

Evaluation of Entrepreneurship Education in Selected Nigerian Universities

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Abstract

The Nigerian universities have been teaching entrepreneurship courses with a view to imparting skills that will bring about creation of new ventures. The primary concern of this study was to examine how entrepreneurship education can develop human capital within struggling societies so as to empower the youths to be able to create their own technological advances and become proactive in improving their overall well-being. In this study, we evaluated the adequacy of entrepreneurship education given to Nigerian undergraduates to create and manage a new venture. Also, we examined the impact of entrepreneurship education on venture creation. Primary data were collected through the use of questionnaire and oral interview methods. One hundred and twenty science and engineering students and one hundred and twenty science and engineering graduates from twelve universities (four federal universities, four Osun State universities and four private universities) in Nigeria were purposively selected as respondents for the study. Findings show that the content of the entrepreneurship education is adequate for venture creation. Results of correlation analysis show that factors such as: relevance of entrepreneurship lectures; full knowledge of the entrepreneurship courses; adequacy of course duration and feasibility of the principles learned have significant and positive relationship with number of business opportunities identified by the graduates. There was no significant relationship between venture creation and content of entrepreneurship lectures given. We found that venture creation requires some other factors beside entrepreneurship education. The

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paper concludes that the Nigerian government still needs to do more in providing enabling environment and other factors that may be needed to translate the theoretical knowledge to practical venture creation.

Keywords: Entrepreneurship, Education, Nigeria, Students, Venture Creation

JEL Classification: L26, O31

INTRODUCTION

It has been generally observed that unemployment of graduates of Nigerian tertiary institutions has become a major national problem. Thousands of university graduates join the labour market in search of gainful employment yearly. According to Owusu-Ansha and Poku (2012), “the challenge is not only to tackle the large number of unemployed graduates, but also of absorbing the new entrants into the labour market. It was generally believed that many graduates were unemployed because the training they received was not adequate to equip them with desirable skills and competencies required for job creation and self employment” (Madumere-obike, 2000; Amaewhule, 2007 and Nwangwu, 2007). Adejinmola and Olufunmilayo (2009) stated that the problem with Nigerian educational programmes, however, is that too much emphasis is laid on the value of the qualification rather than the holder. In other words, under graduates struggle hard to obtain the degree rather than the knowledge and skills that would make them self-reliant. The crave for academic qualification is probably not unconnected to the colonial influence that handed down a lot of theoretical disciplines through our educational programmes which lay much emphasis on theories rather than a combination of theories and practical with emphasis on skills acquisition (Okojie, 2008). Perhaps, the attended consequence is high rate of unemployment being witnessed in Nigeria today.

According to Postigo and Tamborini (2002), the academic programme of most universities have a tendency to focus on the education of students towards a professional career as employees and that there is rarely any consideration for developing competences that will allow graduates to start their own ventures. Bassey and Archibong (2005) submitted that the goal of entrepreneurship education is to empower graduates irrespective of their areas of specialization with skills that will enable them engage in income yielding ventures if they are unable to secure jobs. It is a reorientation

from job seeking to job creating. Studies (e.g Olaitan, 1984; Williams, 2002; Ogbimi, 2007) have shown that Nigerian graduates can only be self employed and marketable if they acquire the relevant skills and knowledge in both secondary and tertiary levels. According to the authors, this should transcend mere teaching of knowledge and skills in principles, which are devoid of practical experiences in related fields. In the same vein, the study of Uduak and Aniefiok (2011) shows that there is a positive relationship between entrepreneurship education and career intentions of students of tertiary institutions of learning.

Having realized the benefits associated with entrepreneurship education, many researchers are now shifting their focus to the study of economic development through entrepreneurship education because Entrepreneurship education has become the determinant for a framework that strengthens the creative potential for business establishment. (Haveman et al. 2012; Zuperka and Zuperkiene, 2012). In a study conducted by Tkachev and Kolvereid (1999) among Russia students, it was revealed that self-employment intentions among students of institutions of higher learning could be increased through entrepreneurship education and training programs. The studies support the need to design effective entrepreneurship courses and teaching methods that can inspire students' interest in self employment.

A survey was carried out in Ghana by Gyamfi (2014), on graduates from 2005 to 2010, who undertook both Entrepreneurship and Innovation Management courses when they were students at the university in their Third and Fourth year. Result shows that Twenty percent of the employed graduates had established their own business ventures and 80 percent of them were either working with a private company or a public company. The result indicates that people hardly set up ventures whiles in school or shortly after their graduation. Also according to the study, a large majority of the respondents acknowledged that entrepreneurship in Ghana was in its introductory stage. The reason for this result stemmed from the perception that almost all the tertiary institutions in Ghana that undertook entrepreneurship courses focused their curricular mostly on the theoretical aspect of the entrepreneurial program.

