


**THE BROKER: COGNITIVE PROWESS FOR BUSINESS START-UP PERFORMANCE**

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ARTICLE INFO	<u>ABSTRACT</u>
<p><b>Article history:</b></p> <p><b>Received</b> 07 July 2022</p> <p><b>Accepted</b> 26 October 2022</p>	<p><b>Purpose:</b> Many methodological and empirical perspectives on the broker between entrepreneurship education and business start-up performance have been prescribed and implemented. However, limited empirical evidence exists on applying cognitive characteristics as a mediator. Hence, this study focused on the National Youth Service Corps (NYSC) members in Lagos State.</p>
<p><b>Keywords:</b></p> <p>Broker; Business Startup Performance; Cognitive Characteristics; Entrepreneurship Education.</p> <div data-bbox="172 987 480 1234" style="text-align: center;">  </div>	<p><b>Design/methodology/approach:</b> The cross-sectional survey research design was used, and data were obtained from 406 graduate entrepreneurs at the National Youth Service Camp (NYSC) before registering with SAED-BOI (Bank of Industry), Lagos State 2021 NYSC 21A, and Stream 1 Batch. The total enumeration technique was applied after the sample filtration criteria were established.</p> <p><b>Findings:</b> Hierarchical regression analysis results using an SPSS add-on called process analysis found cognitive characteristics significantly mediated the relationship between entrepreneurship education and business start-up performance in Lagos State Nigeria.</p> <p><b>Research, Practical &amp; Social implications:</b> The broker (cognitive prowess), is required if entrepreneurship education and business start-up performance must survive, expand, and flourish in different sectors.</p> <p><b>Originality/value:</b> The findings is paramount to the trade industry (start-up ecosystem) and education sector as it would serve as a reliable source of information on the necessary and effective entrepreneurship education mix required to boost business start-up performance.</p> <p>Doi: <a href="https://doi.org/10.26668/businessreview/2022.v7i3.0394">https://doi.org/10.26668/businessreview/2022.v7i3.0394</a></p>

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## O CORRETOR: PROEZAS COGNITIVAS PARA O DESEMPENHO NA CRIAÇÃO DE EMPRESAS

### RESUMO

**Objetivo:** Muitas perspectivas metodológicas e empíricas sobre o corretor entre a educação empresarial e o desempenho na criação de empresas foram prescritas e implementadas. Entretanto, existem poucas evidências empíricas sobre a aplicação das características cognitivas como mediador. Portanto, este estudo se concentrou nos membros do National Youth Service Corps (NYSC) no estado de Lagos.

**Design/metodologia/abordagem:** Foi utilizado o desenho da pesquisa transversal, e os dados foram obtidos de 406 empresários graduados no Campo do Serviço Nacional de Juventude (NYSC) antes do registro no SAED-BOI (Bank of Industry), Lagos State 2021 NYSC 21A, e Stream 1 Batch. A técnica de enumeração total foi aplicada após o estabelecimento dos critérios de filtragem da amostra.

**Conclusões:** Os resultados da análise de regressão hierárquica usando um add-on SPSS chamado análise de processo encontraram características cognitivas que mediaram significativamente a relação entre a educação empresarial e o desempenho na criação de empresas no estado de Lagos, Nigéria.

**Pesquisa, implicações práticas e sociais:** O corretor (proeza cognitiva) é necessário se a educação empresarial e o desempenho de empresas devem sobreviver, expandir e prosperar em diferentes setores.

**Originalidade/valor:** As descobertas são fundamentais para a indústria comercial (ecossistema inicial) e o setor educacional, pois serviriam como uma fonte confiável de informação sobre a combinação necessária e eficaz de educação empresarial necessária para impulsionar o desempenho empresarial inicial.

**Palavras-chave:** Corretor, Desempenho do Início dos Negócios, Características Cognitivas, Educação para o Empreendedorismo.

## EL CORREDOR: LA DESTREZA COGNITIVA PARA EL RENDIMIENTO EN LA CREACIÓN DE EMPRESAS

### RESUMEN

**Objetivo:** Se han prescrito y aplicado muchas perspectivas metodológicas y empíricas sobre el intermediario entre la educación empresarial y el rendimiento de la creación de empresas. Sin embargo, existen pocas pruebas empíricas sobre la aplicación de las características cognitivas como mediador. Por lo tanto, este estudio se centró en los miembros del Cuerpo Nacional de Servicio Juvenil (NYSC) en el estado de Lagos.

