



Research Article

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## Perception of Undergraduate Students of the Relevance of Entrepreneurship Study to Science and Technology Education in Southwest, Nigeria

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### Abstract

This study investigated the perception of science and technology undergraduate students on the relevancy of entrepreneurial Studies in south west Nigeria Universities. Two research questions and three null hypotheses were formulated and tested to guide the study at 0.05 Significance level. This study employed descriptive research design of a survey type and multistage sampling technique to get a sample of 400 science and technology related undergraduates in Federal and State Universities. A self-designed questionnaire titled; Relevance of Entrepreneurship Study Questionnaire (RESQ) was developed for data collection. Content and face validity of the instrument was determined by three experts while the reliability of the instrument was determined through test-retest method using Pearson's Product Moment Correlation Analysis. The reliability coefficient of 0.83 was obtained. Mean, percentages and bar charts were used to analyse the research questions while ANOVA and t-test statistics were used to test the hypothesis. The result shows that majority of respondents perceived entrepreneurship study as relevant to their university education. Significant difference did not also exist in the perception of respondents based on course of study. There was also no significant difference in the perceptions of undergraduate students based on Level and University Status. Based on the findings, it was recommended that University authorities should intensify efforts in promoting entrepreneurship development by embarking on mass capacity building. Government should engage in strengthening universities-private sector collaboration with attention to science and technology related disciplines to facilitate entrepreneurship development in areas such as agriculture, medicine, engineering, solid minerals exploitation, fabrication of scientific equipment and production of reagent.

**Keywords:** Undergraduate Students, Entrepreneurship Study, Science and Technology Education, Nigeria

### 1. Introduction

Entrepreneurship study has been identified as a strategic instrument having the potentials to enhance employability and curtail unemployment across the nations of the world, especially in developing nations. It is, therefore, no gainsaying that entrepreneurship education is a panacea to graduates' unemployment and a booster to their employability and self-employment. In light of this,

educating undergraduates on entrepreneurial skills is expedient for job creation and the nation's economic growth and development. The role of entrepreneurship study in solving graduates' unemployment and enhancing nation's development is laudable and undergraduates need to capture and acknowledge the intention of the Federal Government by introducing entrepreneurship education into the curriculum of Nigerian Universities. This should form their perception of the relevance of entrepreneurship study to their university education.

The perception of undergraduates is simply their conception and belief about entrepreneurship study, entrepreneurial skills to be acquired and intentions to start their ventures after graduation. The right perception of undergraduates of its relevance will enhance their reasoning and attitudes towards acquiring entrepreneurial skills and the overall achievement in entrepreneurship education. It would also lead to ventures creation by students after graduation thereby reducing graduates' unemployment. Thus, achieving the Federal Government proposed outcomes which informed the integration of entrepreneurship education curriculum as a matter of compulsion in all Nigerian Universities, aiming at enhancing entrepreneurship development will be feasible. The perception of undergraduates would supposedly be enhanced through entrepreneurship education which includes sensitization and in turn promote entrepreneurship development in the country.

Alarape, (2008) asserts that policymakers all over the globe including Nigeria have begun to recognise the role of entrepreneurship and training via the ability of small and medium scale enterprises to create widespread employment opportunities to reduce unemployment and poverty that became obvious after the economic depression of the early 1980s. In recognition of its role, Akhuemonkhan, Raimi and Sofoluwe, (2013) explain that entrepreneurship has continued to feature as a captivating theme in local summits and international conferences. In Nigeria university education programmes, entrepreneurship courses were peculiar to undergraduates in business schools before the National Universities Commission (NUC) directive to all universities to include Entrepreneurship Education in their curriculum. Also, it has been observed that graduates of higher institutions lack requisite skill-sets that could enhance their employability and self-employment. By the directive of NUC to all Nigeria Universities, all undergraduates irrespective of areas of specialization are mandated to offer entrepreneurship courses.