However, a survey carried out in Nigeria by National Centre for Technology Management (NACETEM) in 2010, revealed that entrepreneurial interest among Nigerian students is quite high but the expression of the interest in practice is rather low. The factors indicated to be responsible for this are poor funding and inadequate preparation through training. According to Uduak and Aniefiok (2011), to make up for the curricula inadequacies in meeting employment problem in Nigeria, the National Universities Commission (NUC) in July, 2004, organized a workshop on entrepreneurship for Nigerian universities as a way forward. The NUC workshop produced a draft curriculum on entrepreneurial studies for Nigerian Universities in order to solve the problem of unemployment in the country. The NUC, in line with education policy, directed all universities in the country to establish entrepreneurial centers and that entrepreneurial training should be given to all Nigerian undergraduates. While most Nigerian universities have initiated the programme, little research is available to assess its impact and also to confirm if a relationship exists between students taking courses in entrepreneurship and their intention of becoming entrepreneurs.

The rationale for the inclusion of entrepreneurship curricula in universities according to Cotton, O’Gorman and Stampfi (2000) is that it will help graduates to acquire increased understanding of entrepreneurship, equip them with an entrepreneurial approach to the world of work and prepare them to become entrepreneurs. According to Dionco-Adetayo (2014), most Nigerian universities have commenced the entrepreneurship training about ten years ago; hence, there is a need for evaluation. In 2009, Olaleye carried out a study in three universities in Southwestern Nigeria on entrepreneurship education. The findings of the study revealed that 92.2% of the students were aware of the programmes in their universities and were ready to set up their own *businesses*. However, they complained of lack of fund to establish their businesses; and inadequate funding by the Federal Government for the development of entrepreneurship education in Nigerian universities. Presently, there is no known study that assessed the adequacy of existing entrepreneurship education programmes in Nigeria hence; this study. More so, participant observations and previous study (NACETEM, 2010) have shown that many graduates that received entrepreneurship

training in school were not translating the acquired knowledge to practical venture creation, rather, they have joined the queue of people seeking government or organizational appointments. This has become a source of concern to researchers and other stakeholders. We propose that the entrepreneurial training delivered to the students may not be adequate to enable them start ventures of their own hence; the research question for this study is two-fold: (i) to investigate the adequacy of the entrepreneurial training given to science and engineering students vis-à-vis their ability to create new ventures; and (ii) to determine the relationship between entrepreneurship training received by the students and their intention to start new ventures of their own.

LITERATURE REVIEW

What Is Entrepreneurship Education

Entrepreneurship education is an orientation towards different ways of identification and recognition of opportunities. According to UNESCO (2008), entrepreneurship education is made up of all kinds of experiences and orientations that give students the ability and vision of how to access and transform opportunities of different kinds. It is about increasing student's ability to anticipate and respond positively to societal changes. Lee and Wong (2008) also maintained that it is a catalyst for economic development and job creation in any society. Also, the Commission Communication (2006) defined entrepreneurship education as the individual ability to turn ideas into action. It includes creativity, innovation and risk taking, as well as the ability to plan and manage projects in order to achieve objectives. Further, Enu (2012) stated that curriculum content must be responsive enough to address the obvious short comings of present school system. This call for innovations in the school curriculum that will be responsive and relevant to solve the current and anticipated needs, problems and aspirations of the learner (Emah, 2009; Ogunkunle (2009).

Reasons for Entrepreneurship Education in Nigeria

Unemployment of graduates of Nigerian tertiary institutions has become a major national problem. The search for a job after graduation

without success has become a source of frustration for graduates. Adamu (2005) noted that Nigeria educational system failed to lay the foundation of economic freedom, manual skills and expertise necessary for successful industrial and agricultural development. Nigerian governments had put in place various programmes and measures ranging from Operation Feed the Nation (OFN) to programmes such as Mass Mobilization for Self Reliance and Economic Recovery (MAMSER), Structural Adjustment Programme (SAP), and National Directorate of Employment (NDE) to address the problem of graduate unemployment but all the programmes have not brought about the expected outcomes. This includes the National Poverty Eradication Programme (NAPED) which is still in operation in the country. In their contribution to the subject matter, Ekankumo and Kemebaradikumo, (2011) concluded that all the programmes and measures put in place by successive governments so far have proved to be grossly ineffective in solving the problem of graduate employment in Nigeria.

To make up for the curricula inadequacies in meeting employment problem, the Nigerian Universities Commission (NUC), in line with education policy, directed all universities in the country to establish entrepreneurial centers and that entrepreneurial training should be given to all Nigerian undergraduates to prepare them for the wider world of opportunities to create jobs and ultimately become employers of labour (Ekankumo and Kemebaradikumo, 2011; Okebukola, 2012). Therefore, entrepreneurship education in Nigeria was designed to change the orientation and attitude of the recipients and the process to equip them with necessary skills and knowledge to enable them respond positively to the environment to explore its potentials in the process of conserving, starting and managing a business enterprise (Agu, 2006; Emeraton (2008). Entrepreneurship Education is therefore that education which assists students to develop positive attitudes, innovation and skills for self reliance, rather than depending on the government for employment.

