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**Personality, entrepreneurship education and entrepreneurial intention among Ghanaian students.**

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**Personality, entrepreneurship education and entrepreneurial intention among Ghanaian students.****Abstract**

The connection between personality traits, entrepreneurship curriculum and entrepreneurial intention has received inadequate research consideration among students in Africa to inform policies and curriculum development. An explanatory cross-sectional survey of 324 Ghanaian university students was assessed in a path analysis to model entrepreneurial intention as a function of personality characteristics, mediated by entrepreneurship curriculum and moderated by teaching methods, while controlling for age, gender and program of study. There were direct significant effects of entrepreneurial attitude, need for achievement and locus of control on entrepreneurial intention. The conditional effect of teaching method on entrepreneurial attitude was also significant. We found evidence of mediated-moderation for entrepreneurial attitude and intention, with no evidence found for locus of control and need for achievement. We have provided empirical evidence to support the ongoing discussion on the effect of personality traits on entrepreneurial intention to guide the development of policy and curriculum on entrepreneurship education. Implications of our study for extant literature on personality traits-entrepreneurship intention nexus, aspiring student entrepreneurs, university managers, entrepreneurship educators and policy decision makers are accentuated.

**Keywords:** entrepreneurship education, entrepreneurial intention, mediated-moderation, undergraduate students, path analysis, Ghana.

## **1. Introduction**

Globally, entrepreneurship education has become an effective catalyst of stimulating entrepreneurship growth for socioeconomic development through job and wealth creation (Morris et al., 2020; Santos et al., 2019). Entrepreneurship education involves an eclectic blend of pedagogical approaches to empower, develop and reinforce students' knowledge, skills and attitude of entrepreneurial intention (Fayolle et al., 2006; Neck & Corbett, 2018; Santos et al.,

2019). Students with entrepreneurial mindset tend to recognize opportunities to create, grow and manage new business ventures (Kuratko & Morris, 2018; Liguori et al., 2018b). It also empowers students to avoid adverse socioeconomic conditions and contribute to community development, self-employment, job and wealth creation (Schindehutte & Morris, 2016; Santos et al., 2019). Extant research on entrepreneurship-based education, which focused on the relationship between entrepreneurship education, personality characteristics and entrepreneurial intention in both developed and developing countries, have showed mixed, inconsistent and evolving results (see Bae et al., 2014; Caliendo et al., 2014; Hien & Cho, 2018; Jena, 2020; Vodă & Florea, 2019; Zhao et al., 2010). However, studies on the synergy between personality traits, entrepreneurship curriculum and pedagogical approach, and entrepreneurial intention have attracted little attention, particularly in Africa (e.g., Adekiya & Ibrahim, 2016; Byabashaija & Katono, 2011; Gerba, 2012). Our study provides significant information on how personality traits affect entrepreneurial intention through the mediation mechanism of entrepreneurship curriculum and the moderation effect of teaching methods. The outcome of this study could have useful theoretical, practical and policy implications for entrepreneurship education, future research, program evaluation, and students' entrepreneurial intention and behavior (Neck & Corbett, 2018).

The scope, relevance and adequacy of entrepreneurship curriculum and pedagogical approach employed in providing entrepreneurship education tend to influence the extent of entrepreneurial behavior intention (Keat et al., 2011; Piperopoulos, 2012; Lavelle, 2019). Gauging the perceived planned behavior of students to start a new business after graduation resonates with the concept of entrepreneurial intention (Adekiya & Ibrahim, 2016; Ladd et al., 2019). Personality-based studies have identified several personality characteristics (e.g., locus of control, creativity, risk-taking behavior, innovativeness, and need for achievement) that influence entrepreneurial intention (Biraglia & Kadile, 2017; Brockhaus & Horwitz, 1986;

Okhomina, 2010; Zhao et al., 2010). The extent to which need for achievement and locus of control positively correlate and significantly influence entrepreneurial intention and activities in several empirical studies in different context have been contradictory, inconsistent and inconclusive (see Ang & Hong, 2000; Hansemark, 2003; Hmieleski & Corbett, 2006; Matlay et al., 2013; Nasip et al., 2017; Ndofirepi, 2020; Vodă & Florea, 2019).

Fundamentally, individual and contextual factors (e.g. social, cultural, economic, political, demographic, institutional and technological perceived support or barriers) commonly underpin and account for variations in empirical results of several studies on the relationship amongst personality characteristics, entrepreneurship education, entrepreneurial intention and behavior in different settings (Hueso et al., 2020; Lüthje & Franke, 2003; Ozaralli & Rivenburgh, 2016). Thus, the degree to which individualistic or collectivistic value dimensions are accentuated have the proclivity of affecting how personality characteristics or entrepreneurship education relates to the magnitude of entrepreneurial intention and behavior. For instance, a study of 413 university students from the United Kingdom and Spain showed that collectivistic personal values had an indirect but negative influence on entrepreneurial intention through personal attitude and perceive behavior control but had an indirect positive effect via subjective norms (Hueso et al., 2020). So, differences in individual and contextual insights may be the basis for differences in factors with the tendency to influence entrepreneurial intentions in different settings (Koe et al., 2012; Ozaralli & Rivenburgh, 2016; Sharma & Madan, 2014).