**Diseño/metodología/enfoque:** Se utilizó el diseño de investigación de encuesta transversal y se obtuvieron datos de 406 empresarios graduados en el Campamento del Servicio Nacional de la Juventud (NYSC) antes de inscribirse en el SAED-BOI (Banco de la Industria), Estado de Lagos 2021 NYSC 21A, y Stream 1 Batch. Se aplicó la técnica de enumeración total una vez establecidos los criterios de filtración de la muestra.

**Resultados:** Los resultados del análisis de regresión jerárquica mediante un complemento del SPSS denominado análisis de procesos revelaron que las características cognitivas median significativamente en la relación entre la educación empresarial y el rendimiento de la creación de empresas en el estado de Lagos, Nigeria.

**Implicaciones sociales, prácticas y de investigación:** El mediador (destreza cognitiva), es necesario si la educación empresarial y el rendimiento de la creación de empresas deben sobrevivir, expandirse y prosperar en diferentes sectores.

**Originalidad/valor:** Las conclusiones son de suma importancia para la industria del comercio (ecossistema de creación de empresas) y el sector educativo, ya que servirían como fuente de información fiable sobre la combinación necesaria y eficaz de educación empresarial necesaria para impulsar el rendimiento de la creación de empresas.

**Palabras clave:** Corredor, Rendimiento en la Creación de Empresas, Características Cognitivas, Educación Empresarial.

## INTRODUCTION

The discussion on business startups' performance in developing countries has not received a robust perspective from the empirical and methodological narratives as in developed climes. Retrospectively and globally, concerning business startups performance, United States of America (USA) startups failure after five years and ten years were over 50 percent and over

70 percent, respectively (Hering, 2020; Patrick, 2017). In 2019, 20% of businesses failed within their first year, and 45% of these businesses disappeared within their first five years of operations (Harrison, 2021; US Bureau of Labour Statistics, 2019). Based on these observations, career-focused education programs were accentuated in the United States of America to encourage the development of an entrepreneurial mindset. These programs used project-based learning to develop a holistic, non-cognitive skillset linked to an entrepreneurial mindset (Rodriguez & Lieber, 2020).

Further, in Europe, five new businesses failed in their first year, with almost two-thirds surviving for three years and less than half for five years (Statista, 2020). In 2017, Lithuania had the lowest share of businesses surviving after one year at just 64.1 percent (Statista, 2020). Recent data confirms that business creation dropped significantly across many European countries in March and April 2020, with a decline as severe as 70% in April 2020 in Portugal compared to the same month of the prior year, and 46%, 54%, and 58% in Hungary, France, and Turkey, respectively (Calvino, Criscuolo & Verlhac, 2020). Across Africa, despite the influx of investments into startups, the average business failure rate of African startups is 54.2% (GreenTec Capital Africa Foundation and WeeTracker Media, 2020; Tage, 2020). Nigeria's situation is not different despite emerging as a primer investment destination with 55 active techub, raising 94.9m dollars in 2019 (Ramachandran et al., 2019; Usman, Choi, & Dutz, 2019). Alake and Olorounbi (2020) stressed that most startups died due to perceptual errors. Better Africa Report (2020) stated that 61.05% of startup failures in Nigeria could imply weaknesses in startup performance.

According to Shittu (2017) and Wallin et al. (2016), successful technology-based ventures constitutes a major driving force of economic growth (Wallin, Still & Henttonen, 2016), and it depends heavily on the outcomes of actions by entrepreneurs. It also depends on their ability to combine resources and tolerate a higher degree of uncertainty. However, Southeast Asia startups statistics showed that 30% failed due to lack of market need (42%), lack of cash (20%), wrong team (23%), intense competition (19%), pricing issues (18%), poor product (17%), business model (17%), ineffective marketing (14%), lack of customer-centric (14%), and poor timing (13%) (SBS Consulting, 2020). Slávik (2019) stressed that failures are due to weak business models; and psychological depth (Yusof, Sandhu & Jain, 2007). Tage (2020) added that African entrepreneurs struggle with the inability to scale business ideas and growth stagnation. Consequently, what could be the broker between entrepreneurship education and business startups, since the rate of failure is in the higher region despite huge investments?