The integration of entrepreneurship education into university programmes is aimed at exposing undergraduates to entrepreneurial skills. Akpan and Etor, (2013) opine that entrepreneurial skills to be acquired by undergraduates include; problem-solving, risk-taking, financial management, information, motivational, communication and marketing skills which would as well empower them to be employable or become successful managers of small/medium scale enterprises. Undergraduates would also be able to identify the significance of entrepreneurship study, specifically to science and technology education. Universities authorities are now intensifying efforts to sensitize undergraduates on the need for acquiring entrepreneurial skills.

Bamiro, (2012) explains that private and public sectors across the countries of the world are now trying to chart a direction for growth and development through knowledge, information and innovation which centres on universities as eminent members of the knowledge industry. Universities, being eminent members of the knowledge industry should wake up to the task of educating undergraduates in entrepreneurial skills. Akpomi, (2009) explains that universities are enthusiastic to develop and empower the youth in the society through entrepreneurship education which enhances re-orientation towards inculcating values that allow acquisition of necessary competencies to sense of self-reliance, independence, youth empowerment and poverty reduction. Garba, (2010) therefore asserts that there is a consensus on the importance of entrepreneurship in ameliorating some socio-economic problems especially poverty, unemployment and all forms of social vices in the society.

The right perception of the relevance of entrepreneurship study by science and technology-related undergraduates in universities would act as a catalyst in the overall achievement in the learning of entrepreneurial skills by the Nigerian youths. It was expected that at entry, undergraduates may not have been well informed of the relevance of entrepreneurship study and this

could have an implication on their perception. The perception of undergraduates at entry into the university may be enhanced as they are being exposed to entrepreneurship study year after year. Expectantly, the perception of students of the entrepreneurial skills to be acquired and their intentions to start their ventures would have been positively influenced and improved at graduation. Individuals would have been adequately sensitized on the relevance of entrepreneurship study, entrepreneurial skills to be acquired and empowered to become employable and/or self-reliant in science and technology-related fields.

Science is the study of physical and the natural world while technology is the application arising from science. Hence Science and technology are extremely important in the society as they made life on earth simpler, faster, worth living in, and more secure. Further benefits of science and technology according to Tyler (2018) also includes a reduction in transportation time, advancement in education, improved medical facilities, better and faster communication, good job opportunities, advancement in the banking sector and help in the overall development of a nation. Thus, science and technology-related courses are housed in faculties of Sciences, Agriculture, Engineering, Medicine and Education (Science and Technology education) in Nigeria Universities.

Across Faculties, undergraduates could display varied perceptions from one science and technology-based faculty to the other on the need to acquire entrepreneurial skills. This may be due to their diverse knowledge of the relevance of the skills to their course of study. This was in the case of science and Engineering students in china that exhibit one of three distinct perceptions of entrepreneurial intentions viz. Intellectual Entrepreneur; Opportunity-Driven Entrepreneur; and Individualistic Entrepreneur in a study conducted by Chen and Liwen (2019). Entrepreneurial skills would empower students, particularly in science and technology-related faculties to identify opportunities, perhaps to become inventors, Production Scientists or manufacturers starting on a small scale, having been empowered through Entrepreneurship Study. This will offer employment opportunities after graduation, and boost the nation's technological/economic development.

Furthermore, it was assumed that university status and ownership is another factor that could influence the perception of undergraduates of the relevance of entrepreneurship study. Implementation of the Federal Government policy on entrepreneurship education is capital intensive and federal universities may be favourably funded compared to State Universities. This may as well lead to diverging of opinion or perception of the scheme by students of the institutions. Maria, Felipe and Mario (2018) investigated the influence of the university environment (public and private) universities on the entrepreneurial intentions of students in Brazil. The results show that there is no evidence of a difference in the influence of public and private university environments on entrepreneurial intentions of the students, but they express the desire to learn about entrepreneurship.

The graduates of universities are increasingly adding up annually without equivalent vacancies for the white-collar jobs in which many of them believe. Lack of requisite skills has been observed to be one of the reasons responsible for graduates' unemployment. The Federal Government of Nigeria, as part of the various efforts to curb graduates' unemployment introduced entrepreneurship education to universities programmes, the success should be a major concern to institutions of higher learning. If undergraduates perceive entrepreneurship study as relevant to their university education, it will make positive impacts on youth empowerment and job creation.