Notably, extant literature has shown that much has been written about the direct link between personality traits and entrepreneurial intention. However, no studies have delved into understanding the mediation role of entrepreneurship curriculum in the relationship between personality characteristics and entrepreneurial intention, and how this relationship is moderated by teaching methods in Africa. Moreover, stakeholders' efforts to influence students'

entrepreneurship spirit, intents and behavior for socioeconomic development have not yielded significant reduction in unemployment and poverty in Ghana (see Asitik & Nunfam, 2019; Baah-Boateng, 2015; Zakaria et al., 2014). Besides, no studies in Ghana have effectively underscored the mechanism through which the relationship between personality traits and entrepreneurial intention is moderated by teaching methods and mediated by entrepreneurship curriculum. In cognizance of this snag, the unanswered question is that to what extent does entrepreneurial curriculum (EC) (mediator) and teaching methods (TM) (moderator) influence the relationship between locus of control (LC), need for achievement (NA), entrepreneurial attitude (EA) (independent variables [IVs]), and the entrepreneurial intention (EI) (dependent variable [DV]) of university students in Ghana. We assess this gap by proposing a conceptual mediation moderation model with the potential to open a new door in entrepreneurship education studies for understanding the influence of entrepreneurship curriculum and teaching methods in the relationship between personality and entrepreneurship intention.

## **Conceptual model and hypotheses**

### ***2.1 Entrepreneurial intention***

Entrepreneurial intention refers to “the conscious state of mind that precedes action and directs attention toward entrepreneurial behaviors such as starting a new business and becoming an entrepreneur” (Moriano et al., 2012, p.165). As a theory-driven and process-oriented approach, intention-based models epitomize direct analysis of the relationship between entrepreneurship intention and entrepreneurial behavior (Ajzen et al., 2009; Carsrud & Brännback, 2011). Intention-based models provide insights into the decision-making process of venture creation, explain the antecedents of business start-ups, predict individual planned behavior, and offer explanations on appropriate factors that influence the intentions of individuals to start a business (Krueger et al., 2000; Shepherd & Krueger, 2002). Based on extant literature on intention-related theoretical frameworks, Ajzen’s theory of planned

behavior (TPB) was deemed appropriate in providing conceptual direction for this study. The tenets of TPB suggest that entrepreneurial intention is determined by personal attitude (i.e., the extent to which an individual perceives an action as favorable or unfavorable), perceived behavior control (i.e., the degree to which an individual perceives the performance of an intended behavior as easy or difficult) and subjective social norms (i.e. the degree to which an individual assesses that their behavior reasonably resonates with the ambitions and thoughts of significant others in their sociocultural environment) (Ajzen, 1991, 2002, 2005; Shirokova et al., 2016). We adapted TPB to explain the direct relationship between students' personality traits and their planned entrepreneurship behavior and proffer understanding on how individual (e.g., age and gender) and situational (e. g., entrepreneurship program and teaching methods) factors affect this linear relationship (Krueger et al., 2000; Shepherd & Krueger, 2002). TPB has gained theoretical significance and has been widely used in various empirical intention-based studies (see Esfandiar et al., 2019; Gieure et al., 2020; Lavelle, 2019), but as a conceptually linear model it may not efficiently explain entrepreneurship which is a nonlinear process (Neck & Green, 2011). An adaptation is commonly required to adequately address the conditions of conceptual models which require the measurements of indirect, reciprocal, mediating, and/or moderating relationship analysis among constructs (Brännback et al., 2007).

Therefore, we modified TPB model to satisfy the direct relationship between personality traits and entrepreneurial intention, and how this linkage is indirectly influenced by entrepreneurship curriculum and teaching methods. Our model (Figure 1) operates on the assumption that entrepreneurship curriculum mediates the nexus between personality traits (IVs) and entrepreneurship intention (DV) with teaching methods moderating this relationship. The adaptation focused on the conceptual reasoning of TPB in determining the antecedents of entrepreneurship intention but not evaluating the efficacy of TPB as originally

espoused by Ajzen to predict entrepreneurial intention. Therefore, the constructs (perceived behavior control and subjective social norms) which do not directly depict personality characteristics were replaced with need for achievement and locus of control to assess the intervening effects of entrepreneurial curriculum and teaching methods in the relationship between personality traits and entrepreneurial intention.

**Insert Figure 1 about here**

## ***2.2 Personality traits and entrepreneurial intention***

Generally, the concept of personality traits has been found to significantly relate to entrepreneurial intention (Liñán & Chen 2009; Zhao & Seibert 2006). Several theoretical and empirical studies have accentuated specific personality trait constructs (e.g., tolerance for ambiguity, locus of control, creativity, risk-taking behavior, innovativeness, and need for achievement), which are relevant in predicting entrepreneurial intention (Biraglia & Kadile, 2017; Brockhaus & Horowitz, 1986; Okhomina, 2010; Zhao et al., 2010). As shown in previous studies, need for achievement and locus of control have been established as worthwhile concepts in predicting entrepreneurship intention (Hansemark, 2003; Nasip et al., 2017; Ndofirepi, 2020; Hsiao et al., 2016; Vodă & Florea, 2019). Need for achievement is conceptualized as an individual's desire for significant goal fulfilment. Individuals with such desires tend to persevere with chosen activities, which they perceive to have a moderate chance of success or ultimate prospect for personal gratification (McClelland, 1961; 1987). The concept of locus of control refers to people's belief that life's outcome (e.g., success and failure) are the results of their own action or influenced by external factors (Rotter, 1966). However, the nature of association between students' need for achievement, locus of control and entrepreneurship intention in the context of Ghana is unclear.

## ***2.3 Entrepreneurial attitude and entrepreneurial intention***



The scope of advancement in entrepreneurship education range from teaching students the theoretical and practical processes of initiating a business to assisting in identifying opportunities, manage difficulties, and develop an entrepreneurial attitude and intention (Kuratko & Morris, 2018). A person's attitude towards a definite behavior is a significant factor that determines their intention and subsequent behavior (Ajzen, 1991; Vamvaka et al., 2020). The attitude towards entrepreneurship and entrepreneurial action is a reflective measure of an individual's conviction of how desirable or undesirable an envisioned outcome may be (Ajzen, 1991). Therefore, a more optimistic attitude towards entrepreneurship engenders a more favorable perception of an intention to create a business venture. Empirical evidence from several studies has demonstrated the contextual linkage between entrepreneurial attitude and the intention for entrepreneurial action (Esfandiar et al., 2019; Vamvaka et al., 2020; Varamaki et al., 2015).

