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Article

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Determinant factors of entrepreneurship intentions of electronic technology education students in Nigerian universities

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Abstract

The major purpose of this study was to explore the determinant factors of entrepreneurship intentions of Electronic Technology Education students in Nigerian universities. The study explored the influence of entrepreneurial factors as well as entrepreneurial learning experiences activities on the entrepreneurial intentions of Electronic Technology Education students in the universities. The study adopted a correlational survey research design. The population for the study was 366 Electronic Technology Education undergraduate students. There was no sampling as a result of the manageable size of the population. The students were surveyed by direct contact using questionnaire. They were asked to indicate the entrepreneurship learning experiences activities they were participating in/would participate in as part of their curriculum. Data collected were analysed using descriptive statistics and multiple regressions. The findings show that the more entrepreneurial activities students are engaged in, the less the influence of entrepreneurial factors on their entrepreneurial intentions and this significantly increased entrepreneurial intentions of students who prefer career choice as an entrepreneur. The findings also revealed that there is a positive relationship between gender, age, career choice, parents' occupation, and entrepreneurial intentions of Electronic Technology Education undergraduate students. It was recommended that Electronic Technology Education undergraduate students should see career options with a balance view in order to understand their abilities before deciding to venture in any electronic business enterprise.

Keywords: Electronic technology education, Entrepreneurship, Entrepreneurship intention, Perceived desirability, Subjective norm

Introduction

Many graduates of Electronic Technology Education (ETE) are unemployed in developing countries especially Nigeria. Graduates of Electronic Technology Education (ETE) are supposed to be employed or create their own jobs after schooling, instead of finding themselves in the mix of unemployed youths in the society. Impartation of entrepreneurial skill to students is one of the goals of Technical Education (TE) in any Vocational and Technical Education institution. Technical and Vocational Education is established to provide knowledge and skills in different subject areas such as electronic technology, electrical technology, building technology, woodwork technology, metalwork technology, and automobile technology,

among others. These subject areas consist of different trade areas which are capable of offering job opportunities to graduates.

Electronic Technology Education (ETE) is a type of education designed to impart the necessary knowledge and skills in various electronic trade areas such as circuit designs, production of electronic gadgets, and electronic repairs, among others. One of the goals of tertiary education is to acquire both physical and intellectual skills which will enable individuals to be self-reliant and useful members of the society (Federal Republic of Nigeria, 2004). As such, electronic technology education is designed to prepare students as technologists in the areas of electronic maintenance, circuit design, production of electronic gadgets among others at tertiary institution level. Electronic technology education is also a course offered in technical education. It is the type of education designed to produce electronic technology teachers for technical colleges, colleges of education (Technical) and universities. Electronic technology teachers also teach basic technology and other trade subjects related to electronics in secondary schools.

Theraja (2007), noted that ETE is the process of applying scientific knowledge in the design, selection of materials, construction, operation and maintenance of electronics products. According to Otterpohl (2014), electronic technology is the study of electronics principles, as well as techniques, materials, devices and applied mathematics and science needed for the study of electronic principles. ETE undergraduate students graduate and become electronic technologists. Electronic technologists frequently work as members of engineering team in the areas of installation, maintenance, manufacturing, product development, and other applications of electronics products and devices. ETE graduates of universities are supposed to be skilled in different areas of electronic technology. Otterpohl (2014), stated that electronics technologists deal with electronic equipment that is developed, tested, maintained, or repaired. Electronics technologists can establish their own business in their skill areas and by so doing become entrepreneurial. Such graduates are said to have entered into entrepreneurship.

Literature review

Entrepreneurship

Entrepreneurship is the act of establishing and managing a business venture for the purpose of making profit. Ma and Tan (2006) defined entrepreneurship as a generator of national prosperity and competitiveness. It is a process of establishing a business organization for the provision of goods and services, the creation of jobs which contribute to economic development (Bilic et al., 2011). It is the act of opening and running a business venture for rendering services to people, creation of employment opportunities, as well as making profit. Entrepreneurship in electronic technology refers to the establishment of new electronic ventures (Boutellier et al., 2010). Entrepreneurship can also be defined as a discipline, which can be learned, as it is being done in increasing quantity and quality across the globe (Kassean et al., 2015). Entrepreneurship in electronics is the establishment of electronic business enterprise in areas such as computer hardware/software designs/maintenance, electronic gadgets repairs, circuit designs, electronic gadgets production, among others. Kew et al. (2013) stated that promoting entrepreneurship amongst young people is important in reducing unemployment in the labour market where formal employment opportunities are scarce. There is

a rising incidence of unemployment among graduates of electronic technology as well as other university graduates and those of other tertiary institutions (Bassey and Atan, 2012). Graduate unemployment accounts for more than 32% of the total unemployed labour force between 1992 and 1997 (Bassey and Atan, 2012). This percentage has continued to increase instead of decreasing (Adawo and Atan, 2013). Sata (2013) stated that entrepreneurship creates a significant opportunity for individuals to achieve financial independence and benefit the economy by contributing to job creation, innovation, and economic growth. People that venture into entrepreneurship are known as entrepreneurs and are said to be enterprising individuals.