## **2. Purpose of the Study**

The purpose of this study was to assess science and technology undergraduates' perception of the relevance of entrepreneurship study to science and Technology education.

Specifically, the study sought to:

- 1 Compare the perceptions of fresh and final year undergraduates on the relevance of entrepreneurship study to science and Technology education.
- 2 Compare perceptions of science and technology undergraduates in Faculties of Agriculture, Education, Engineering, Science and College of Medicine.

- 3 Compare perceptions of undergraduates in Federal and State Universities on the relevance of entrepreneurship study to science and Technology education.

### 3. Research Questions

The following research questions were formulated to guide the study:

1. What are the perceptions of Science and Technology undergraduates of the entrepreneurial skills to be acquired and their entrepreneurial intentions?
2. How do Science and Technology undergraduates perceive the relevance of entrepreneurship study to their field of study?

### 4. Research Hypotheses

In this study, the following null hypotheses were generated:

- HO<sub>1</sub> There is no significant difference among the perceptions of science undergraduates in the Faculties of Agriculture, Education, Engineering, Science and College of Medicine.
- HO<sub>2</sub> There is no significant difference between the perceptions of fresh and final year science and technology undergraduates
- HO<sub>3</sub> There is no significant difference between the perceptions of science and Technology undergraduates in Federal and State Universities.

### 5. Methodology

The study is a descriptive research design of the survey type. The target population for the study comprised of all science undergraduates in science and technology related faculties in the 2013/2014 session in the Federal and State Universities in Southwest Nigeria. The Southwest States are: Ekiti, Lagos, Ogun, Ondo, Osun and Oyo.

The sample for the study comprised of 400 undergraduates from five science and technology-based faculties: (Education, Engineering, Agriculture, Science and College of Medicine from each selected university) in four states; Ekiti, Lagos, Osun, and Oyo in the Southwest Nigeria. The selection was based on multistage sampling technique. One university was selected from each selected state and 100 students were selected across the chosen faculties in each university as follows:

In stage one, four states were randomly selected using simple random sampling technique while in stage two, purposive sampling technique was used to select two federal and two state universities from the four selected states. Stage three attracted purposive sampling technique to choose five science and technology based faculties while in stage four, stratified sampling technique was used to select students in each faculty across the chosen faculties in each university. In stage five, simple random sampling technique was also used to select 20 students from each faculty in each university.

The instrument used for collection of data for the study is a self-designed questionnaire titled; Relevance of Entrepreneurship Study Questionnaire (RESQ). The instrument comprise of two sections, A and B. Section A was designed to elicit information on the bio-data of the respondents which are gender, level of study, faculty, parents' occupation and universities status (Federal/State) while Section B consists of twenty-three objective items to elicit responses from students in the selected universities based on 4-Likert type scales such as strongly agree, agree, disagree and strongly disagree on four points as stated below:

Strongly agreed- 4, Agreed- 3, Disagreed- 2, strongly disagreed-1.

The instrument was validated by three experts in science education, psychology, and test and measurement while the reliability of the instrument was determined through a test-retest method. The instrument was administered on a group of 40 students in a state university in Ondo state, Nigeria who were not part of the sample. The instrument was re-administered at the interval of two weeks and the data collected were analysed using Pearson's Product Moment Correlation Analysis at

0.05 level of significance. The reliability coefficient of 0.83 was obtained

The research questions were analysed using descriptive statistics such as percentages, mean, standard deviation and multiple bar charts while

All the hypotheses were tested at 0.05 level of significance. Hypotheses 1 was analyzed using ANOVA while hypotheses 2 and 3 were analyzed using t-test.

## 6. Results

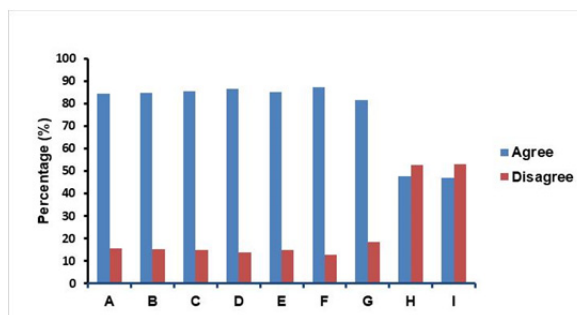
### 6.1 Question 1: What are the perceptions of science and Technology undergraduates of the relevance of the entrepreneurial skills to be acquired and their entrepreneurial intentions?

