is treated as formative and hence its measurement quality is assessed through the significance of the indicators' weights and their VIFs (Hair et al., 2019). The results were satisfactory with all items being significant at 10% and no VIFs exceeding the 5 threshold. In conclusion, it can be argued that

the latent constructs involved in the model depict good measurement quality. Hence, the proposed hypotheses can be tested under the structural model.

Hypothesis Testing

The structural model is assessed through the path coefficients (β) and the p values of the relationships hypothesised in the study. Figure 1 reports these values.

Figure 1 about here

The bootstrapping performed in this analysis revealed that EE directly increases implementation EI ($\beta = 0.247^{***}$). More importantly, it also revealed that EE significantly and positively regulates all four emotions included in this study, namely inspiration ($\beta = 0.33^{***}$), passion ($\beta = 0.26^{***}$), optimism ($\beta = 0.15^{***}$) and ambiguity tolerance ($\beta = 0.08^*$). Here, the strongest influence was on inspiration, followed by passion, optimism and ambiguity tolerance respectively. The results also indicate that inspiration ($\beta = 0.18^{***}$), passion ($\beta = 0.15^{***}$) and optimism ($\beta = 0.11^{**}$) have in turn a positive and significant influence on entrepreneurial intention, while surprisingly, ambiguity tolerance holds a negative effect ($\beta = -0.07^*$). Lastly, the proposed model was able to explain 25% of individuals' entrepreneurial intention. As for the indirect effect, Table 2 depicts the results of the mediation analysis. Here, it can be concluded that passion, inspiration and optimism mediate the positive influence of entrepreneurship education on entrepreneurial intention through a complementary mediation effect [i.e. partial; both direct and indirect effects are significant and point in the same direction]. Hence, H1, H2 and H3 are accepted while H4 is rejected. Regarding the influence of the control variables, the findings revealed that Age

(0.05*) and Field of Study (0.08***) had significant yet trivial influence on EE, while Gender (0.04) and Year of Study (-0.03) had no significant effect.

Table 2 about here.

Discussion

The study revealed that while EE regulate the four emotions under investigation (i.e. passion, inspiration, ambiguity tolerance and optimism), only entrepreneurial passion, inspiration and optimism in turn promote EI, with inspiration having the greatest impact. To put these findings in context, the critical role of the three emotions is generally relevant to the emerging African setting and the Nigerian situation in particular. Largely, across Africa, venturing into entrepreneurship is still a fundamentally challenging ordeal given the turbulent nature and documented unease of conducting business on the continent. The lack of institutional support and infrastructure are considerable business impediments in Africa (George et al., 2016). According to the World Bank (2020), sub-Saharan Africa [Nigeria included] aggregates 51.8/100 for ease of doing business compared to a global average of 63.0/100 and 78.4/100 for OECD countries. Undoubtedly, entrepreneurial activity on this continent is constrained by the scarcity of financial support within a volatile socio-political environment (George et al., 2016). Thus, hostile conditions and informal systems are likely to provoke negative emotions that warrant regulation in order to succeed as an entrepreneur in Nigeria (Agbim, 2018). Consequently, African universities need to adapt their offering in order to reduce these challenges (Baldry, 2016). Hence, our findings outline African universities' crucial role in the mission to regulate emotions and therefore develop acquiescent entrepreneurial behaviour through EE.

Beginning with passion, our findings are coherent with previous studies stipulating that entrepreneurial passion contributes to the formation of entrepreneurial identity and commitment (Cardon et al., 2017), as well as the motivation to venture into business creation (Biraglia and Kadile, 2017). The results also confirm that entrepreneurial education can instil passion consistent with Mageau et al. (2009) and Gielnik et al. (2017), thus increasing the likelihood that students action new venture creation. Explaining this finding across the African continent, Sriram and Mersha (2010) confirm that passion is a primary enabler of entrepreneurial success in Ethiopia and Ghana. Likewise, in South Africa, it was argued that an optimum amount of passion is crucial for entrepreneurs' success especially in the nascent stage (Herington et al., 2010). Overall, Thorgren and Omerede (2018) maintain that attributes like passion are essential for enterprise development in the uniquely challenging sub-Saharan Africa context.