An entrepreneur

An entrepreneur is an individual who establishes and manages a business enterprise. Dhenak (2010) defined an entrepreneur as a person who starts an enterprise. Chasserio et al. (2014) stated that an entrepreneur takes on different social roles and is constituted by several social identities. Torre (2015a) defined entrepreneur in three ways; a starter, a driver, and being accountable and responsible. As a starter, an entrepreneur is an initiator, a challenger and a driver. An entrepreneur is someone that creates something new, an initiative, a business or a company. As a driver, an entrepreneur is the person in charge, the leader and the person to look to for leadership. In terms of being accountable and responsible, the entrepreneur is responsible for the destiny of the business venture, which can be a company, a project, or any other endeavour Torre (2015b). The forces which drive an individual to become an entrepreneur may be the desire to acquire wealth, create job opportunities, and earn a living, among others, which can be regarded as an individual's Entrepreneurial Outcome Expectation (EOE). An entrepreneur is a person who takes risks and bears responsibility for every action. The propensity to take risks by an entrepreneur is referred to in this study as Risk Taking Propensity Factor (RTPF). Risk Taking Propensity Factor (RTPF) is the willingness to take calculated risks associated with a business enterprise (Boyd & Vozikis, 1994). Therefore, an entrepreneur is an individual who has the desire to establish a business venture in order to be financially independent. The entrepreneurship intention of an individual motivates the individual in establishing an enterprise.

Entrepreneurship intention

Entrepreneurship intention is the motivation/desire to establish and run an electronic business venture or an enterprise. Entrepreneurship intention is the product of the individual's attitude and values. Entrepreneurship intention is the state of mind of an individual to foster creativity in a business venture Rasli et al. (2013). Intention is a state of an individual's mind which directs the individual towards something or object(s) for achieving a specific objective (Rasli et al., 2013). The intention of an individual manifests in the behaviour of such individual. Krueger et al. (2000) explained that entrepreneurship is a type of planned behaviour for which intention models are appropriate. Entrepreneurship intention is the desire which one has either to establish electronic business enterprise or not. Such a desire is translated into action once the individual is able to meet the conditions necessary for starting the electronic business enterprise. Entrepreneurship intention is determined by attitude towards behaviour

(perceived desirability and feasibility), perceived behavioural control and subjective norms (Fishbein and Ajzen, 1975). Attitude towards behaviour is an individual's behaviour towards entrepreneurship factors, which is regarded in this study as Attitude Towards Entrepreneurship Factors (ATEF). Perceived desirability is the level of interest and attraction an individual has towards electronic business enterprise. Müller (2008), is of the view that perceived desirability is the perceived attractiveness of a specific behaviour, such as becoming an entrepreneur. It reflects an individual affection towards electronic entrepreneurial venture. It shows the desire of such an individual towards electronic business enterprise with the possibility that if appropriate criteria are met, such an individual is likely to start the desired electronic business enterprise.

Perceived feasibility is an individual's view of the possibility of success in a business. Shapero and Shokol (1982) are of the view that perceived feasibility is the degree to which the individual feels personally capable of starting a business.

Perceived behaviour control are the factors which influence the behaviour of an individual. The factors which control the behaviour of an individual towards entrepreneurship is referred to in this study as Locus of Control of Behaviour Factors (LCBF). Locus of Control of Behaviour Factors (LCBF) are the perceived influence of the opinion of the family members as well as the perceived social pressure on the behaviour of an individual towards becoming an entrepreneur Krueger et al. (2000).

Subjective norm is the way an individual thinks that the peer group members or the society at large, understand the individual's action. Karim (2013), in a study titled Entrepreneurial Intention and Entrepreneurial Behaviour: A Social Psychological Perspective, an unpublished Ph.D thesis, stated that subjective norm is the perceived social pressure to engage or not to engage in a behaviour. An individual's intention to start a business enterprise could be hindered by many factors.

The gender of an individual could sometimes be a hindrance to starting a business enterprise. Some cultures reserve certain types of work for a particular gender. In some societies, women are meant to stay at home as house wives leaving every type of means of earning a living to their husbands. In Nigeria, many females avoid studying electronic technology education. This has resulted to higher number of males than females in electronics. Agu and Omenyi (2013) observed that technical/engineering courses in Nigeria have witnessed low female enrolment from the record available from 2008 to 2011 at Nnamdi Azikiwe University, Awka, in Nigeria. Huang (2006) stated that gender is among those elements that are playing a significant role in moulding the career decision of an individual. The gender of an individual could make such an individual to believe that establishing an enterprise could be reserved until they have attained certain status. Such status could be marriage especially for females. Also, some people many think that establishing an enterprise may be reserved until they attain certain age.

The age of an individual sometimes could motivate such an individual into starting a business enterprise. Other researchers have found that there is a positive relationship between age intention on a sample of Scinavian and US students Autio et al. (2001). Some people have become successful entrepreneurs even at ages below 20. In Nigeria, many students graduate from tertiary institutions as from the age of 22. At this age, some graduates may think that they are capable of establishing and running their own business enterprise, while some others may think that they are still below the right age. Sarwar and Azmat (2013) stated that decision making power strengthens with age and

people become more and more rational and can view the long-time benefits of a particular study programmes and hence the career.