#### ***2.4 Entrepreneurship curriculum, teaching methods and entrepreneurial intention***

Entrepreneurship curriculum and pedagogical methods are significant in the context of entrepreneurship education and training processes in shaping students' entrepreneurial intentions (Piperopoulos & Dimov, 2015). From the perspectives of human capital and social cognitive theories, networking, knowledge, skills, and attitudes evident in any entrepreneurship curriculum potentially determines students' entrepreneurial behavior intention (Bandura, 1989, 2018; Schultz, 1980). The objectives and contents of an entrepreneurship course or program provide the basis for developing and imparting the appropriate entrepreneurship-related knowledge, skills, competencies, and attitudes required for the formation and promotion of students' entrepreneurial intention of venturing into a new business (Atkinson, 2019).

Empirical studies have provided evidence of how entrepreneurship curriculum and pedagogical approach have the propensity to impact entrepreneurship intention and behavior (Keat et al., 2011; Piperopoulos, 2012; Piperopoulos & Dimov, 2015). For instance, Keat et al.

(2011) found that entrepreneurship curriculum and content had a significant positive influence on the likelihood of expressing interest in entrepreneurship among some public university students. The focus of the pedagogical process of imparting entrepreneurial knowledge, skills and attitudes based on real world experiences and action is more likely to influence the extent to which students imbibe the entrepreneurship curriculum and intent (Kassean et al., 2015). Thus, entrepreneurship education process that allows students to “learn by doing” other than being passive learners is more effective in the acquisition of knowledge, skills and attitudes for entrepreneurial intention (European Commission, 2012; Henry & Treanor, 2012; Neck & Greene, 2011). Also, a practically oriented and interactive-based pedagogy in the entrepreneurship curriculum is more likely to encourage students’ entrepreneurial prospects positively compared to a theoretically oriented and passive-based pedagogy and content (Mwasalwiba, 2010; Varamaki et al., 2015; Piperopoulos & Dimov, 2015).

Meanwhile, few studies have reported that the perceptions of entrepreneurship education courses relate positively with plans for new business start-up intentions, as mediated by entrepreneurial self-efficacy (see Camelo-Ordaz et al., 2016; Martin et al., 2013; Zhao et al., 2005). Other studies have indicated that the direct and indirect relationship between personal initiative or background, self-efficacy, and entrepreneurial intentions (see Solesvik, 2017; Liguori et al., 2018a), with human capital also playing a mediation role in the association between internal locus of control and entrepreneurship (see Hsiao et al., 2016). For instance, attitude and self-efficacy beliefs for an intended behavior are stimulated in various ways based on the role of the entrepreneurship course or curriculum in terms of its context and pedagogical focus and methods (Piperopoulos & Dimov, 2015). In summary, entrepreneurship education based on the curriculum and teaching approach serves as a significant underlying mechanism in shaping the three components of students’ entrepreneurship attitude identified as cognitive, affective and behavior (Pickens, 2005).

To appropriately situate the model in context, we recognized and controlled for age, gender and area of study which have the potential to extraneously impact students' entrepreneurship intention (Bernerth & Aguinis, 2016). We controlled for these individual characteristics to eliminate them as alternatives in accounting for variation in the student's entrepreneurship intention (Aguinis et al., 2019; Maula & Stam, 2019). Prior empirical studies suggest a relationship between these control variables (age, gender and area of study) and entrepreneurial intention (see Álvarez-Herranz et al., 2011; Franco et al., 2010; Hulsink & Koek, 2014; Joensuu et al., 2013; Shirokova et al., 2016). Given the conceptual reasoning and empirical support for the relationship between the study variables, we hypothesized that:

H1. Entrepreneurial attitude has a significant positive influence on entrepreneurial intention

H2. Locus of control has a significant positive influence on entrepreneurial intention

H3. Need for achievement has a significant positive influence on entrepreneurial intention

H4. Entrepreneurial curriculum has a significant mediating influence in the relationship between personality traits and entrepreneurial intention

H5. Teaching methods has a significant moderating influence in the relationship between personality traits and entrepreneurial intention

## **2. Materials and methods**

### **3.1 Research design, participants and sampling**

We implemented an explanatory cross-sectional survey research design in assessing the personality traits-entrepreneurial intention nexus, and how this relationship is influenced by entrepreneurship curriculum and teaching methods at a point in time among university students in Ghana. This research design approach provided a quick snapshot description of students' demographic information and helped to account for the determinants of the entrepreneurial intentions of students (Creswell, 2013; Creswell & Plano Clark, 2017). Undergraduate final year students of both Takoradi Technical University (TTU) and University for Development

Studies (UDS) who had studied entrepreneurial-related programs or courses and had never started a business constituted the eligible participants. Students in this category have a high potential of nurturing entrepreneurial intention and enthusiasm for starting a business venture as they were about to graduate. The estimated target population (1717) comprised students of TTU (1217) and UDS (500). We used the simple random sampling procedure to select a sample size (375) students who expressed their willingness to participate in the survey based on informed consent. Thus, out of 375 questionnaires that were distributed to the selected participants, 324 validly completed questionnaires were retrieved, representing a response rate of 86.4%.