With respect to optimism, the obtained finding echoes Armor and Taylor (2003), Ivanova and Gibcus (2003), Ucbasaran et al. (2010) and Marques et al. (2018). Individuals with high levels of dispositional optimism are likely to pursue new opportunities as they feel in control and outdo others by successfully completing challenging tasks (Bernoster et al., 2018). The reverse, pessimism, is generally associated with fear for the future which bears a negative influence on entrepreneurial behaviour (Crane, 2014). This study, in line with Crane (2014), also demonstrates that EE can considerably contribute to dispositional optimism among university students, and therefore to EI. Considering the African setting, Adomako et al. (2016) find that, in the case of Ghanaian entrepreneurs, greater optimism is related to greater persistence. Likewise, Baluku et al. (2019) find a positive link between the optimism of Kenyan and Ugandan university youths and their entrepreneurial intention. In Nigeria, in a comparative study, Dodo and Dodo (2015:121) determined that Nigerians are more 'enterprising, bold...optimistic' in contrast to their Zimbabwean counterparts.

As for the role of inspiration, the results revealed that it was the most important mediator of the four emotions. This is consistent with previous studies citing inspiration as the most important benefit of EE as it triggers a “change of heart” (Souitaris et al., 2007) and, therefore, enhances EI (Thrash and Elliot, 2003). Inspiring students is considered a key condition for embracing entrepreneurship (Xie and Wang, 2014). Thus, Adesola et al. (2019) recommend the use of role models in entrepreneurship education owing to its particular relevance in Nigeria. In fact, there is an abundance of entrepreneurial and indigenous role models in the country including personalities such as Aliko Dangote [‘Africa’s richest man’], Mike Adenuga [‘featured in *Forbes* as the second richest man in Nigeria’] (Madichie et al., 2017:173), Aminu Dantata, Razaq Okoya and Michael Otedola to mention a few (Nworah, 2006). Domestically, these individuals draw a cult following, enjoy celebrity status in popular culture and routinely feature in the lyrics of local music promoting their emulation. For these reasons, reference to inspiring role models by Nigerian entrepreneurship educators would be particularly welcome.

Contrastingly, the only emotion-based factor divergent from previous studies (e.g. Teoh and Foo, 1997; Gürol and Atsan, 2006; Gurel et al., 2010; Espiritu-Olmos and Sastre-Castillo, 2015), in the EE-EI link was ambiguity tolerance. In fact, while EE was found to increase students’ tolerance of ambiguity, the latter was found to hold a negative influence on EI, and precisely implementation intention. As a result, one could argue that although ambiguity potentially increases goal intention, when it comes to implementation intention, the influence may be different. This finding could be explained by Xu and Tracey’s (2014) argument that ambiguity tolerance can increase career indecision, with tolerance of ambiguity directly impacting indecisiveness. In terms of implementation intention, high ambiguity tolerance may divert students’ attention from responding to exigent when, where and how questions leading to new venture creation. In other words, the greater the tolerance for ambiguity the

less decisive the person. Similarly, Ng (2015) links ambiguity aversion with overconfidence. This potentially suggests that ambiguity tolerance may engender low self-confidence, a trait known to deter individuals from venturing into new business creation. In the Nigerian context, a study on recent graduates found a negative relationship between entrepreneurial mentoring and ambiguity tolerance (Umokoro and Okurame, 2018), confirming the trivial role of ambiguity tolerance in Nigeria. In the highly unpredictable and complex Nigerian environment, plans and intentions become less relevant as unforeseen circumstances determine the outcomes. Thus, while ambiguity tolerance may contribute to entrepreneurial orientation (Ogunleye and Osagu, 2014), it may actually have an adverse effect on entrepreneurial plans and intentions.