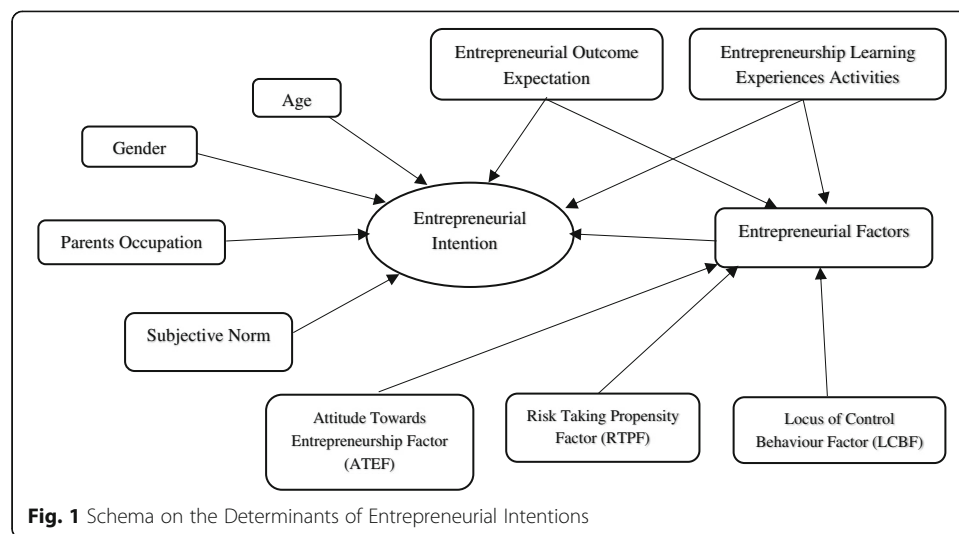
The career path of individual may also be influenced by the parents' of the individual. Some parents may decide to force their children to learn their skill even when the child does not have an interest in such skill. Parents' occupation is the first occupation that most children become familiar with. A blacksmith's son learns the art of blacksmithing from the father; the same is applicable to an electrician, electronic repairer, builder, carpentry, among others. This means that the occupation of the parents of the students have serious influence on their career. The influence that family factors have on an individual's choice of business is strong (Schölin et al., 2016). Students whose parents have business ventures that are yielding money are likely to continue with their parents business. Others who may not have interest in such business may be compelled by their parents to start up such business. Students' work orientations are highly influenced by their family members' own work experiences and emotions as such, an ETE student may likely start electronic business after graduation if any family member of such an individual is into electronic enterprise Porfeli et al. (2008). Schroder et al. (2011) stated that parents work conditions influence their children work intention. Forson (2013) stated that ability of the women to manage their work-life balance is shaped by power relations and social interactions between and within cultural, structural and genetic dimensions of small business ownership. Also, some people may think that establishing an enterprise may be reserved until they attain certain age or year of study or even after graduation.

Literature reviewed supported the various factors that influence entrepreneurship intention among students in management sciences, nursing and engineering, but did not reveal any empirical studies on the relationship among variables such as career choice, gender, age, parents' occupation, among others, and the entrepreneurship intentions university Electronic Technology Education (ETE) students in Nigeria. Therefore, this study focused on the factors that determine entrepreneurship intentions of ETE undergraduate students in Nigeria Universities. It is important to determine the various factors that have relationship with ETE undergraduate students' entrepreneurship intention so as to provide solution to those factors in order to reduce the rate of unemployment in the society.

Theoretical Foundation and hypotheses formulation

Entrepreneurship intention is based on theory of planned behaviour by Fishbein and Ajzen (1975). The theory of planned behaviour states that any behaviour requires some planning, the act of creating a new business can be predicted according to the intention adopted by a given individual. The theory comprises such variables as attitude towards behaviour, perceived behavioural control and subjective norms which are important determiners in individual's intention to venture into any enterprise (Fig. 1).

Attitude towards behaviour is the understanding and reaction of an individual towards a circumstance or an event. This circumstance or event could be to become an electronic entrepreneur or not. It is the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question (Ajzen, 1991). It is an individual's assessment of an electronic business idea and reactions towards such electronic business idea. Attitudes are grouped into two perceptions of desirability and feasibility (Shapero, 1975, 1982).



Perceived desirability is the attitudes that manifest the intention of an individual towards an act. Perceived desirability is the personal attractiveness of starting a business enterprise Krueger et al. (2000). An individual's acceptance of an electronic entrepreneurial venture as a desirable career option will likely be related to an intention to engage in self-employment at some time in the future (Segal et al., 2005. According to Sata (2013), research studies indicated that there is a strong relationship between perceived desirability and the intention to engage in entrepreneurial venture. Engaging in entrepreneurial venture requires ascertaining the perceived feasibility of establishing the business venture.