### **3.2 Data sources, instruments and measures**

The study relied on primary data from the survey of participating students and this was supplemented by secondary data from relevant conceptual and empirical literature on personality traits, entrepreneurship curriculum, teaching methods and entrepreneurial intention. Despite its potential biases (e.g., non-response, measurement concerns, and common methods bias), self-reported survey data have the advantage of permitting the use of multi-item scale to directly measure multifaceted latent constructs (Maula & Stam, 2019). A questionnaire was employed to elicit self-reported data on personality traits, entrepreneurial intentions, entrepreneurship curriculum, teaching methods and demographic characteristics of participants from March to June 2018. Given the category of sampled participants, the modified questionnaire items drawn from the literature were subjected to some expert review and face validity to ensure clarity, the suitability of wording and revision of potential equivocations. Similarly, procedural remedies (e.g., designed reverse score items, avoided ambiguous and doubled barred question items, used concise question items, informed participants of anonymity and privacy of response, and encouraged respondents' to provide honest views without recourse to right or wrong answers) helped to further minimize common methods bias (e.g., sequential response bias, social desirability and consistency motif) (Podsakoff et al.,

2003; Podsakoff et al., 2012; Tehseen et al., 2017). The questionnaire was subsequently pretested with 25 students resulting in further but minor modifications of a few items with low internal consistency. All the items were measured on a five-point Likert scale (Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree) with scores from 1 to 5 respectively. The final self-reported questionnaire with 60 items, used to collect the primary data consisted of six constructs (entrepreneurial intention [12 items], entrepreneurial attitude [13 items], need for achievement [9 items], entrepreneurship curriculum [9 items], locus of control [8 items], and teaching methods [9 items]) excluding participants' background information, was adapted from the literature (Leong, 2008; Schwarz et al., 2009).

### **3.3 Data analysis**

Descriptive statistics such as frequencies and percentages were used to describe the distributions across key demographics of the study population. To establish how the sample data closely fit the theory driven model, the structural equation model (SEM) was used to describe the relations of the dependency between the latent variables. These relations are usually accepted to have cause-and-effect outcomes (Afrifa-Yamoah, 2016). Correlational and discriminate validity scores were used to assess the construct validity of the latent variables and a path analysis was conducted to describe the nature of the relationship between the constructs of interest. Statistical analysis was conducted using IBM Amos version 25.

## **3. Results**

### ***4.1 Background information of respondents***

The age distribution by academic institutions of respondents showed that the majority (68.8%) were within the age category of 21-25 years. In terms of gender, there were more males (64.2%) in both universities as compared to their female (35.8%) counterparts. Majority of respondents (55.9%) pursued business studies (see Table 1).

**Insert Table 1 about here**

### ***4.2 Internal consistency and construct validity assessment***

The sample adequacy was established using the Kaiser-Meyer-Olkin (KMO) = 0.926. The Bartlett's test of sphericity produced a p-value < 0.001, indicating that the dataset diverges significantly from the identity matrix, making the data set suitable for data reduction. The Cronbach's  $\alpha$  for the reliability of the instrument was 0.949. The internal consistency of the extracted domains was good with Cronbach's  $\alpha$  statistics lying between  $0.7 \leq \alpha < 0.9$ . The Cronbach's  $\alpha$  and the item-delete Cronbach's  $\alpha$  for the six domains are presented in the supplementary material. Based on the item-delete Cronbach's  $\alpha$  internal reliability assessment, 6 items were deleted. The assessment indexes indicated that an appropriate level was achieved by the measuring instrument in terms of reliability and construct validity. In addition to the procedural remedies for common methods bias, Herman's single factor test revealed that the maximum variance explained by a single factor was 27.85% (< 50%). This goes to emphasize that common variance bias is not associated with the dataset used.

#### ***4.3 Strength and direction of the relationships between the study variables***

There was no significant relationship between the controls (age, gender and program of study) and the other variables ( $p > 0.05$ ). There existed significant positive relationships between the moderator, teaching methods and entrepreneurial attitude ( $p < 0.05$ ), as well as with mediator, entrepreneurship curriculum ( $p < 0.001$ ). Among the independent variables, significant relationships were observed ( $p < 0.001$ ). There was a significant relationship between the dependent variable (EI) and the independent variables (EA, LC, NA) ( $p < 0.001$ ). We briefly assessed the construct validity of the study variables, the nature of the correlation coefficient provides evidence that the independent variables (EA, LC, NA), moderator, teaching methods and mediator, entrepreneurship curriculum converge on the dependent variable (EI). Table 2 shows the strength and direction of the relationships between the study variables. In assessing how the items in the constructs were unrelated and that they measured

theoretically different concepts, the discriminant validity scores observed for all the constructs were below 0.80 (see Table 2).

**Insert Table 2 about here**

#### ***4.4 Testing the fit of the conceptual model and evidence of mediated moderation effect***

The conceptual model fit perfectly to the data,  $\chi^2(25) = 21.683$ ,  $p$ -value = 0.654. The recommended cut-offs for popular fit statistics that indicate a good fit were met. For instance, the difference between the residuals of the sample covariance matrix and the hypothesized model indicates a good fit (SRMR = 0.025 < 0.080). Also, the proportion of variance accounted for by the estimated covariance matrices supported the excellent fit of the model (GFI = 0.989 > 0.95, AGFI = 0.966 > 0.90). Additionally, the parsimony-adjusted index supported the excellent fit of the model (RMSEA < 0.001, 95% CI; [0, 0.037], PCLOSE = 0.993). We tested for the significance or otherwise of the hypotheses formulated at 0.05 level of significance (see Table 3): a significant direct effect of entrepreneurial attitude on entrepreneurial intention ( $CR = 3.739$ ,  $p < 0.001$ ) was observed; the direct effect of need for achievement on entrepreneurial intention was significant ( $CR = 4.208$ ,  $p < 0.001$ ); locus of control had a significant direct effect on entrepreneurial intention ( $CR = 5.773$ ,  $p < 0.001$ ); the mediated effect of entrepreneurship curriculum on entrepreneurial intention was not significant ( $CR = 0.994$ ,  $p = 0.320$ ). Teaching methods had a significant direct effect on entrepreneurship curriculum ( $CR = 13.591$ ,  $p < 0.001$ ). Entrepreneurial attitude, need for achievement, and locus of control (moderated by TM, mediated through EC and controlled for age, gender and program of study) explained 50.0% ( $R^2 = 0.500$ ) of the variance of entrepreneurial intention. Except for age and program of study ( $p > 0.05$ ), significant covariances were observed among the exogenous variables ( $p < 0.001$ ; *age and gender* –  $p = 0.031$ ) (see Figure 2 for the estimates).