Objectives of Entrepreneurship Education

Entrepreneurship education, according to Paul (2005) is structured to achieve the following objectives.

1. To offer functional education for the youth that will enable them to be self-employed and self-reliant.
2. Provide the youth graduates with adequate training that will enable them to be creative and innovative in identifying novel business opportunities.
3. To serve as a catalyst for economic growth and development.
4. Offer tertiary institution graduates with adequate training in risk management, to make certain bearing feasible.
5. To reduce high rule of poverty.
6. To create employment generation.
7. To reduce rural – urban migration.
8. To provide the young graduates with enough training and support that will enable them to establish a career in small and medium sized businesses.
9. To inculcate the spirit of perseverance in the youths and adults which will enable them to persist in any business venture they embark on.
10. To create smooth transition from traditional to a modern industrial economy.

Components of Entrepreneurship Education

Shai (2009) and Enu (2012), came up with a three components categorization of Entrepreneurship Education curriculum considered comprehensive enough to equip the products of the school system with the needed skills and capacities of future life.

1. **Personal Development** – it should build confidence, motivate progress, strengthen the entrepreneurial mindset, foster a desire to achieve and inspire action.

2. **Business Development** – Technical, financial literacy and skills to engage in self employment and in entrepreneurship that can lead to self-improvement. This will include the expected business and functional curricula.

3. **Entrepreneurial skill's development** – it should provide training in social skills, networking, creative problem – solving, opportunity seeking, interviewing, presentations, group leadership, community cooperation, seeking dealing with bureaucracy, local cultural norm and how they affect business etc.

Every entrepreneurship curriculum should have the above as its integral elements so as to provide the students with the cherished skills and capacities that can make them self sufficient and highly productive in the society. The teaching of entrepreneurship education at this level will be seen as an added impetus tailored at re-engineering the overall tertiary school curriculum for maximum national productivity.

THEORETICAL FRAMEWORK

It is well established in the literature that entrepreneurship education given to students has the potential of bringing about new venture creation by the students hence; entrepreneurship education given to students is focused on developing youths to acquire multiple skills and passion for entrepreneurship. According to Brown (2000), entrepreneurship education is designed to communicate and inculcate in students competencies, skills and values needed to recognize business opportunity, organize and start new business venture.

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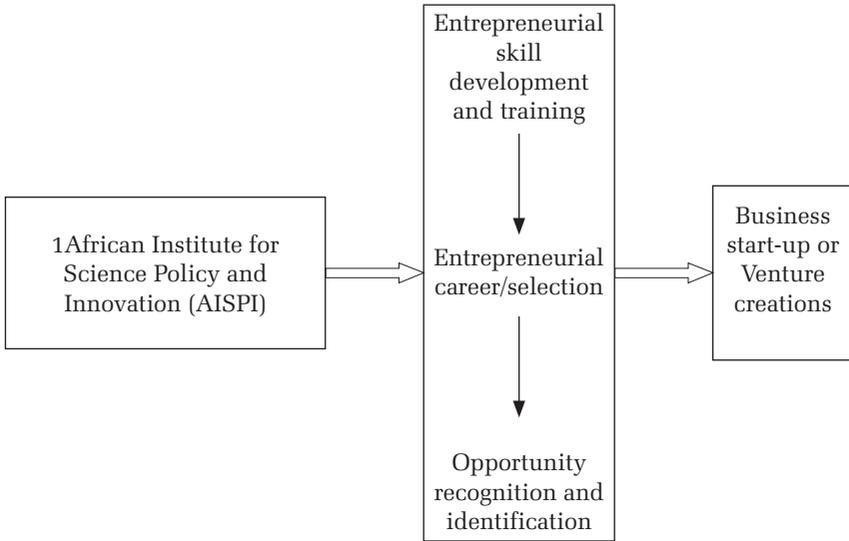


Figure 1: Conceptual Model for Entrepreneurship Education

Source: Adapted from Abubakar (2010)

Students while in school will acquire the necessary skills and training, identify an opportunity to exploit and eventual creation of their venture (Abubakar, 2010). Consequently, entrepreneurial activity and the resultant financial gain are always of benefit to a country.

Oladele (2007) observed that students from the artisan background pays attention to their parents’ trades and take charge of their parents’ occupation as soon as they are unable to secure salaried job. While parents from fairly educated background who have neither business nor vocational orientation have nothing to fall back after graduation and become jobless. Also graduates who know their parents’ business, by virtue of their education, improve upon the businesses or trades and they are able to develop and promote them.