Perceived feasibility is an individual's view of the possibility of success or failure of any business venture or an enterprise. An individual's perception of feasibility of a new venture is related to an individual's perception of the availability of knowledge, financial support, and partners which will affect the formation of an entrepreneurial intention (Sata, 2013). In line with Müller (2008), perceived feasibility is the perceived capacity to carry out the respective behaviour. Perceived feasibility is an understanding of various factors which should be addressed in establishing and running a business enterprise. Müller (2008) stated that perceived desirability and perceived feasibility are considered to be products of cultural and social environments. According to Müller (2008), perceptions of desirability are shaped through culture, family, peers, colleagues and mentors, which are related to subjective norms.

Subjective norms are conventions, habits, customs, expectations, and rules that determine acceptable and unacceptable behaviours in a group (Kabiru, 2016). It is the perceived social pressures to perform or not perform the behaviour Krueger et al. (2000); that is, the individual's perception of other people's opinions of the proposed behaviour (for instance, starting an electronic business enterprise). Owoseni and Akanbi (2010) gave an example with France, stating that the failure of a company in France is most of the time negatively perceived, whereas in the USA, a person can often undergo several failures and still undertake new attempts. According to Ajzen (1991) subjective norm is one of the three salient beliefs that develop human intention and resultant behaviour. The three salient beliefs are: Behavioural beliefs, which develops human attitude; normative beliefs,

which form the 'underlying' determinants of 'subjective norms'; and control beliefs which gives the foundation of perception of behavioural control.

Perceived behavioural control is an individual's understanding of difficulty involved in performing an action. It is the perceived ease or difficulty of performing the behaviour (Ajzen, 1991). This concept was introduced into the theory of planned behaviour to accommodate the no volitional elements inherent, at least potentially, in all behaviours (Ajzen, 2002). Krueger and Brazeal (1994), stated that an increase in perceived behavioural control increases the perception of opportunity. Perceived behavioural control is comparable to the notion of perceived self-efficacy of Bandura (1977).

Perceived self-efficacy is an individuals' understanding of the areas of strength and weakness of such individual. It is the strength of an individual's belief of being capable of successfully performing the tasks of an entrepreneur. Chen et al. (1998), defined Entrepreneurial Self-Efficacy (ESE) as the degree to which people perceive themselves as having the ability to successfully perform the various roles and tasks of entrepreneurship. Owoseni and Akanbi (2010), stated that self-efficacy is clearly about control over the behaviour itself, not about control over outcomes or events.

Researchers have found that entrepreneurship learning experiences activities which students' are engaged in increases their entrepreneurial intentions (Kolvereid and Moen, 1997; Peterman and Kennedy, 2003; Zhao et al., 2005). Souitaris et al. (2007) found that entrepreneurship programs raised entrepreneurship intentions among students. Kassean et al. (2015) stated that the specific reason for this effect might be that a focus of many entrepreneurship programs is to expose students to role models, in the form of guest speakers, consulting projects, and mentoring programs. Entrepreneurship learning experience activities increases students' confidence in establishing a new business enterprise as well as the ability to complete entrepreneurial tasks Kassean et al. (2015). Therefore:

H1. The more entrepreneurship learning experience activities (courses) students are exposed to, the higher the influence of Entrepreneurial Factors (EF).

Scherer et al. (1991) observed that students who observed a successful role model in a specific career field (e.g electronic business enterprise) preferred pursuing that career and believed that they would be successful in that career. Other studies found that role models help to shape the outcome expectations of the individual (Lent et al., 1994; Nauta et al., 1998). Therefore:

H2: The more entrepreneurship learning experience activities (courses) students are exposed to, the more positive their Entrepreneurial Outcome Expectations (EOE).

Intentions is a process through which an individual coordinates and guides their own behaviour Lent and Brown (1996). Students who belief in their ability (Self-efficacy) to control entrepreneurial factors exhibit higher entrepreneurial intentions Barbosa et al., 2007; Kickul et al., 2009; Zhao et al., 2005. Therefore:

H3. The more entrepreneurship learning experience activities (courses) students are exposed to, the greater their Entrepreneurial Intentions (EI).

H4. Entrepreneurial Factors (EF) will partially mediate the relationship between engaging in entrepreneurship learning experience activities (courses) and Entrepreneurial Intentions (EI).

H5. The relationship between engaging in more entrepreneurship learning experience activities (courses) and Entrepreneurial Intentions (EI) will be moderated by

career choice. This means that, there will be a greater increase in EI for students who want to establish their own business venture than for those that wish to get a paid employment when they have engaged in more entrepreneurship learning experience activities (courses).

Methodology

The study investigated the influence of entrepreneurial factors as well as whether certain learning experiences the students are exposed to (which include: watching a video simulation of entrepreneurship, feasibility studies, writing a business proposal, discussion with an entrepreneur) increased: confidence of the students as regards their entrepreneurial intentions, the outcomes they expected from choosing a career as an electronic entrepreneur, as well as their abilities to carry out entrepreneurial tasks. The study adopted a correlational survey research design. The independent variable for the study is the Electronic Technology Education students Entrepreneurial Intentions. The dependent variables include: gender, age, career choice, and parents' occupation. The mediating variables include: Attitude Towards Entrepreneurship Factors (ATEF), Risk taking Propensity Factors (RTPF), and Locus of Control of Behaviour Factors (LCBF), while the moderating variable is the Entrepreneurial Outcome Expectations (EOE).