Scholars (Plasman, Gottfried, & Sublett, 2017) claimed that entrepreneurship education is becoming prevalent in education by focusing on changing the mindset of students graduating from a job-seeking to having an entrepreneurial mindset. Thus it becomes an experiment, which provides a space for self-realization, an opportunity to develop and implement unusual and risky ideas, and unparalleled dissatisfaction with existing needs and discovery of new ideals (Kim et al., 2018; Shittu, 2017; Slavik, 2019; Slavik, 2019); thereby strengthening the cognitive prowess of graduates. More so, scholars (Shane, 2000; Shittu, 2017; Udoye, 2018) claimed that the cognitive power of a student in terms of accumulated knowledge gained from education and experience represents strategic resources that are heterogeneously distributed across individuals and effect central to understanding differences in opportunity identification and exploitation. Hence, could cognitive abilities be the broker?

In light of these commentaries, previous empirical studies have shown that human capital factors are positively related to becoming a nascent entrepreneur (Shittu, 2017; Zhao et al., 2010), increase opportunity recognition and even entrepreneurial success (Shane, 2000; Udoye, 2018; Udu, 2014; Zhao, 2010). In addition, the cognitive capabilities which top-skilled entrepreneurs possess have propelled them to provide innovative, competitive products and services (Chauke & Obadire, 2020). Despite the popular discourse of these scholars (Jerome, 2020; Shittu, 2017; Udoye, 2018), none infused cognitive power to investigate entrepreneurial education and business startup in Nigeria in terms of constructs and graduates. Hence, this paper hypothesized that:

**Cognitive characteristics have no mediating effect on the relationship between entrepreneurship education and business startup performance in Lagos State Nigeria.**

## **LITERATURE REVIEW**

### **Business startup performance**

Startups are businesses that bring new ideas to the market, and these ideas are transformed into economically sustainable enterprises (Spender, Corvello, Grimaldi & Rippa, 2017). In economic terms, startups are artifacts for transforming entrepreneurial judgment into profit (Spender, 2014). Ogamba (2019) and Spender et al. (2017) conceptualized business startup success as, mastery of skills on how to identify a business idea; identify the required team; assess business development needs; understand and monitor the environment with limited resources; identify the business approach, attract and retain good customers; appraise and learn from the competition. Startups require innovation and effective management of intellectual

capital to create value (Elia, Lerro, Passiante & Schiuma, 2017). Based on these submissions, a business startup was defined as the outcome of potential entrepreneurs' interactions with their immediate environment and their alertness to current market opportunities available for exploitation.

### **Entrepreneurship education**

According to Ogundele et al. (2012), EEd is characterized as multi and inter-disciplinary training focused on the acquisition of relevant skills needed to start and run a new business venture to reduce unemployment and poverty. The training also builds confidence and motivates and encourages students to initiate an enterprise (Akaeze, 2019; Syed & Andras, 2017). Also, it trains one to become an innovator, venture owner, risk-taker, and efficient controller of time and money (Shittu, 2017; Udoeye, 2018; Zhao et al., 2010). It facilitates innovation, change, and the creation of ventures (Chauke & Obadire, 2020). Oladunjoye (2015) stressed that an entrepreneurship curriculum should have personal development and entrepreneurial skills as its integral element to provide the students with the required skills, competencies, and capacities needed to make them self-sufficient and highly productive in society. As such, enterprise education aims to maximize opportunities for the development of enterprising skills, behaviors, and attributes in young people in the expectation that these skills be utilized, deployed, and channeled towards value creation (Shaibu & Mmeremikwu, 2018).

### **Cognitive characteristics**

Cognitive characteristics refer to mentally based traits (Wenxiang, Xiangrong, Hao, Zan, Duan, & ZhiJun, 2017). Cognitive characteristics are mental skills and variety from memory skills to procedural skills and language skills to discerning skills. There are two main cognitive characteristics (entrepreneurial self-efficacy and entrepreneurial perseverance) that vary among entrepreneurs and can be expected to impact a nascent entrepreneur's decision of whether and how to engage in business planning (Brinckmann & Kim, 2015). Entrepreneurial self-efficacy relates to an individual's belief. Implying that the individual is capable of performing certain roles and tasks in the entrepreneurial domain successfully (Chen, Yao & Kotha, 2009). Individuals with higher levels of entrepreneurial self-efficacy perceive that they could carry out the required tasks in the entrepreneurial domain successfully. Subsequently, their levels of motivation and goal orientation also increases (Zhao, Seibert, & Hills, 2005). Entrepreneurial perseverance refers to a cognitive characteristic of individuals that leads to

continued efforts and persistent behaviors in the entrepreneurial domain in spite of resistances, setbacks, and uncertainty of outcomes (Markman, Baron & Balkin, 2005).