To assess an entrepreneurship education programme, some factors are very important for consideration. Key issues or skills that are germane for venture creation must be present in the programme and the environment, both internal and external must be supportive. On this, Kirkpatrick (1994) presented a Four-Level Learning Evaluation model as follows:

1. **Reaction:** Did they like it? This is to evaluate the degree of interest of the students in the entrepreneurial education given to them. Some may have found themselves in the course which they were not interested in as a result of parental and external influence or failure to meet up with the 'cut off points' of the course of interest. Kirkpatrick refers to Level 1 as a measure of student understanding of the course.
2. **Learning:** Kirkpatrick defines learning as the extent to which participants change attitudes, increase knowledge, and/or increase skill as a result of attending a program. So to measure learning we need to determine the following: What knowledge was learned? What skills were developed or improved? What attitudes were changed?
3. **Transfer:** this looks at the application of the knowledge acquired through learning. Did they transfer learning to practice? Of utmost importance are:
 - Number of ventures started by students while in school
 - Number of ventures started by students upon graduation
4. **Results:** This involves measuring the final results that occurred because a person attended a training session. This can include increased production, improved work quality, reduced turnover, etc.
 - Do they have or are they planning to have businesses of their own?
 - What steps have been taken towards it?
 - Did it result in self-employment?

For the content of an entrepreneurship programme to be adequate it has to be sufficient to impart all the skills required to operate at all the levels on the entrepreneurial process; this moves from identification of opportunity to venture harvesting. On this Morris et al. (2001) presented a Framework for Entrepreneurial Process. They postulated that entrepreneurial events are easier to understand and likely to achieve better results when approached as a process. The entrepreneurial process is broadly implemented, from small ventures to corporate entrepreneurship. The framework consists of six interdependent stages, which is depicted in Figure 1 below.

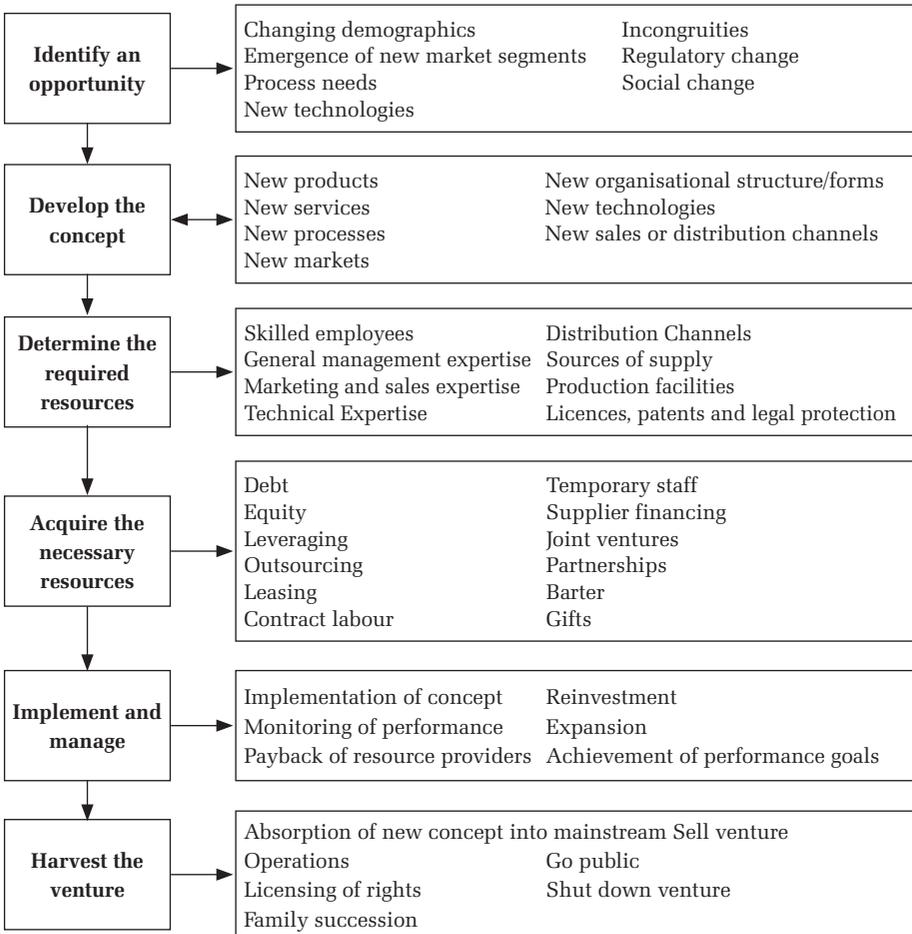


Figure 2: Framework of the Entrepreneurial Process (adapted from Morris, Kuratko & Schindehutte, 2001).

The ideation phase of the process is represented in the first two stages, opportunity identification and business concept development. The remaining stages are concerned with implementation, representing the acquisition of necessary resources, implementation of the concept, managing and eventually harvesting the venture.