Population for the study

The population for this study was 366 students who were at their third and final years of their four-year degree programme at the 18 Government owned Universities in Nigeria that offer Industrial Technical Education with an option of specialisation in Electronic Technology Education. This consists of the following: 195 third year and 171 final year ETE undergraduate students. In order to test hypotheses, the author studied all the 366 undergraduate ETE undergraduate students. The students were required to complete a survey adapted for the study by the researchers (administered through direct sharing to the students with the help of 18 research assistants who were members of staff of the various institutions surveyed). Of these, 296 completed useable surveys for a response rate of 80.87%. The respondents were on average 22.65 years old (i.e. 21.82 years old for third years and 23.49 years old for the final years) ($SD = 3.62$), over half (85.9%) were male, and 65% prefer career choice as an entrepreneur in Electronics, while 35% do not want to become electronic entrepreneurs, they rather, prefer a paid employment in any area. In total, 53.28% of respondents were third year students and 46.72% were final year students.

Method of data analyses

To measure learning experience activities, the students were asked to indicate which entrepreneurship courses they had taken or were currently taking. Following systematic item generation procedures Netemeyer et al. (2003), experience items were pulled from the curriculum of the entrepreneurship courses in which the students had taken or were enrolled. Then, following a deductive approach (Schwab, 1980); additional items were developed based upon discussions with lecturers who are experts in entrepreneurship both from the Department of Industrial Technical Education and the Centre for Entrepreneurship Development and Research (CEDR) at the University of Nigeria, Nsukka, which

are two areas the students take entrepreneurship courses taught by their lecturers. The entrepreneurship courses taught include VTE 357 (Entrepreneurship Development in Technology Education), CED 341 (Introduction to Entrepreneurship), and CED 342 (Business Development and Management). From this pool of items 12 activities from these three courses were identified. The experiential activity items are in line with the 11 experiential activity items developed by Kassean et al. (2015) (See [Appendix A](#)). Student responses were coded 0 if a student did not engage in that particular activity and a 1 if they did engage in that particular activity. Entrepreneurial Outcome Expectation (EOE) was measured by adapting a five-item scale developed by Krueger (2000). The students were asked to indicate on a scale of 1 = very low extent 7 = very high extent, to what extent they expected to achieve the following outcomes by starting their own venture: financial rewards (become rich, increased profit), independence/autonomy (become financially independent, be in control of yourself), personal rewards (earn prestige, personal growth, to prove I can do it), and family security (to secure future for family members, to build a business to pass on).

Entrepreneurial Intentions (EI) were measured by adapting a ten-item scale developed and validated by Thompson (2009). The adapted items were tested for internal consistency and a reliability coefficient of 0.87 was obtained. The students were asked to respond on a scale ranging from 1 = absolutely not true to 7 = absolutely true, in order to determine the extent to which they engage in various entrepreneurial activities or have plans to engage in such activities.

Entrepreneurial Factors (EF) were measured in terms of attitude towards entrepreneurship, propensity to take risk, and perceived behavioural control. Attitude towards entrepreneurship was measured using 10 item questions adapted from the scales developed by Carayannis et al. (2003); Lüthje and Franke (2003); Krueger et al. (2000); Autio et al. (2001); Francis et al. (2004). Propensity to take risk was measured using 5 items adapted from 5 item scale developed by Hisrich and Peters (2002) and Hartog et al. (2000). Perceived behavioural control was measured using 51 item questions adapted from a scale developed by Autio et al. (2001). In order to ensure consistency with past research (e.g. Carayannis et al., 2003; Lüthje & Franke, 2003; Krueger et al., 2000; Autio et al., 2001; Francis et al., 2004; Hisrich & Peters, 2002; Hartog et al., 2000; Kickul and Gundry 2002; as well as Autio et al., 2001), the respondents were asked to indicate their level of confidence they had in their ability with reference to each entrepreneurial factor by providing a value between 0 and 100 (0 = completely not sure to 100 = completely sure). An exploratory and confirmatory factor analyses were carried out to determine the internal consistency of the adapted scale. A reliability coefficient value of 0.82 for attitude towards entrepreneurship, 0.84 for propensity to take risk, and 0.81 for Locus of control of behaviour. The obtained reliability values were consistent with the value obtained by previous researchers.

As a result of the reviewed literature, the study controlled for the following variables: career choice, parents' occupation, gender and age. A 10-item scale developed by Schwarzer and Jerusalem (1995) was adopted and used to measure the students' general self-efficacy. The subjective norm was measured using ten-item scale adapted from a 16-item scale developed by Kolvereid and Isaksen's (2006). Total exposure to entrepreneurship was measured by adapting a scale developed by Carr and Sequeira (2007). To determine this, the respondents were asked to indicate whether any of their parents,

uncles, aunties, siblings, cousins, or teacher(s) has a business enterprise. Thereafter, the students were asked to indicate how each of the five categories of persons above has motivated their interest to successfully start and run an enterprise (1 = increased your interest, 2 = decreased your interest, and 3 = had no impact on your interest). Each category of persons were followed by question relating to how they have impacted on their interest (e.g. a question relating to your uncle having a business enterprise, is followed by another question asking about how your uncle having a business enterprise has impacted on their interest to start and run a business enterprise). Higher scores indicated more prior exposure to entrepreneurship.