Conclusion

This study sheds new light on the EE-EI relationship which is characterised by high complexity (Nabi et al., 2017; Nabi et al., 2018). As previous studies on this relationship largely overlooked the role of emotions (Nabi et al., 2017; Lemun et al., 2018), the current study adopts SCT (Bandura 2001) as a theoretical base to uncover specific emotion-based factors that mediate the impact of EE on EI.

Precisely, it is shown that EE contributes to the entrepreneurial intention of university students in Nigeria by regulating their emotions. However, not all emotions enhance entrepreneurial intention. The current findings demonstrate that while inspiration, passion and optimism are likely to be missing links explaining the relationship between Nigeria's EE and EI, ambiguity tolerance may have the inverse effect. These findings pose important implications for both theory and practice.

In terms of theory, the study extends previous research on entrepreneurship education, emotions and entrepreneurial career choices by investigating several emotion-based factors

and comparing their relative roles. Uncovering the mediating role of emotions can potentially reconcile previous, partly contradictory findings on the EE-EI links. This suggests that given the indirect impact of EE on EI, the latter may not be boosted unless the “right” emotion-based factors are enhanced by EE. Moreover, scholars should distinguish between goal intention and implementation intention as the emotions applicable to one may not suffice for the other. To be specific, while previous studies reported ambiguity tolerance as a key predictor of entrepreneurial behaviour, the indecisiveness caused by this trait can have a reverse effect on implementation intention as opposed to goal intention.

This inquiry, being one of the first to explore the mediating role of emotions in an emerging African context, provides several practical implications for higher education stakeholders in Nigeria, and possibly in sub-Saharan Africa and beyond. These implications border on the informed design and development of EE curricula at the government and university level. It must be noted, however, that emotions cannot manifest as learning outcomes. It is sub-optimal to assess educational targets through learning outcomes or mere access to specific courses when the opportunities lay in the specific pedagogies employed in EE. As highlighted by Nabi et al. (2018), the sheer content of entrepreneurship courses is insufficient and, in some cases, may actually discourage students from pursuing entrepreneurial careers. Therefore, an even more pressing implication of this study is the need to develop new pedagogies which may more appropriately regulate students’ emotions in EE. EE could emulate other fields that successfully instil passion in students through study abroad programs (Norris and Gillespie, 2008; Potts, 2015), or by embedding students in real-life scenarios through start-up placements; using the power of exposure to ignite entrepreneurship passion (Türk et al., 2020).

Furthermore, educators could leverage selection bias in entrepreneurship education programs (Lorz 2011) and create conditions in which people passionate about entrepreneurship share

and cultivate this passion (Cardon, 2008), thus strengthening their commitment to entrepreneurship. As for triggering inspiration, prior EE research suggests that role models can provide inspiration by means of personal encounters with aspiring entrepreneurs or through guest lectures at universities (Lorz, 2011; Adesola et al., 2019; Nowiński et al., 2019). Lorz (2011) also suggests that entrepreneurship programs can inspire students by other means such as fact-finding and personal discovery. This prompts an opportunity for vicarious learning through the involvement of entrepreneurs in parts of the curricula and in the overarching EE process. While entrepreneurial educators can, of course, leverage their network in this respect, institutional and government support can greatly accelerate practitioner participation in EE. As for optimism, while Rudolph et al. (2017) consider this trait to be a positive measure of career adaptivity, Giacomini et al. (2016) on the other hand find that students are overly optimistic about their entrepreneurial competence; thus EE must help them temper perceived ability with reality. Furthermore, EE educators must exercise caution when targeting students' ambiguity tolerance as it breeds indecision (Xu and Tracey, 2014), and decreases entrepreneurial intention.

Finally, this study acknowledges a number of limitations that pave way for further research. Firstly, it is important to note that the complementary mediation (partial) obtained in this study suggests the existence of additional intervening factors in the EE-EI link. Hence, we do acknowledge that factors related to expectations, beliefs and cognitive ability will likely enhance the mediation. However, given the scope of the study being limited to emotion-based aspects, other features were excluded. For example, in line with Ajzen and Fishbein (2010), future studies could add to fresh evidence (Karimi, 2020) on the link between emotion-based factors with TPB and specifically, explore the extent to which emotions fostered by EE affect beliefs and attitudes that are direct antecedents of EI. The core purpose of this work is to

showcase the role of emotions and raise awareness of the need to consider these aspects when researching and using EE programmes.