### **Cognitive characteristics, entrepreneurship education, business startup performance**

Limited empirical studies exist on the constructs in this paper; nevertheless, the results have been inconclusive. For instance, Brinckmann and Kim (2015) considered two cognitive variables: entrepreneurial self-efficacy and entrepreneurial perseverance and found that entrepreneurial self-efficacy does not impact whether entrepreneurs engage in proper business planning, which is a strong determinant for business performance. However, highly self-efficacious entrepreneurs develop more formal business plans than those with lower levels of entrepreneurial self-efficacy. Using different variables, Hajizadeh and Zali (2016) study showed that cognitive abilities (entrepreneurial alertness and learning) partially mediate the relationship between prior knowledge and opportunity recognition. Building on Brinckmann and Kim (2015) findings but with focus on a different unit of analysis, another study of 1126 university students, of which about 80% are studying technical degrees and close to 20% are studying business showed that entrepreneurial self-efficacy and attitude toward entrepreneurship mediate the relationship between personal abilities and entrepreneurial intentions (Rosique-Blasco, Madrid-Guijarro & García-Pérez-de-Lema, 2018).

An earlier study by Shane (2000) showed that prior knowledge has a significant and positive impact on both cognitive characteristics. In addition, the entrepreneurial attitude positively affects the intention to be an entrepreneur, exerting a mediating effect on entrepreneurial self-efficacy. Additionally, the results from Akinola (2013) indicated that: creativity and proactivity, directly and indirectly, affect entrepreneurial intention, while internal locus of control only has an influence on entrepreneurial intention through entrepreneurial self-efficacy and attitude toward entrepreneurship. Implying that cognitive prowess could serve as an intermediary between entrepreneurship education and business startup performance. As such the personalities of individuals have effect on creativity (Umukoro, Egwakhe, & Akpa, 2021) which is linked with the attitude to entrepreneur concepts.

### **Theoretical review**

The study was pillared on two theories: Theory of Reasoned Action and Cognitive Learning theory. The theory of Reasoned Action was founded in 1980 by Fishbein and Ajzen which resulted to the development of the Theory of Planned Behavior propounded by Icek Ajzen in 1985. The Cognitive Learning Theory (CLT) focuses on thought-effect. It looks at

understanding humans' perspectives, thought processes, and how the brain instantly reacts and readjusts as people learn within a corporate environment. As such, social and behavioural actions of an entrepreneur are derivatives of mental processes' ability to absorb and retain information through experience, senses, and thought. The postulations' assumptions were centered on entrepreneurs' outcomes, which in some cases are not directly the aftermath of education only but learning anchored on personal, environmental and behavioral cognitive. Thus, cognitive influences start-ups performance and could mediate even without classroom education. It is within this purview that human entrepreneurial behaviors were addressed along inherent cognitive powers and dexterity (Ajzen, 1985, 1991).

There are three maxim to the propositions. Firstly, personal factors are heterogeneous and can be enhanced through education; environmental factors are opportunities based but personal factors are necessary to identify and leverage on environmental factors; the human behavior or intention is anchored on personal factors after juxtaposing the cost-benefits observed in environmental factors. The three fundamental factors were judged robust and appropriate to mediate for entrepreneurship education in predicting business start-up performance. Further, the behavioral factors are controllable and self-regulated; it determines the dos and don't with reference to feasibility and scalability of an investment. In addition, personal factors re-enforces behavior, beliefs and self-efficacy in addressing and exploiting external opportunities. Thus, the presumption is that cognitive characteristics could mediate between entrepreneurship education and business start-ups performance.