Supporting views on what should be included in an entrepreneurship education program comes from authors such as Zeithaml and Rice (1987), Ronstadt (1987), Gartner, Bird and Starr (1992), McMullan and Long (1987), Vesper and McMullen (1988) and so on. The submission of Zeithaml and Rice (1987) suggests that education in entrepreneurship should cover the entire scope of business administration while Ronstadt (1987) proposed that entrepreneurial programmes should be designed so that potential entrepreneurs are aware of barriers to initiating their entrepreneurial careers and can devise ways to overcome them. Gartner, Bird and Starr (1992) highlighted the importance of business entry as a phenomenon that must be addressed in entrepreneurship education and this was supported and expanded by McMullan and Long (1987), and Vesper and McMullen (1988). They submitted that entrepreneurship education must include skill-building courses in negotiation, new product development, creative thinking, and exposure to technological innovation. All these authors and others including (Hills, 1988; Plaschka and Welch, 1990; Donckels, 1991; Hood and Young, 1993; Scott and Twomey, 1998) identified other areas that should be included in entrepreneurship education. Those areas include: sources of venture capital, intellectual property protection, challenges associated with each stage of venture development, awareness of entrepreneurship as a career option, and ambiguity tolerance.

RESEARCH METHOD

To achieve the objective of this study, survey method was used. A well structured questionnaire was designed to elicit information from respondents. The questionnaire was structured in accordance with the objective of the study. The study was conducted in twelve Nigerian universities which include four federal, four state and four private universities. One hundred and twenty (120) students, one hundred and twenty (120) graduates and thirty-six entrepreneurship lecturers participated in the study. To evaluate the entrepreneurship education given to science and engineering students, the variables considered in this study were: the content, relevance, and adequacy of entrepreneurship education and its delivery system, full knowledge of the subject matter by the teachers, feasibility of the entrepreneurship principles taught and their sufficiency for venture creation. Also, other variables such

as entrepreneurial family background, entrepreneurial attitude and capacity for venture creation of the students were examined. A total of two hundred and seventy six (276) questionnaire were administered, of which 265 (96%) were retrieved. However, only 243 questionnaires (88%) were found useful and subsequently analyzed.

To establish the relevance of the respondent to the study, the following question was asked: “Have you taken any entrepreneurship course in your school before? “Respondents were to tick one of ‘yes’ or ‘no’. To identify the nature and extent of the course two questions were asked: i. “Which of these best describes the course?” was asked. Respondents were to tick one of : a. An elective course, b. A compulsory course, c. Part of another course; and ii. “If you have offered any entrepreneurship/business course(s), how often did you receive the lecture?” On this, respondents were asked to pick one of four options: a. Daily, b. weekly, c. monthly, and d. Once in a while. Another option ‘Others’ was provided and space was created for respondents to specify.

In this study, we define adequacy of entrepreneurship training as “sufficient to create in students the desire to want to start their own venture”. To evaluate the entrepreneurship courses in the universities, three questions were asked from their students and graduates. i. How do you perceive the practicability of the course content? Respondents were to pick one of five options: a. Very practicable, b. Practicable, c. fairly practicable, d. Not practicable, and e. Not sure. ii. What is your opinion on the adequacy of entrepreneurship courses being taught in school? Respondents were to pick either true or false to the following statements: a. adequate enough to establish one’s business, b. lecturers have and impart adequate knowledge of the subject matter, c. relevant learning equipment were available, d. Technological entrepreneurship training is unnecessary. Further, students were asked to rate the training given as related to entrepreneurship Curriculum. This was done on a scale 1 – 5, where 1 was poor, 2 was fair and 5 was excellent. The table contained six items which were: i. Content of entrepreneurship lectures given, ii. Relevance of entrepreneurship lecture given, iii. Full knowledge of the subject matter, iv. Adequacy of course duration for learning, v. Feasibility of the principle taught, and vi. Sufficiency for venture creation

RESULTS

Socio-Demographic Characteristics of Students

A majority (59.57%) of the respondents were male while 40.43% were female. This difference in proportions in gender may be as a result of the nature of the courses (science and engineering) which are usually dominated by male students. The study revealed that most students (70.6%) in science and engineering courses are within the 19 – 29 years age bracket, while very few students (6.38%) fall within the 30 – 39 age bracket. Students below 19 years are just 15.60% and 1.42% was found within the 40 – 49 years age bracket,

Socio-Demographic Characteristics of Graduates

A majority, (62.92%) of graduates of science and engineering courses were male while 37.08% were female. In addition, 58.43% of the graduates fall within the 19 – 29 years age group, Graduates below the age of 19 years were 10.11% while 7.87% of the graduates were within the 40 – 49 years age bracket, 2.25% of the respondents were above 50 years. A majority, (76.40%) of the respondents were single as at the time of this study while 22.47% were married. One individual was divorced. Only 47.19% were employed while 3.37% of the respondents were unemployed. 49.44% of the graduates were in the National Youth Service Corps (NYSC) programme.