Secondly, the list of emotion-based factors included in this study, cited as the key benefits of EE (Nabi et al., 2017), is by no means exhaustive. We encourage other studies to capture additional factors that may further explain the intervening role of emotions in the EE-EI relationship. Thirdly, we recommend that future studies control for pedagogies which may regulate students' emotions, such as undertaking placements with start-ups among other possibilities. Lastly, the non-probability sampling used in this study does not rule out potential biases in the generalisability of the findings. We therefore call for further testing of our model for validation. Likewise, the cross-sectional nature of the data should be considered when inferring causality.

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Appendix A: Items and Factor Loadings

Items	Loadings
Ambiguity Tolerance	
I dislike ambiguous situations (R)	0.690
I find it hard to make a choice when the outcome is uncertain (R)	0.681
I would rather avoid solving a problem that must be viewed from several different perspectives (R)	0.697
I try to avoid situations that are ambiguous (R)	0.755
I prefer familiar situations to new ones (R)	0.743
Problems that cannot be considered from just one point of view are a little threatening (R)	0.649
I avoid situations that are too complicated for me to easily understand (R)	0.774
I don't tolerate ambiguous situations well (R)	<i>Dropped</i>
I try to avoid problems that don't seem to have only one "best" solution (R)	<i>Dropped</i>
Implementation Intention	
I have made a detailed plan regarding... <i>when</i> to start a business.	0.896
I have made a detailed plan regarding... <i>where</i> to start a business.	0.909
I have made a detailed plan regarding... <i>how</i> to start a business.	0.893
Inspiration	
The views of a lecturer,	0.686
The views of an external speaker	0.784
The views of a visiting entrepreneur	0.752
The views of a classmate(s)	0.705
The preparation for a business plan competition	0.783
The views of judges of the competition	0.775
The views of a family member	0.545
Optimism	
In uncertain times, I usually expect the best.	0.637
I'm always optimistic about my future.	0.811
Overall, I expect more good things to happen to me than bad	0.756
Passion	
Owning a company will be energizing.	0.725
Nurturing a new business through its emerging success will be enjoyable.	0.802
Establishing a new company is exciting.	0.843
Becoming a founder of a business is a very important part of who I want to be.	0.844
Entrepreneurship Education	
I have participated in a course on entrepreneurship	<i>Formative</i>
I have participated in a programme on entrepreneurship	<i>Formative</i>
I have participated in workshops, creativity labs and trainings on entrepreneurship	<i>Formative</i>
I have participated in guest lectures and speeches by entrepreneurs organised on campus	<i>Formative</i>
I have participated in guest lectures and speeches by entrepreneurs organised off campus	<i>Formative</i>
I have participated in a business plan competition or other competitions related to entrepreneurship	<i>Formative</i>
I have participated in computer simulation games related to entrepreneurship.	<i>Formative</i>
How much time during my university study has been devoted to studying entrepreneurship?	<i>Formative</i>

(R)=Reverse

Tables

Table 1: Cronbach's Alpha, AVE and VIF of reflective constructs

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)	Variance Inflation Factor (VIF)
Ambiguity Tolerance	0.84	0.879	0.51	1.03
Inspiration	0.846	0.883	0.523	1.22
Optimism	0.575	0.781	0.545	1.51
Passion	0.82	0.88	0.649	1.66
Implementation Intention	0.882	0.927	0.809	/

Table 2: Specific Indirect Effects

	Original Sample	P Values
EE -> Ambiguity Tolerance -> Implementation Intention	-0.007	0.058
EE -> Inspiration -> Implementation Intention	0.062	0.000
EE -> Optimism -> Implementation Intention	0.018	0.006
EE -> Passion -> Implementation Intention	0.04	0.000

Figures

Figure 1: The Structural Model