**Insert Figure 2 about here**

In testing for the evidence of mediated-moderation, the simple slopes for the independent variables were tested on mediator at different levels of the moderator using the standard pick-

a-point approach (Hayes, 2018). Based on 2000 bootstrap estimates from the bias-corrected percentile method, there was significant conditional indirect effect (CIE) for entrepreneurial attitude at the medium and high levels of teaching methods (medium -  $CIE = 0.180$ , 95%  $CI: [0.060, 0.297]$ ,  $p = 0.008$ ; high -  $CIE = 0.189$ , 95%  $CI: [0.068, 0.329]$ ,  $p = 0.005$ ). The conditional indirect effect for the other IVs were not significant ( $p > 0.05$ ). The indirect effect of entrepreneurial attitude on entrepreneurial intention was significant ( $CR = 3.064$ ,  $p = 0.002$ ). The indexes of mediated-moderation (Hayes, 2015) indicated that there was evidence of mediated-moderation for entrepreneurial attitude ( $Index < 0.021$ , 95%  $CI: [0.007, 0.045]$ ,  $p = 0.042$ ), but no evidence was found for the other IVs (NA -  $Index = -0.003$ , 95%  $CI: [-0.029, 0.003]$ ,  $p = 0.281$ ; LC -  $Index = 0.002$ , 95%  $CI: [-0.003, 0.019]$ ,  $p = 0.319$ ) (Table 3).

**Insert Table 3 about here**

#### **4. Discussion**

Based on the conceptual model, this study empirically assessed entrepreneurship curriculum as a mediating mechanism in the relationship between personality characteristics and entrepreneurial intention, and how entrepreneurship teaching methods moderate this relationship while controlling for age, gender and course of study. The moderated mediation path analysis showed a moderate positive association between the constructs (TM, EA and EC). In addition to its significant direct effect on entrepreneurship curriculum, the moderation effect (TM) on the relationship between the personality characteristics (EA, NA and LC) through the mediation mechanism (EC) accounts for 50% of the total variance in entrepreneurial intention. The conceptualized mediated-moderation model also showed evidence of an excellent goodness-of-fit indices. Thus, the extent to which personality characteristics (e.g., EA) affects entrepreneurial intention through the mediation mechanism (EC) depends on the moderation effect of teaching methods (e.g., active-based or passive-driven pedagogy). Aside from the direct and indirect significant effect of entrepreneurial



attitude on entrepreneurial intention, there was evidence of mediated moderation for EA based on the significant moderated mediation effect by teaching methods on the relationship between entrepreneurial attitude and entrepreneurial intention through entrepreneurship curriculum. Several studies (Asitik & Nunfam, 2019; Mwasalwiba, 2010; Varamäki et al., 2015) notes that an interactive and learner-centered approach to teaching and learning entrepreneurship stimulate students' entrepreneurial intention and behavior. Hence, policy decisions on entrepreneurship education and training ought to take cognizance of varying teaching methods. Similarly, the moderating effect (TM) on (EA, NA, and LC) and the mediating role (EC) which accounts for the variance in entrepreneurial intention should inform entrepreneurship educators, trainers, researchers and policy decision actions geared toward entrepreneurship education, training and development of university students to bolster entrepreneurial intention and behavior.

The concept of intention is multifaceted, as several empirical studies exemplify the efficacy of intention-based models to explain the determinants of student's behavioural intentions (Esfandiar et al., 2019; Gieure et al., 2020). In assessing the role of personality traits and intention, the path analysis revealed a significant direct effect (EA, NA and LC) on entrepreneurial intention. Specifically, evidence from this study demonstrates that entrepreneurial attitude has a significant and direct positive influence on entrepreneurial intention as shown by the support for H1 and the moderate positive correlation between the two constructs. There was also a significant indirect conditional effect of entrepreneurial attitude on entrepreneurial intention based on moderated mediation (TM and EC). Similarly, several empirical and theoretical studies (Ajzen, 1991; Esfandiar et al., 2019; Nguyen et al., 2019; Schwarz et al., 2009; Varamäki et al., 2015) accentuate the extent to which entrepreneurial attitude positively relates and significantly influences entrepreneurial intention from the perspectives of differences in individual, sociocultural and geographical context in

both developed and developing countries (Asitik, 2015; Hueso et al., 2020; Lüthje & Franke, 2003; Ozaralli & Rivenburgh, 2016). Therefore, university students with high degree of optimistic attitude toward entrepreneurship and motivated by the want for financial freedom and opportunity for business autonomy were more predisposed to a high degree of entrepreneurial intention and behavior.