Students' evaluation of entrepreneurship education

From Table 1, 10.64% of respondents rated the content of entrepreneurship lectures excellent, 37.59%, very good; while 29.08% indicated that it was good. On the relevance of the entrepreneurship lectures, 9.93% rated it excellent, 31.21% very good, 28.37% good, while 5.67% agreed it was fair. In relation to the knowledge of the subject matter, 2.31% rated it excellent, 24.11% very good, 36.17% good, while 9.93% rated it fair. Also, as regards the adequacy of course duration for learning, 17.73% rated it very good, 38.30% good, and 11.35% believed it was fairly adequate while 4.96% rated it inadequate.

Furthermore, as regards sufficiency for venture creation, 17.73% rated it as very good, 38.30% good, 11.35% perceived it was fair while 4.96% rated

it insufficient. Similarly, as regards the feasibility of the principle taught, 24.11% rated as very good, 29.79% good, 7.09% indicated it was fairly feasible while 11.35% rated it not feasible. The results indicate that most respondents perceived that the entrepreneurship education they received was good for venture creation.

Table 1: Students' Evaluation of Entrepreneurship Education

Entrepreneurial Education	Excellent f(%)	Very Good f(%)	Good f(%)	Fair f(%)	Poor f(%)
Content of entrepreneurship lectures	15 (10.64)	53 (37.59)	41 (29.08)	0 (0.00%)	0 (0.00%)
Relevance of entrepreneurship lecture	14 (9.93)	44 (31.21)	40 (28.37)	8 (5.67)	0 (0.00%)
Full knowledge of the subject matter	3 (2.13)	34 (24.11)	51 (36.17)	14 (9.93)	0 (0.00%)
Adequacy of course duration for learning	3 (2.13)	30 (21.28)	55 (39.01)	8 (5.67)	10 (7.09)
Feasibility of the principle of entrepreneurship	0 (0.00%)	25 (17.73)	54 (38.30)	16 (11.35)	7 (4.96)
Sufficiency for venture creation	0 (0.00%)	34 (24.11)	42 (29.79)	10 (7.09)	16 (11.35)

Legend; f = frequency

Information on Table 2 shows ANOVA result of the evaluation of the entrepreneurship education given to science and engineering students as reported by the students. There were significant differences ($F=9.62$, $P<0.05$) in the responses of the students to the rating of the entrepreneurship education given them. The mean rank of the content of entrepreneurship lectures (3.20) given to students in federal universities was significantly lower than those of other universities. The mean rank of the relevance of entrepreneurship (4.08) lectures given to students, full knowledge of the subject matter (3.22), feasibility of the principle (3.60) and sufficiency for venture creation (3.60) by private universities were significantly higher than those of other universities. It was also reported that entrepreneurship course was taken as an elective by science and engineering students in some federal universities which is against the NUC directive that entrepreneurship training should be made compulsory for all Nigerian undergraduates.

Table 2: ANOVA Result of the Students' Evaluation of the Entrepreneurship Education given to Science and Engineering Students.

Factors	Federal Universities	Private Universities	State Universities	F-Value	Probability
Content of entrepreneurship lectures	3.20 ^b	3.93 ^a	3.63 ^a	9.62	0.0001
Relevance of entrepreneurship lectures	3.08 ^b	4.08 ^a	3.40 ^b	16.65	<0.0001
Full knowledge of the subject matter	2.85 ^b	3.22 ^a	2.75 ^b	5.48	0.005
Adequacy of course duration for learning	3.20 ^b	4.03 ^a	3.10 ^b	21.17	<0.0001
Feasibility of the entrepreneurship principle	3.10 ^b	3.60 ^a	2.58 ^c	16.85	<0.0001
Sufficiency for venture creation	3.08 ^b	3.60 ^a	2.60 ^c	18.30	<0.0001

a, b, c: Means within each row with different superscript are significantly different ($P < 0.05$)

Key: Excellent = 5, Very Good = 4, Good = 3, fair = 2 and Poor = 1

Information on Table 3 reveals that, 16.85% of graduate respondents rated the content of entrepreneurship lectures given as excellent, 28.09% very good, 16.85% rated it good, 7.87%; fair while 3.37% indicated it was poor. On the relevance of the entrepreneurship lectures, 12.36% believed it was excellent, 31.46% very good, 13.48% good, 6.74% fair while 3.37% indicated it was fair. In relation to the full knowledge of the subject matter, 8.99% rated as excellent, 20.22% very good, 23.60% good, and 10.11% fair while 2.25% rated it as being poor. Also, as regards the adequacy of course duration for learning, 3.37% rated it excellent, 16.85 very good, 21.35% good, 19.10% believe it is fair while 5.62% rated it poor.