## **METHODOLOGY**

The study applied a cross-sectional survey research design because of its technical appropriateness in obtaining data from people judged reliable and to further deepen insight into the phenomenon (Zikmund, Babin, Carr, & Griffin, 2010). The empirical work that applied this design is Hajizadeh and Zali (2016) on prior knowledge, cognitive characteristics, and opportunity recognition. The targeted population for this work was four hundred and six (406) graduate entrepreneurs (400 graduates who started their businesses before graduation and six (6) graduates while at the NYSC camp before registering with SAED-BOI (Bank of Industry)), Lagos State 2021 NYSC 21A and Stream 1 Batch. The decision to focus on Lagos was on the Global Start-up Ecosystem Rankings report (2019) and Better Africa Report (2020), which analyzed start-up ecosystems in 1,000 cities and 100 countries. In addition, Lagos State was recorded as the best start-up ecosystem in Africa.

The total enumeration technique was employed. The sample size for this study was four hundred and six (406), with start-up entrepreneurs from the 2021 NYSC Batch 21A Stream 1 in Lagos State, Nigeria. An adapted and structured survey questionnaire was applied to gather information from respondents.

**Model specification**

The variables in this study are entrepreneurship education, business startups performance and cognitive characteristics as mediator. The mediation model offers an explanation for how, or why, two variables are related, where an intervening or mediating variable, V, is hypothesized to be intermediate or broker in the relationship between an independent variable, X, and an outcome variable, Y

$$Y = c_0 + cX + e_1 \dots\dots\dots (a)$$

$$V_1 = a_0 + aX + e_2 \dots\dots\dots (b)$$

$$Y = b_0 + c'X + bV_1 + e_3 \dots\dots\dots (c)$$

Regression Equation (b) is inputted into Regression Equation (c) to obtain Regression Equ. (d)

$$Y = (b_0 + a_0b) + (c' + ab)X + (be_2 + e_4) + \mu_i \dots\dots\dots (eq.i)$$

Where

- c is the overall effect of the independent variable on Y;
- c' is the effect of the independent variable on Y controlling for V<sub>1</sub>;
- b is the effect of the mediating variable on Y;
- a is the effect of the independent variable on the mediator;
- c<sub>0</sub>, a<sub>0</sub>, and b<sub>0</sub> are the intercepts for each equation; and
- e<sub>1</sub>, e<sub>2</sub>, and e<sub>3</sub> are the corresponding residuals in each equation

The hypothesis was tested at a 95% confidence interval using Hayes process analysis. The study's *a priori* expectation result is a positive and significant effect will be observed between entrepreneurship education and business start-up performance mediated by cognitive characteristics. Additionally, the paper adhered strictly to ethics of research which included anonymity and confidentiality during the data collection process. Respondents had the right to



discontinue participating in the study after starting. Also, the acknowledgement of the scholarly works from previous authors was duly observed.

## FINDINGS

The hypothesis was analyzed using model 4 on Hayes process analysis to examine the mediating effect of cognitive characteristics on the relationship between entrepreneurship education and business start-up performance in Lagos State, Nigeria. The mediating variable was cognitive characteristics, the independent variable was entrepreneurship education, and the dependent variable was business start-up performance. The data for cognitive characteristics was extracted by summing all the question items of the variable. Entrepreneurship education data was generated by adding all the responses of all items of entrepreneurship curriculum, skill training, entrepreneurial support, institutional factors, and experiential learning. Start-ups performance was generated by adding scores of responses of all items for market orientation outcome, venture creation, continuous investment outcome, and idea commercialization. Data from three hundred and ninety-one (391) respondents were collated and analyzed. The results of the process analysis are shown in Table 1-9.

Table 1: Model 1 Summary of Regression Analysis for Predictor and Mediating variable.

<b>R</b>	<b>R-sq</b>	<b>MSE</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>P</b>
0.2295	0.0527	1.5405	21.6210	1	389	0.000

Mediating variable: Cognitive Characteristics

Source: Field Survey (2022)

Table 2: Model 2 of Regression coefficient for Predictor and mediating variable

<b>Model</b>	<b>Beta</b>	<b>Se</b>	<b>T</b>	<b>P</b>	<b>LLCI</b>	<b>ULCI</b>
Constant	3.4834	0.2865	12.1589	0.000	2.9201	4.0466
Entrepreneurship Education	0.3076	0.0662	4.2788	0.000	0.1775	0.4376

Mediating Variable: Cognitive Characteristics

Source: Field Survey (2022)

Table 3: Model 2 Summary of Regression analysis for the Mediator and Outcome variable.