Furthermore, the results provide adequate evidence in support of H2 as need for achievement accounted for a significant and direct positive effect on changes in entrepreneurial intention. This shows that entrepreneurship pedagogical programs and contents directed at providing individuals with the desire for significant accomplishments in life increases one's entrepreneurial intention. Thus, the more students were exposed to entrepreneurship knowledge, skills and attitude for a higher need for success, the higher the tendency for such students to develop the intention to participate in entrepreneurship activities, especially in this era of high youth unemployment situation in Ghana. Notably, our findings on the significant positive effect of the need for achievement on entrepreneurial intention mirrors those observed in earlier studies (Franke & Lüthje, 2004; Nasip et al., 2017; Ndofirepi, 2020; Vodă & Florea, 2019). Although, earlier studies (Hansemark, 2003; Hmieleski & Corbett, 2006) yielded results of no significant relationship between need for achievement and entrepreneurial intention, which contradicts our findings due to differences in individual and contextual factors, need for achievement remains a key factor in determining university students' entrepreneurship prospects, choice of self-employment and entrepreneurial intentions (Caliendo et al., 2014; Do Paço et al., 2015; Espiritu-Olmos & Sastre-Castillo, 2015; Zeffane, 2013). Probably, an important issue to consider in such contradictions is the sociocultural differences that account for the non-universality of behavior, hence the divergence in results (see Asitik, 2015; Peterson, 1988). The acquisition of entrepreneurship education based on the need for independence, money, being one's own boss and employer, not an employee as part of the measures of high

achievement for entrepreneurial activities may be the explanation of the results. Therefore, entrepreneurship training and development programs and teaching methods grounded in stimulating risk-taking ability, creativity and the need for greater success among students has the inclination to increase their entrepreneurial intention.

The results further showed that entrepreneurial intention is significantly and positively influenced by locus of control as shown by the empirical evidence in support of H3. Empirical research on the implications of locus of control for entrepreneurship activities has yielded contradictory results. Generally, aside from differences in individual and contextual perspectives (e.g., demographic, social, institutional and environmental), the scope of cultural value systems tend to influence and account for disparities in the relationship between personality characteristics (e.g., LC) and entrepreneurial intention and behavior in various settings (Hueso et al., 2020; Lüthje & Franke, 2003; Ozaralli & Rivenburgh, 2016). Although, our results corroborate the previous research findings (Ang & Hong, 2000; Vodă & Florea, 2019), and substantiate the positive association between locus of control and entrepreneurial intention; other studies do not support the significant and positive effect of locus of control on entrepreneurial intention (Matlay et al., 2013; Nasip et al., 2017; Ndofirepi, 2020). Our findings suggest that individuals characterized by adequate level of locus of control based on their will power, were more likely to have an increased aspiration for entrepreneurship activity. We argued that the significant implication is that the entrepreneurship training and development programs and curricula of the universities in Ghana with a student-centered pedagogical approach aimed at stimulating strong internal locus of control characterized by individual responsibility for their actions may increase student's entrepreneurial goal intention (see Santokhie & Lipps, 2020).

Controlling for gender, age and program of study has contextualized the model to guide interpretation and implications. Several studies have shown that the extent to which

entrepreneurial intention is actualized in the entrepreneurial process depends on an individual's background characteristics (e.g., age, gender, and course of study) (Álvarez-Herranz et al., 2011; Jain & Ali, 2013; Joensuu et al., 2013). The dominance of students within the youthful age suggests an emerging crop of dynamic and energetic young people faced with rising unemployment situation will be inclined to develop positive entrepreneurial career intention (Álvarez-Herranz et al., 2011). Notably, young persons characterized by lower opportunity cost of time (Levesque & Minniti, 2006) were more likely to risk entrepreneurial initiatives (Hulsink & Koek, 2014). As substantiated in previous studies (Gupta et al., 2009; Hulsink & Koek, 2014), other findings show that males were more likely to venture into entrepreneurial oriented careers as men were more predisposed to engage in entrepreneurial action than women (Gupta et al., 2009). In a longitudinal study of students, women had lower intentions of starting business, and this intention decreased further as their studies progressed (Joensuu et al., 2013). As demonstrated in similar studies, students who pursue business-related courses were more likely to prefer and nurture entrepreneurial intentions and self-employment than other disciplines (Franco et al., 2010).

## **5. Conclusions and implications**

In applying the TPB to explain the determinants of entrepreneurial intention from the developing world perspectives, all the personality characteristics significantly influenced entrepreneurial intention as teaching methods significantly influenced entrepreneurship curriculum. Our insights into the conceptualized moderation mediation path analysis model also showed empirical evidence of an excellent goodness-of-fit indices as there was a significant direct and indirect effect of entrepreneurial attitude on entrepreneurial intention based on the moderation effect (TM) through the mediation mechanism (EC).

The outcome of our study has implications for the literature on entrepreneurship intention, aspiring student entrepreneurs, university managers, entrepreneurship educators and policy

decision makers. Firstly, we contribute to providing adequate support for extant entrepreneurship literature on personality traits-intention correlation discourse from the TPB context. Empirical evidence from our study have demonstrated the significance of personality characteristics, entrepreneurship pedagogy and curriculum in accounting for entrepreneurship intention from the perspective of the TPB. Secondly, the implication of our study for aspiring student entrepreneurs relates to optimizing their positive entrepreneurial personality, which tends to develop their entrepreneurial intentions and behavior. Thus, there is an urgent need to focus entrepreneurship education and training on exposing students to productive entrepreneurial curriculum moderated by practical oriented student-centered teaching methods. This approach should be aimed at producing students with hands-on experiences, optimistic entrepreneurial attitudes, high need for accomplishments and strong locus of control. In doing so, our entrepreneurship education efforts would have the potential of, and constructive ramifications of increasing students' entrepreneurial goal intention and behavior. Thirdly, our study profiles the influence of personality characteristics of students and how university education culture regarding the mechanism by which entrepreneurship teaching methods and curriculum determines entrepreneurship intention. The enthusiasm of our policy decision makers, university managers and entrepreneurship educators to incentivize aspiring student entrepreneurs into start-up activities, and direct entrepreneurship education policies based on student-centered pedagogy and entrepreneurial curriculum, and shaping the positive attitudes of students towards entrepreneurship intention is imperative. The utmost potential to nurture students' intention for new venture formation, resulting in job and wealth creation to stimulate growth and development, depends on practical actions of entrepreneurship education. Hence, policy makers in collaboration with university managers should modify entrepreneurship teaching methods and course contents to mirror the need to produce students with positive attitudes towards entrepreneurship.