Results and discussion

Entrepreneurial factor: Factor analysis

Exploratory and confirmatory factor analysis were carried out on the EF measure, and identified a three-factor solution. The first factor contains items on attitude towards entrepreneurship and was labelled “Attitude Towards Entrepreneurship Factor (ATEF)”. The second factor contains items on propensity to take risk and was labelled “Risk Taking Propensity Factor (RTPF)”. The third factor contains items on Locus of control of behaviour and was labelled “Locus of Control of Behaviour Factor (LCBF)”.

Table 1 shows the means and standard deviations of the variables. The result shows that most of the respondents are males (mean = 1.34) and the average age of the respondents was 23.52 years. The Table also shows that many ETE students prefer to set up their own Electronic business enterprise (mean = 0.81) than to engage in a paid employment. The result also shows that most parents of ETE students have their own business enterprise (mean = 0.76). The standard deviation shows that the responses of the respondents were not far from each other.

Table 2 shows the Cronbach’s α for the constructs. The reliability values are above 0.80 for all the variables, which is consistent with the values obtained from previous research (Carayannis et al., 2003; Lüthje & Franke, 2003; Krueger, et al., 2000; Autio, et al., 2001; Francis, et al., 2004; Hisrich and Peters, 2002; as well as Hartog, et al., 2000).

Table 1 Descriptive statistics

Variables	M	SD
Entrepreneurial intentions	4.21	1.13
Attitude as an entrepreneurial factor	71.32	14.87
Risk taking propensity as an entrepreneurial factor	73.21	13.63
Behaviour as an entrepreneurial factor	67.45	18.99
Entrepreneurial outcome expectations	4.11	1.12
Gender	1.34	0.62
Age	23.52	4.21
Career choice	0.81	0.33
Parents’ occupation	0.76	0.98
Subjective norm	23.64	7.65
General entrepreneurial factors	3.87	0.61

Table 2 Internal consistency

Variables	Alpha
Entrepreneurial intentions	0.87
Attitude as an entrepreneurial factor	0.82
Risk taking propensity as an entrepreneurial factor	0.84
Behaviour as an entrepreneurial factor	0.81
Entrepreneurial outcome expectations	0.86
Subjective norm	0.85
General entrepreneurial factors	0.88

Table 3 shows the zero-order correlations for the constructs. The result shows that there is a moderate positive relationship between attitude (0.42**), gender (0.47**), parents' occupation (0.42**) and entrepreneurial intentions of ETE students. From Table 3, it can also be seen that there is a low positive relationship between Risk taking propensity (0.28**), Entrepreneurial Outcome Expectations (EOE) (0.39**), subjective Norm (0.32**), and EIs of ETE students, while there is a very low positive relationship between Behaviour (0.17**) and EIs of ETE students. The result also, shows that there is a high positive relationship between age (0.61**), career choice (0.60**) and entrepreneurial intentions of ETE students. H1, H2 and H3, were tested by conducting multiple hierarchical regression analyses using SPSS 20.0 (see Table 4). The finding that subjective norm has apposite relationship with EIs of ETE students is in line with Souitaris et al. (2007), who found that entrepreneurship programmes significantly raised students' subjective norms and intentions toward entrepreneurship by inspiring them to choose entrepreneurial careers.

It was found that students engaged in more entrepreneurial activities reported lower influence of EF (attitude EF: $\beta = -0.23$, $p < 0.01$; risk EF: $\beta = -0.26$, $p < 0.01$; behaviour EF: $\beta = -0.27$, $p < 0.01$), therefore, not supporting H1. Since their probability values are less than 0.05, H1 is rejected. This means that the more entrepreneurial activities students are engaged in, the less the influence of entrepreneurial factors on their

Table 3 Intercorrelations of variables

Variables	1	2	3	4	5	6	7	8	9	10
Entrepreneurial intentions										
Attitude as an entrepreneurial factor	0.42**									
Risk taking propensity as an entrepreneurial factor	0.28**	0.56**								
Behaviour as an entrepreneurial factor	0.17**	0.24**	0.26**							
Entrepreneurial outcome expectations	0.39**	0.41**	0.28**	0.18**						
Gender	0.47**	-0.17**	0.06	-0.13*	-0.25**					
Age	0.61**	-0.17**	—	-0.08	-0.05	-0.03				
			0.15*							
Career choice	0.60**	-0.15	0.03	0.07	-0.19**	0.07	-0.17**			
Parents' occupation	0.42**	-0.09	-0.09	-0.07	0.07	0.03	0.09	-0.16*		
Subjective norm	0.32**	0.26**	0.16**	-0.09	0.25**	0.07	-0.18**	-0.04	0.07	
General entrepreneurial factors	0.19**	0.27**	0.44**	0.17*	0.19**	-0.08	-0.19**	0.05	-0.03	0.30**