Furthermore, feasibility of the principles taught was rated by 4.49% of the respondents as excellent, 22.47% rate the factors as very good, 20.22% good, 16.85% believed it was fair while 2.25% rated it not feasible. Similarly, as regards the sufficiency for venture creation, 4.49% rated it excellent, 17.98% very good, 20.22% good, 16.85% believe it is fair while 4.49% rated it not sufficient. The result indicates that most of the graduates believed it was generally good.

Table 3: Graduates' Evaluation of Entrepreneurship Education Given to Science and Engineering Students in Nigeria

Entrepreneurial Education	Excellent f(%)	Very Good f(%)	Good f(%)	Fair f(%)	Poor f(%)
Content of entrepreneurship lectures	15 (16.85)	25 (28.09)	15 (16.85)	7 (7.87)	3 (3.37)
Relevance of entrepreneurship lecture	11 (12.36)	28 (31.46)	12 (13.48)	6 (6.74)	3 (3.37)
Full knowledge of the subject matter	8 (8.99)	18 (20.22)	21 (23.60)	9 (10.11)	2 (2.25)
Adequacy of course duration for learning	3 (3.37)	15 (16.85)	19 (21.35)	17 (19.10)	5 (5.62)
Feasibility of the entrepreneurship principles	4 (4.49)	20 (22.47)	18 (20.22)	15 (16.85)	2 (2.25)
Sufficiency for venture creation	4 (4.49)	16 (17.98)	18 (20.22)	15 (16.85)	4 (4.49)

Information on Table 4 shows ANOVA result of the mean rank evaluation of the opinion of graduates on the level of adequacy of entrepreneurship education given to science and engineering students in ascending order. There were significant differences ($F=6.30$, $P=<0.0001$) in the mean rank of the opinion of graduates on level of adequacy of entrepreneurship education given to science and engineering students. The mean ranks of two factors, relevance of entrepreneurship lectures (3.69) and content of entrepreneurship lectures (3.65) given were significantly higher than those of other factors. The factor relevance of entrepreneurship lectures given had the highest mean rank while the factor adequacy of course duration for learning had the lowest mean rank of 2.90.

Table 4: ANOVA Result of the Mean Rank of the Evaluation of the Opinion of Graduates on the Adequacy of Entrepreneurial Education Given to Science and Engineering Students

Factors	Mean rank
Adequacy of course duration for learning	2.90 ^c
Sufficiency for venture creation	3.02 ^{bc}
Feasibility of the entrepreneurship principles	3.15 ^{bc}
Quality of Trainers/Full knowledge of the subject matter	3.36 ^{ab}
Content of entrepreneurship lectures given	3.65 ^a
Relevance of entrepreneurship lectures given	3.69 ^a

a, b, c: Means within each row with different superscript are significantly different ($P < 0.05$)

Key: Excellent = 5, Very Good = 4, Good = 3, fair = 2 and Poor = 1

From Table 5, the relationship between business opportunity identified and content of entrepreneurship lectures was not significant ($r = 0.21$, n. s.). However, the relationship between business opportunity identified and relevance of entrepreneurship training was positive and significant ($r = 0.26$, $p < 0.05$). This may mean that the importance of training received on entrepreneurship is very relevant to technical venture creation. Furthermore, there was positive and significant ($r = 0.27$, $p < 0.05$) association between business opportunity identified and full knowledge of the subject matter. This implies that students are adequately furnished and equipped with relevant knowledge to start up a business of their own after leaving the university.

There was a relationship between business opportunity identified and adequacy of course duration ($r = 0.36$, $p < 0.01$). This result shows that time allocated for entrepreneurship lectures is very important. There was also a significant relationship between the business opportunity identified and the feasibility of the entrepreneurship principles ($r = 0.24$, $p < 0.05$). The result suggests that the principles are realistic if those theories were put into practice in accordance to the way it was taught and therefore indicated that entrepreneurial training prepared them for real life situation. However, there was no statistical relationship between opportunity identified and sufficiency for venture creation. ($r = 0.21$, n. s.). This is in support of Hisrich et al, (2008)'s assertion that even though graduates have interest in becoming

entrepreneurs after school, there seems to be the lack of certain specific skills to commence the venture creation and management process.

Table 5: Correlation Matrix of Factors Influencing Technical Venture Creation among Science and Engineering Students

	content of entrepreneurship lectures	relevance of entrepreneurship lectures	full knowledge of the subject matter	adequacy of course duration	feasibility of the principle learnt	sufficiency for venture creation	business opportunities identified
Kendall's tab	1.00						
content of entrepreneurship lectures		1.00					
relevance of entrepreneurship lectures	.596**						
full knowledge of the subject matter	.483**	.344**	1.00				
adequacy of course duration	.327**	.213	.653**	1.00			
feasibility of the entrepreneurship principle	.365**	.406**	.357**	.430**	1.00		
sufficiency for venture creation	.299**	.294**	.361**	.461**	.670**	1.00	
business opportunities identified	.211	.258*	.271*	.362**	.241*	.206	