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Not applicable

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## **Conflict of interest**

None

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Figures

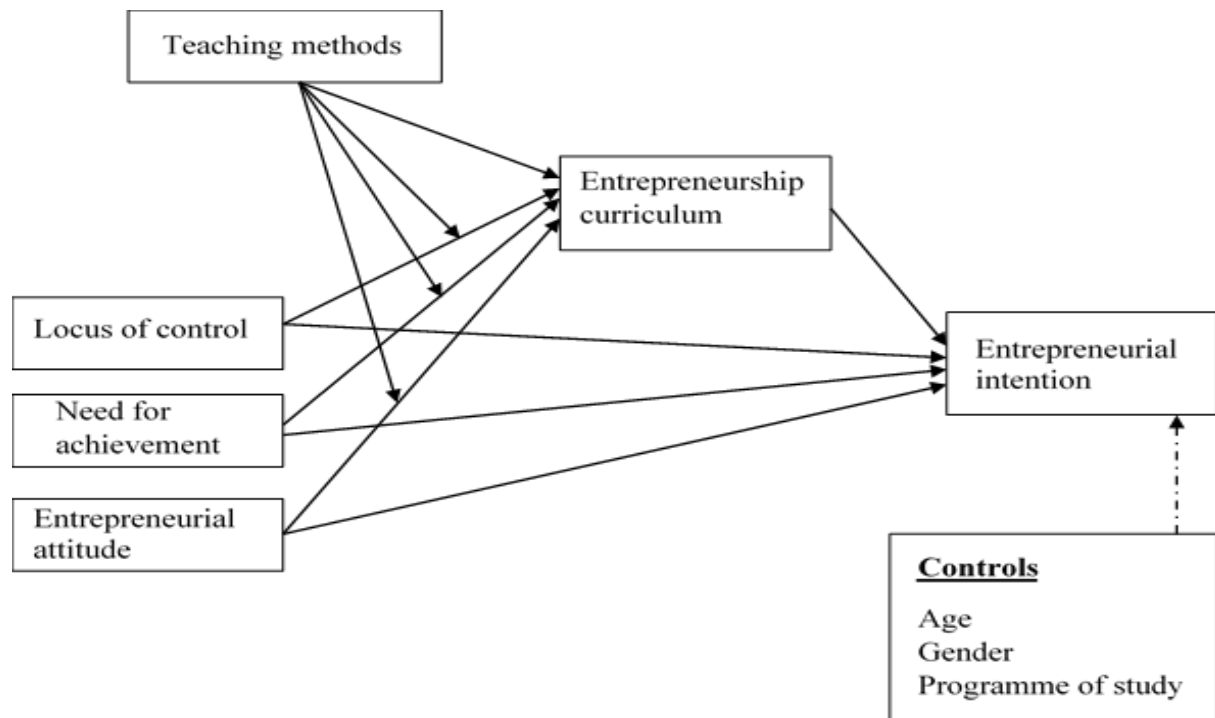
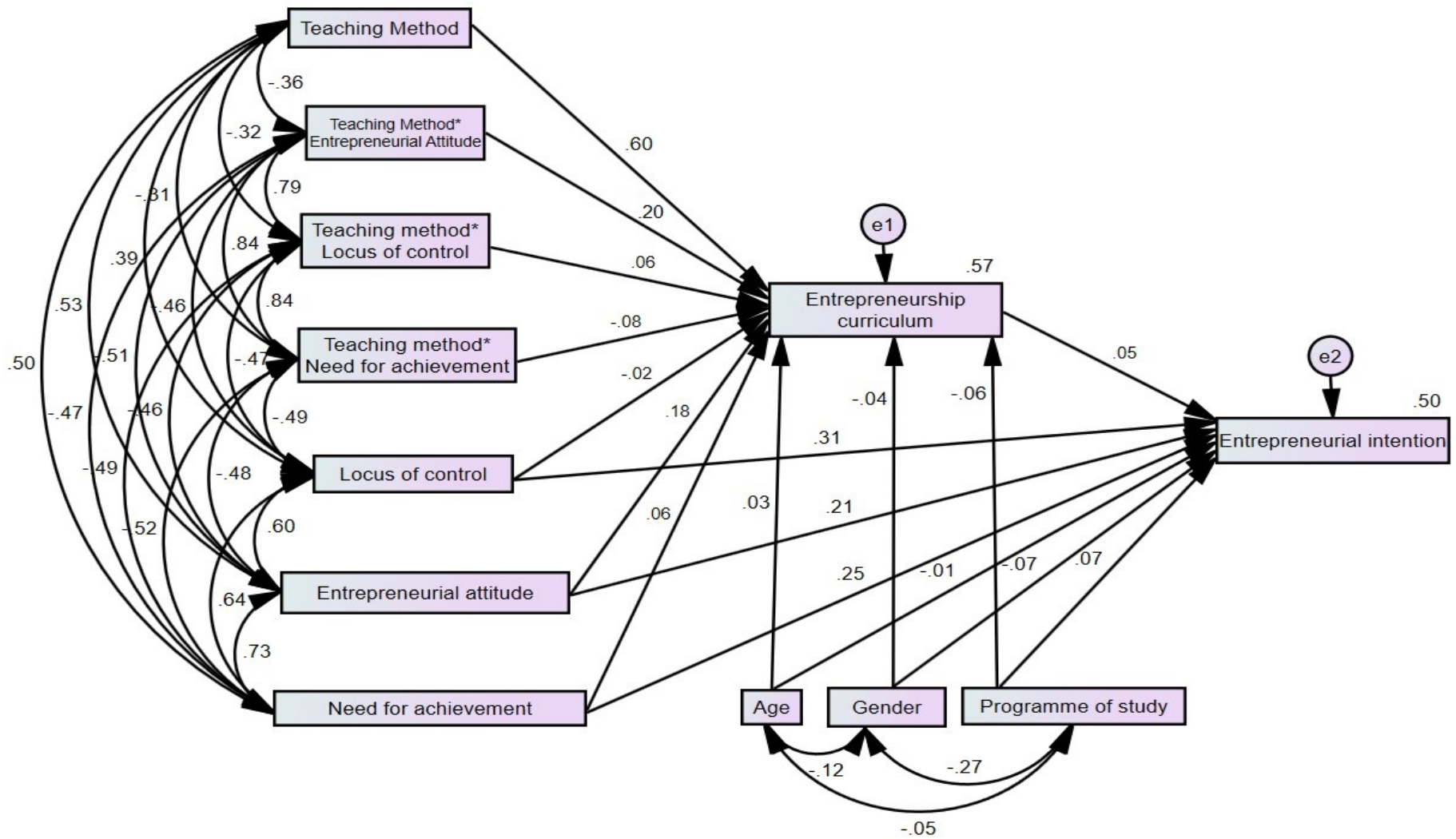