Note: $n = 296$. * $p < 0.01$; ** $p < 0.001$

Table 4 Regression results for the direct effects of entrepreneurship learning experiences activities on entrepreneurial factors (EF)

Predictors	ATEF (attitude)	RTPF (risk)	LCBF (behaviour)	Entrepreneurial Outcome Expectations (EOE)	Entrepreneurial Intentions
Controls					
Gender	−0.15*	0.05	−0.15*	−0.19**	0.47**
Age	−0.08	−0.09	−0.072	−0.05	0.61**
Career choice	−0.15*	−0.14*	−0.15*	−0.14*	0.60**
Parents occupation	−0.08	−0.15*	−0.18**	0.05	0.42**
Subjective norm	0.25**	0.14*	0.08	0.28**	0.22**
General entrepreneurial factors	0.23**	0.25**	0.24**	0.15*	0.14*
Number of learning experience	−0.23**	−0.26**	−0.27**	0.18**	0.15**
Activities					
F	9.17**	11.73**	8.63**	7.41**	7.67**
R ²	0.28	0.34	0.29	0.23	0.27
Adj. R ²	0.26	0.33	0.25	0.21	0.22
df	295	295	295	295	295

Note: EF entrepreneurial factor. *p<0.05; **p<0.01

entrepreneurial intentions. It was also found that students engaged in more entrepreneurial activities reported higher Entrepreneurial Outcome Expectation ($\beta = 0.18$, $p < 0.01$) and higher Entrepreneurial Intentions ($\beta = 0.15$, $p < 0.01$), therefore, supporting H2 and H3. This implies that as students learn they become aware of how challenging it is to succeed in a business enterprise than they anticipated, but are also optimistic of a more positive outcome, which is supported by the result found in H2 and H3.

The procedure recommended by Baron and Kenny (1986) was followed to test H4 so as to establish mediation.

Table 5 shows that all three dimensions of EF partially mediated the relationship between entrepreneurship learning experience activities and EI (Sobel test statistic = -2.82 , $p < 0.01$ for attitude EF, -3.63 , $p < 0.001$ for risk EF and -3.22 , $p < 0.01$ for behaviour EF). Therefore, H4 is accepted. The result also revealed that there is a moderate positive relationship between ATEF and EIs of ETE students (0.34^{**}), as well as Low positive relationships between each of RTPF (0.14^{*}) and LCBF (0.19^{**}), and EIs of ETE students. The finding that there is moderate positive relationship between ATEF are in line with Shapero (1975, 1982), who argued that attitudes toward entrepreneurship depend on exogenous factors like demographics, traits, skills, culture, and social and financial support. Shapero emphasized that prior exposure to business is a factor in motivating individual's entrepreneurship intention. Supporting this, Krueger (1993), stated that prior exposure could be in the form of early exposure to a family business, which influences attitudes toward entrepreneurship. Also, the finding that LCBF has a relationship with EIs of ETE students is also in line with Iakovleva et al. (2011), who investigated entrepreneurial intentions in developing and developed countries and they exhibited that the students from developing countries had stronger entrepreneurial intentions than those from developed countries.

In order to test H5, the researcher employed Univariate analysis of variance and found a significant two-way interaction of activities by career choice on intentions

Table 5 Regression results for the indirect effects of Entrepreneurial Factors (EF) on the classroom activities – entrepreneurial intentions relationship

Predictors	Entrepreneurial Intentions	ATEF (attitude)	RTPF (risk)	LCBF (behaviour)	Entrepreneurial Intentions	Entrepreneurial Intentions
Step	1	2	2	2	3	4
Controls						
Gender	−0.23**	−0.14*	0.02	−0.13*	0.46**	0.47**
Age	−0.03	−0.09	−0.07	−0.07	0.60**	0.61**
Career choice	−0.19**	−0.13*	−0.12*	−0.12*	0.59**	0.60**
Parents' occupation	0.02	−0.09	−0.13*	−0.17**	0.41**	0.42**
Subjective norm	0.21**	0.23**	0.11*	0.09	0.23**	0.13
General entrepreneurial factors	0.15*	0.23**	0.25**	0.24**	0.13*	0.02
Mediator						
EF (attitude)					0.34**	0.33**
EF (risk)					0.14*	0.13*
EF (behaviour)					0.19**	0.13*
Number of learning experience activities	0.19**	−0.26**	−0.29**	−0.27**		0.12*
F	7.65**	9.12**	11.32**	8.33**	12.16**	11.19**
R ²	0.26	0.27	0.35	0.29	0.37	0.33
Adj. R ²	0.25	0.25	0.33	0.26	0.33	0.28
df	295	295	295	295	295	295

Note: EF entrepreneurial factor. *p<0.05; **p<0.01

$F = 0.082$; $p = 0.04$); that is, engaging in the classroom entrepreneurial learning experiences activities significantly increase and heighten the intentions of the students who prefer career choice as an entrepreneur in Electronics compared to those who prefer a paid employment in any area. Thus, H5 was accepted.