<b>R</b>	<b>R-sq</b>	<b>MSE</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>P</b>
0.8143	0.6630	0.2972	281.7504	2	288	0.000

Outcome variable: Business Start-Up Performance

Source: Field Survey (2022)

Table 4: Model 2 of Regression coefficient for Mediator and Outcome variable.

Model	Beta	Se	T	P	LLCI	ULCI
Constant	0.7894	0.1478	5.3396	0.000	0.4987	1.0800
Entrepreneurship Education	0.2117	0.0299	7.0826	0.000	0.1530	0.2704
Cognitive Characteristics	0.5426	0.0223	24.3656	0.000	0.4989	0.5864

Outcome Variable: Business Start-Up Performance

Source: Field Survey (2022)

Table 5: Total Effect Model.

R	R-sq	MSE	F	df1	df2	P
0.3840	0.1475	0.7501	67.2918	1	389	0.000

Outcome variable: Business Start-Up Performance

Source: Field Survey (2022)

Table 6: Model 1 of Regression coefficient for Predictor and mediating variable

Model	Beta	Se	T	P	LLCI	ULCI
Constant	2.6796	0.1999	13.4041	0.000	2.2866	3.0726
Entrepreneurship Education	0.3786	0.0462	8.2032	0.000	0.2879	0.4694

Outcome Variable: Business Start-Up Performance

Source: Field Survey (2022)

Table 7: Total effect(s) of X on Y

Effect	Se	T	p	LLCI	ULCI
0.3786	0.0462	8.2032	0.0000	0.2879	0.4694

Table 8: Direct effect(s) of X on Y

Effect	Se	T	p	LLCI	ULCI	
EE	0.2117	0.0299	7.0926	0.0000	0.1530	0.2704

Table 9: Indirect effect(s) of X on Y

Effect	Boot SE	BootLLCI	BootULCI
CC	0.1669	0.0398	0.2501

Source: Field Survey (2022)

The study hypothesis tested the mediating effect of cognitive characteristics on the relationship between entrepreneurship education and business start-up performance in Lagos State, Nigeria. Based on the analysis, the pre-test expected for running mediation requires establishing that a linear relationship exists between the predictor (X) and the outcome variable

(Y) ( $\beta= 0.379, t= 8.203, p<0.05$ ); between the mediator and the predictor variable ( $\beta= 0.308, t= 4.650, p<0.05$ ) and between the mediator and the outcome variable ( $\beta= 1.020, t= 25.159, p<0.05$ ) with the mediator serving as the dependent variable which must be statistically significant for mediation analysis to be possible and this has been fulfilled as seen from the result in Table 5, 6, and 7 under the pre-test diagnostics.

Model 1 of the mediation process examined the relationship between the mediator (cognitive characteristics) serving as the outcome variable in this model and, the predictor variable (entrepreneurship education) as presented in Table 1 result showed a weak positive but significant relationship with an *R-value* 0.2295 and  $p<0.05$ . The *R2* value of 0.0527 revealed that entrepreneurial education explained about 5.3% of the variation in cognitive characteristics in Lagos State, Nigeria. Furthermore, the result shows that one-unit change in entrepreneurial education ( $\beta= 0.3076, t= 4.6498, p<0.05$ ) will affect cognitive characteristics by 0.3076 units and it is also statistically significant further satisfying the condition for running a mediation analysis.

The second step examined the relationship between the mediator and the outcome variable in Tables 3 and 5. The results of the analysis showed that the mediator variable strengthens the relationship between the predictor and the outcome variables represented by the improvement in the *R-value* to 0.8143 (Table 3) a far stronger relationship existed when cognitive characteristics and the predictor variable were brought into the model as against the *R-value* of 0.384 on Table 5, showing the baseline model of entrepreneurship education on business start-up performance independent of the mediator (cognitive characteristics). One unit increase in entrepreneurial education ( $\beta= 0.2117, t= 7.0826, p<0.05$ ) affects business start-up performance by 0.2117 units and statistically significant. It implies that entrepreneurship education has a direct effect on business start-up performance. Similarly, cognitive characteristics had a statistically significant influence on business start-up performance ( $\beta= 0.5426, t= 24.3656, p<0.05$ ), as seen by the absence of “0” between the LLCI and ULCI (0.4989 - 0.5864) indicating that there is a linear dependence between cognitive characteristics and business start-up performance in Lagos State, Nigeria.