Figure 1: Conceptual mediation moderation model



**Figure 2: Standardized estimates of the moderated mediated path analysis model**

**NB:** TM\*EA; TM\*LC; TM\*NA-Interactive effect between teaching methods and the personality traits



## Tables

**Table 1: Background characteristics of respondents (n=324)**

| Characteristics                  | Total F (%) | University |           |
|----------------------------------|-------------|------------|-----------|
|                                  |             | UDS F (%)  | TTU F (%) |
| <i>Age</i>                       |             |            |           |
| Below 20                         | 48(14.8)    | 32(66.7)   | 16(33.7)  |
| 21-25                            | 223(68.8)   | 55(24.7)   | 168(75.3) |
| 26-30                            | 45(13.9)    | 23(51.1)   | 23(13.9)  |
| Above 30                         | 8(2.5)      | 6(75.0)    | 2(25.0)   |
| <i>Gender</i>                    |             |            |           |
| Male                             | 208(64.2)   | 82(39.4)   | 126(60.6) |
| Female                           | 116(35.8)   | 33(28.4)   | 83(71.6)  |
| <i>Program of study</i>          |             |            |           |
| Business                         | 181(55.9)   | 43(23.8)   | 138(76.2) |
| Management                       | 63(19.4)    | 44(69.8)   | 19(30.2)  |
| Electrical Engineering           | 17(5.2)     | 0(0.0)     | 17(100.0) |
| Entrepreneurship and economics   | 27(8.3)     | 27(100.0)  | 0(0.0)    |
| Construction/Building Technology | 1(0.3)      | 0(0.0)     | 1(100.0)  |
| Mechanical Engineering           | 32(9.9)     | 0(0.0)     | 32(100)   |
| Accounting                       | 3(0.9)      | 0(0.0)     | 3(100.0)  |

Source: Field survey, 2018

**Table 2: Partial correlation matrix of constructs**

| Measure | Age    | Gender | Prog. | EA          | NA          | LC          | EC          | TM          | EI          |
|---------|--------|--------|-------|-------------|-------------|-------------|-------------|-------------|-------------|
| Age     | NA     |        |       |             |             |             |             |             |             |
| Gender  | -.121* | NA     |       |             |             |             |             |             |             |
| Prog.   | -.052  | -.274  | NA    |             |             |             |             |             |             |
| EA      | .004   | -.092  | .018  | <b>.604</b> |             |             |             |             |             |
| NA      | -.003  | -.100  | -.033 | .732***     | <b>.618</b> |             |             |             |             |
| LC      | -.022  | -.044  | -.044 | .602***     | .644***     | <b>.515</b> |             |             |             |
| EC      | .031   | -.030  | -.030 | .541***     | .494***     | .377***     | <b>.707</b> |             |             |
| TM      | -.011  | .031   | -.053 | .531*       | .500        | .394        | .725***     | <b>.713</b> |             |
| EI      | -.002  | -.068  | -.016 | .610***     | .630***     | .612***     | .396        | .343        | <b>.554</b> |

NB: \*\*\* Correlation is significant at  $p$ -value  $< 0.01$ , the bold values on the leading diagonal show the discriminant validity of the constructs and the non-diagonal values are the correlation coefficient between the constructs. EA – Entrepreneurial attitude, NA – Need for

achievement, LC - Locus of control, EC – Entrepreneurial curriculum, TM – Teaching methods, EI – Entrepreneurial intention

**Table 3: Paths analyses and hypothesis testing results**

| Parameter         | R <sup>2</sup> | Estimate | S.E  | C.R    | Sig. | Results       |
|-------------------|----------------|----------|------|--------|------|---------------|
| EI <- EA          | .350           | .223     | .060 | 3.739  | ***  | Supported     |
| EI <- NA          | .370           | .253     | .060 | 4.208  | ***  | Supported     |
| EI <- LC          | .400           | .310     | .054 | 5.714  | ***  | Supported     |
| NA*TM <- EC <- EI | .110           | .119     | .073 | 1.635  | .102 | Not Supported |
| LC*TM <- EC <- EI | .030           | .049     | .066 | .746   | .456 | Not Supported |
| EA*TM <- EC <- EI | .460           | .078     | .046 | 1.682  | .013 | Supported     |
| TM <- EC          | .600           | .610     | .045 | 13.522 | ***  | Supported     |

NB: \*\*\*  $p$ -value < 0.001, S.E. – Standard error, C.R. – Critical ratio, EI – Entrepreneurial intention, EA – Entrepreneurial attitude, NA – Need for achievement, LC – Locus of control, TM – Teaching method, EC – Entrepreneurship curriculum.

Source: Field survey, 2018