Controlling for gender, age, parents occupation, parents' occupation, subjective norms, and general entrepreneurial factor, primary findings were mixed. Students who engaged in more entrepreneurship learning experience activities in the classroom reported lower influence of EF, higher EOE, and higher EI. It was also found that engaging in more entrepreneurship learning experience activities in the classroom significantly increased entrepreneurial intentions of students who prefer career choice as an entrepreneur in Electronics compared to those who prefer a paid employment in any area. This suggests that entrepreneurship courses taught in the institution helped to motivate students who prefer to become an entrepreneur.

It was found that the more entrepreneurial learning experience activities students are engaged in the classroom, the more they become aware of the influence of Entrepreneurial Factors (EF), thereby, enhancing their entrepreneurial intentions. This means that as students are exposed to the various entrepreneurial factors, become aware of the kind of influence they may have and become more confident of being cable of addressing their influence(s) and succeeding in a business. This is in line with Graevenitz et al. (2010) which is of the opinion that students have a more realistic assessment of their likelihood of success in a business after losing their initial optimism and having a more realistic picture of what entrepreneurship requires.

Conclusion

ETE undergraduate students can be motivated to become entrepreneurs by including more entrepreneurship courses in their curriculum, and given them assignments that will enable them meet some established entrepreneurs in the society. Establishing electronic businesses should be seen with an open mind by ETE undergraduate students without so much regards to some demographic variables such as parents' occupation, career choice, age, among others. This is because many successful entrepreneurs did not allow such variables to influence their intentions. Electronic businesses are among the most important sources of economic growth and development as such, electronic students should have intention making a living through electronic businesses as there is hardly any household, institution or establishment that does not make use of one electronic appliance or the other.

While previous studies focused on the various factors that influence entrepreneurship intention among students in management sciences, nursing and engineering, there is no empirical studies on the relationship among entrepreneurial factors and entrepreneurship intentions ETE undergraduate students. Therefore, this study focused on the relationship between entrepreneurial factors as well as entrepreneurship learning experiences activities and entrepreneurship intentions of ETE undergraduate students in Nigeria Universities and found out that the more entrepreneurship learning experiences activities students are engaged in, the less the influence of entrepreneurial factors on their entrepreneurial intentions.

The findings imply that the curriculum developers can develop appropriate curriculum that will make provision for electronic technology teachers to teach entrepreneurship related courses in ETE curriculum. The study also has implication to academic researchers as it will form a good literature for their further research aimed at solving problems in the society.

Recommendations

Based on the findings of the study, the following recommendations were made: ETE undergraduate students should see their parents' occupation as a means of livelihood which must be evaluated properly before venturing into such an enterprise. The students should be able to see how they can explore a career option in electronics which will yield better profit than their parents business. The students' ability to explore a business venture related to electronics, which is their field of study, will help them to become experts in such business enterprise. ETE undergraduate students should be motivated to think more of young entrepreneurs in the society. This will enable them to understand that an individual can become a successful entrepreneur even at a younger.

ETE undergraduate students should see career options with a balance view in order to understand their abilities before deciding to venture in any electronic business enterprise. They should try and start a little business through which they can earn some money even while they are in school. Such a business could be repair of electronic gadgets or sale of electronic appliances. This will help them to develop more interest in becoming an entrepreneur as soon as they graduate from school. More entrepreneurship courses should be introduced in Technical Education curriculum. Students should be exposed to entrepreneurship courses as early as second semester of their first year of study.

Suggestions for further research

The following suggestions were made for further research: Self-efficacy and Entrepreneurship intentions of ETE undergraduate students in Nigeria; Relationship between academic performance and entrepreneurship intentions of ETE undergraduate students in Nigeria; as well as Influence of school curriculum on the entrepreneurship intentions of ETE undergraduate students in Nigeria.

Appendix**Appendix A: Adapted experiential activity items developed by Kassean, Vanevenhoven, Liguori and Winkel (2015)**

1. Idea generation exercise.
2. Pitch
3. Simulation
4. Case study
5. Location of a business
6. Start a business
7. Feasibility study
8. Consulting project
9. Entrepreneur interview
10. Guest speakers
11. Business plan
12. Risk management.

Abbreviations

ATEF: Attitude Towards Entrepreneurship Factor; CED: Centre for Entrepreneurship Development; EF: Entrepreneurial Factors; EI: Entrepreneurial Intention; EOE: Entrepreneurial Outcome Expectations; ETE: Electronic Technology Education; LCBF: Locus of Control of Behaviour Factor; RTPF: Risk Taking Propensity Factor; TE: Technical Education; VTE: Vocational and Technical Education

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Authors' contribution

IB conceived the topic and wrote the following: Abstract, Key words, Introduction, Methodology, Data collection, Data analyses, Results, Discussions, References, Appendix, as well as development of the Schema. IB & TC developed the introduction, literature review, methodology, and discussion of findings. All authors read and approved the final manuscript.

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