The total effect model shows the baseline Model of X on Y without the mediator in Table 6 revealing the effect entrepreneurial education has on business start-up performance independent of the mediation ( $\beta= 0.3786, t= 8.3656, p<0.05$ ) as seen in Table 7. The total effect in the mediation model is decomposed into direct and indirect effects. The direct effect shows the effect entrepreneurship education solely had on the outcome variable (Business Start-Up Performance) without the mediator. From the result, it implies that entrepreneurship education

( $\beta = 0.2117, t = 7.0926, p < 0.05$ ) (See Table 8) had a direct effect of 0.2117 on business start-up performance which is statistically significant. Hence a direct relationship exists between entrepreneurship education and business start-up performance

Tables 7, 8, and 9 showed how and to what extent cognitive characteristics mediate the relationship between entrepreneurship education and business start-ups performance in Lagos State, Nigeria. The result shows that the total effect value of  $\beta = 0.3786$  for cognitive characteristics affects business start-up performance by a beta value of 0.1669; implying that for every unit improvement in cognitive characteristics, business start-up performance is affected by 0.1669 units which is the indirect effect cognitive characteristics have on business start-up performance. The proportion to which cognitive characteristics mediate the relationship between entrepreneurship education and business start-up performance in Lagos State, Nigeria is 44.1% derived by finding the ratio in percentage between the indirect effect and the total effect. Furthermore, the absence of “0” between the lower level confidence interval (LLCI) and upper-level confidence interval (ULCI) as presented in Table 4. It also confirms the presence of a mediation effect of cognitive characteristics on the relationship between entrepreneurial education and business start-up performance.

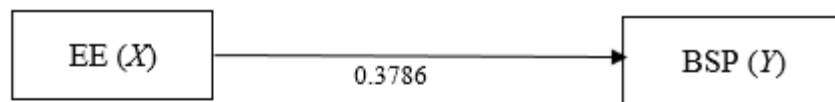


Figure 1: Baseline Model.

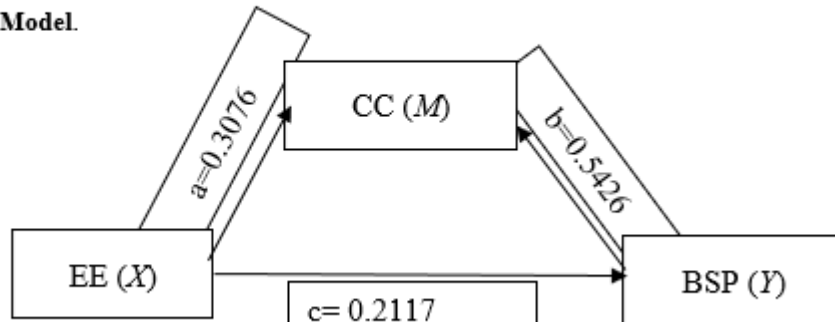


Figure 2: Process analysis (model 4) Survey (2022)

$$BSP = 0.7894 + 0.2117EE + 0.1669CC + \mu_i \dots\dots\dots$$

(eq.vii)

Where:

BSP = Business Start-Up Performance  
 EE = Entrepreneurship Education  
 CC = Cognitive Characteristics

From the result in Figure 2, it is observed that the predictor and outcome variable were statistically significant after the introduction of the mediator confirming a partial mediation exist between entrepreneurship education and business start-up performance in Lagos State, Nigeria. Based on these findings, the researchers conclude that cognitive characteristics is a broker (mediate) on the relationship between entrepreneurship education and business start-up performance in Lagos State, Nigeria.

## **DISCUSSION OF FINDINGS AND CONCLUSION**

The results revealed that the relationship between entrepreneurship education and business start-up performance in Lagos State, Nigeria was mediated by cognitive characteristics. However, the process analysis method in the regression approach employed yielded a partial mediation interaction by cognitive characteristics on the relationship between entrepreneurship education and business start-up performance. These research findings support the conceptual position of previous scholars that the cognitive perspective provides a potentially rich source of enhancing the basic understanding of the entrepreneurial process; it also aids the intersection of entrepreneurship and cognition with a primary focus on the consequences of what happens when an entrepreneur benefits from various cognitive characteristics, resources, or other dispositions. It is however limited by narrow theoretical articulations and weak conceptual foundations that lessen its contribution to the managerial sciences (Grégoire et al., 2011; Shepherd & Patzelt, 2018). This could be the reason for the partial mediation effect found in this study.