*Significant at .05 (two tailed)

**Significant at .01(two tailed)

DISCUSSION AND CONCLUSION

This study set out to evaluate the entrepreneurship education given to Nigerian university students with a view to investigating its adequacy for venture creation. The results of the study have shown that the respondents have impressive opinion about the entrepreneurship education delivered in Nigerian universities. For instance, a high percentage (77%) of the student respondents and 62% of the graduate respondents rated the content of entrepreneurship lectures one of excellent, very good or good. This is a positive response with an important implication knowing that

entrepreneurship is more than the mere creation of business (Kuratko, 2005; page 578). According to Kuratko, the characteristics of seeking opportunities, taking risks beyond security, and having the tenacity to push an idea through to reality combine into a special perspective that permeates entrepreneurs. “An *entrepreneurial perspective* can be developed in individuals” he argued. In the light of this, an insight that could be gleaned from this study is that the students that received entrepreneurship education from Nigerian universities, if they could not start new ventures of their own, they would be able to exhibit the entrepreneurial perspective wherever they find themselves; whether in for-profit or in not-for profit enterprises, and in business or non business activities for the purpose of bringing forth creative ideas. This assertion was supported by Morris, Kuratko and Kovin, (2008). They submitted that entrepreneurship is a phenomenon that can happen in a variety of organizational contexts. They gave the terms *corporate entrepreneurship*, *organizational entrepreneurship*, *Intrapreneurship* and *corporate venturing* as terms that describe entrepreneurial behavior inside established organizations. To the current study, these submissions provide insight that those graduates that received entrepreneurship education from the universities and instead of starting a new venture got appointment in an established organization, might still be able to put their theoretical knowledge into practice by carrying out formal or informal activities aimed at creating new businesses in the organizations where they were employed. This may be through product and process innovations or market developments. Kuratko (2009; page 22) provides more explanation on this and introduced the concept of *entrepreneurial management*. In his book *Entrepreneurship: Theory, Process, Practice* he stated:

Entrepreneurship is based upon the same principles, whether the entrepreneur is an existing large institution or an individual starting his or her new venture single-handed. It makes little or no difference whether the entrepreneur is a business or a nonbusiness public-service organization, nor even whether the entrepreneur is a governmental or nongovernmental institution. The rules are pretty much the same, the things that work and those that don't are pretty much the same, and so are the kinds of innovation and where to look for them. In every case there is a discipline we might call *entrepreneurial management*.

The techniques and principles of this emerging discipline will drive the entrepreneurial economy in the twenty-first century.

In the light of the above explanations it is clear that the aim of entrepreneurship education should not be solely to facilitate venture creation but to create an entrepreneurial mindset in students which will enable them add value to whichever environment they find themselves.

The second insight derivable from this study is that more factors contribute to venture creation than entrepreneurial education. The problem that motivated this study was that graduates from Nigerian universities were not translating theoretical knowledge to practical venture creation and we proposed that inadequacies in the entrepreneurship education they received might be the responsible factor. Contrary to this view, findings from the study show that the receivers of the entrepreneurship education considered it adequate for venture creation. This shows that the question of why the graduates from the universities were not able to translate the theoretical training received to venture creation is still unanswered. From the literature, it is understood that venture creation requires more than just entrepreneurship training, other factors such as personal entrepreneurial characteristics, self-efficacy, family background, presence of entrepreneurial mentors, availability of sufficient start-up funds and so on may influence entrepreneurial intention. However, this study provides an insight into the adequacies or otherwise of entrepreneurship education in the institutions of higher learning in Nigeria. It also provides information that will be useful in the development of result-oriented technological entrepreneurship education that can be used as a tool to enhance societal well-being.

The study was constrained by time and funding hence; it covered only the universities in the South-western region of Nigeria. Future research may be extended to the other regions. In summary, this study has shown that majority of science and engineering students and graduates of the selected universities was of the opinion that the contents of their entrepreneurship courses were adequate and relevant to venture creation. Also, the study found that students have sufficient theoretical knowledge of the skills taught. Results of correlation analysis showed that factors such as entrepreneurship training, relevance of entrepreneurship lectures, full knowledge of the

entrepreneurship courses, adequacy of course duration and feasibility of the principles learned have significant and positive relationship with number of business opportunities identified by the graduates. However, there was no significant relationship between venture creation and content of entrepreneurship lectures received. This may be due to the fact that venture creation requires some other factors beside entrepreneurship education. Therefore, this study reveals that entrepreneurship education influences entrepreneurial behavior but may not translate to venture creation if other factors that are necessary for venture creation are not in place.

This paper has provided information that will be useful to policy makers in planning programmes and strategies for job creation among the Nigerian youths. It has shown that the entrepreneurship education delivered in Nigerian universities is good for theoretical knowledge but the government still needs to do more in providing enabling environment and other factors that may be needed to translate the theoretical knowledge to practical venture creation.

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