More so, Brinckmann and Kim (2015) stressed that cognitive characteristics, referred to as mental skills and a general variety from memory skills to procedural skills and from language skills to discerning skills, vary among entrepreneurs and can be expected to impact a nascent entrepreneur's decision of whether and how to engage in business planning. Shepherd and Patzelt (2018) argued that individuals' cognitive abilities and resources are not the only factors that matter in the formation and success of business ideas because differences in opportunities' underlying elements play an important role in this process as well. Empirically, a study by Hajizadeh and Zali (2016) which found cognitive abilities (entrepreneurial alertness and learning) partially mediate the relationship between prior knowledge (EE) and opportunity recognition for business performance is supported by this study's results that a negative partial mediating effect of cognitive characteristics exist on the relationship between entrepreneurship education (entrepreneurship curriculum, skills training, entrepreneurial support, institutional

factors, and experiential learnings) and start-up business performance (market orientation outcome, venture creation, idea commercialization, and continuous investment outcome).

On the other hand, Lawal et al. (2018) had a divergent conclusion in their studies which reported that entrepreneurial competencies strongly moderate the relationship between entrepreneurial climate and venture performance. Brinckmann & Kim (2015) considered two cognitive variables: entrepreneurial self-efficacy and entrepreneurial perseverance in an empirical study that reported a positive significance for business performance. The researchers concluded that for entrepreneurship education to have more effect on start-up business performance, the effect of cognitive characteristics as a facilitator cannot be overstated as, according to Shane (2000) prior knowledge has a significant and positive impact on both cognitive characteristics (entrepreneurial alertness and learning) for business performance, and entrepreneurs only discover opportunities that draw on their prior knowledge. Therefore, prior knowledge acts as a “corridor of knowledge” and gives entrepreneurs a unique advantage in the process of opportunity identification (Hajizadeh & Zali, 2016).

The outcome of this hypothesis result confirmed the suppositions of the underpinning theory of Planned Behavior that the various factors can influence an entrepreneur’s behavior concerning business start-up performance. This can be by integrating the moderating and mediating variables (Personal, cognitive and psychological characteristics) and also lays a foundation for entrepreneurial attitude (Quinn et al., 2010). Therefore based on the study overall response cognitive characteristics has a significant mediating effect on the relationship between entrepreneurship education and business start-up performance in Lagos State Nigeria. Thus, the broker, cognitive prowess is required if entrepreneurship education and business start-up performance must survive, expand, and flourish in different sectors aside from the education sector.

## **IMPLICATION OF STUDY**

### **Management Practice**

The findings of this paper are beneficial to start-up entrepreneurs as it would improve their business performance as they get exposed to the entrepreneurship education constructs. Also, knowledge gained from the survey will serve as an exposure to educational institutions and Government on the need to improve business start-up performance through applying the broker (cognitive characteristics).

### **Industry/Sector**

The findings is paramount to the trade industry (start-up ecosystem) and education sector as it would serve as a reliable source of information on the necessary and effective entrepreneurship education mix required to boost business start-up performance.

### **Government/Society**

The results have shown that the adoption of entrepreneurship education is a pre-requisite for business start-up performance as long as the broker (cognitive characteristics) is applied as go-between. It is a known fact that entrepreneurship is a major driving factor for boosting a Nation's economy and has a great impact of reducing unemployment, poverty and crimes therefore, a strategic implementation of the broker (cognitive characteristics) towards ensuring that businesses are not only created but survive, expand, and flourish could boost more small businesses across the country, reduce the rate of failure of start-up entrepreneurs, unemployment, and crime rate within the country in the long run.

### **Recommendation for further studies**

Based on the findings of the study and observations during the research, the researcher suggests that further studies should be carried out on exploring more startups owned by other individuals who are not students, especially women. Also, technology should be considered as a moderator because most startups are going digital and due to the recent covid-19 pandemic, there has been a surge in online learning which is more cost-effective for promoting entrepreneurship education.

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