**Table 1:** Perception of Science and Technology Undergraduates of the Relevance of the Entrepreneurial Skills to be Acquired and their Entrepreneurial Intentions

S/N	Perception of Entrepreneurial Skills and Intentions	Agree		Disagree	
		F	%	F	%
1	Problem- solving skill	338	84.5	62	15.5
2	Risk- taking skill	339	84.8	61	15.3
3	Information skill	341	85.3	59	14.8
4	Financial skill	345	86.3	55	13.8
5	Motivation skill	340	85.0	60	15.0
6	Marketing skill	349	87.3	51	12.8
7	Intention to make self-employment career option	326	81.5	74	18.5
8	Intention to take government or private job rather than self-employment	190	47.5	210	52.5
9	Intention to take government job based on parents' expectations	188	47.0	212	53.0

Table 1 presents perceptions of science and technology undergraduates of the relevance of the entrepreneurial skills to be acquired and their entrepreneurial intentions. The results show that 84.6% of the respondents agreed that problem solving skill should be acquired by science and technology undergraduates through entrepreneurship study. Also, 84.8% agreed to the acquisition of risk-taking skill while 85.5% agreed that information skill should be acquired. Other entrepreneurial skills perceived and agreed to be relevant by science and technology undergraduates are financial management skill 86.3%, motivation skill 95% and marketing skill 87.3% of respondents agreed respectively.

Also, 81.5% of the respondents intended to make self-employment a career option, 47.5% had intention to work in a government establishment or private company and 47% had intentions to take government job based on their parents' expectations.



**Figure 1:** Multiple Bar Chart Showing the Perception of Science and Technology Undergraduates of the Relevance of Entrepreneurial Skills to be Acquired and their Entrepreneurial Intentions

Figure 1 indicates that high percentages of science and technology undergraduates agreed that problem-solving skill, risk-taking skill, information skill, financial skill, motivation skill and marketing skill are relevant to science and technology education. The multiple bar charts also show that high percentage of science undergraduates have intentions to take government or private jobs rather than self-employment, and also high percentage intended to take government jobs based on parents' expectations.

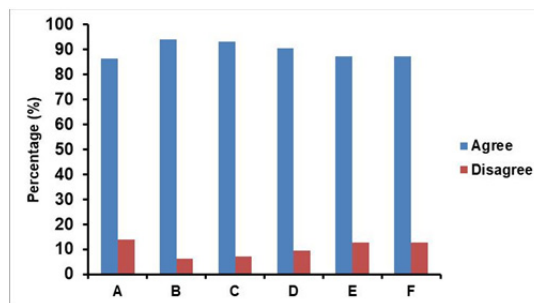
Using a cut-off mean of 2.50 for the 4-point rating scale, items 1-9 has mean scores above cut-off which indicate that a high number of science and technology undergraduates perceived entrepreneurial skills to be acquired as relevant and have intentions to become self-employed.

6.2 Question 2: How do science and Technology undergraduates perceive the relevance of entrepreneurship study to their field of study?

**Table 2:** Perception of Science and Technology Undergraduates of the Relevance of Entrepreneurship Study to Science Education

S/N	Relevance of Entrepreneurship Study to Science and Technology Education	Agree		Disagree	
		F	%	F	%
10	Relevance to science-related fields	345	86.3	55	13.8
11	Sensitizes undergraduates	375	93.8	25	6.3
12	Develops innovative and creative skills	372	93.0	28	7.0
13	Stimulates mind-sets and helps to identify opportunities	362	90.5	38	9.5
14	Avenue for undergraduates-private sector collaboration for outreach activities	349	87.3	51	12.8
15	Enhances attitudes towards entrepreneurial skills	349	87.3	51	12.8

Table 2 shows that 86.3% of the respondents agreed that entrepreneurship study is relevant to science education. Other relevance of entrepreneurship study as perceived by science undergraduates include: sensitization on entrepreneurship education 93.8% agreed, development of creative and innovative skills 93.0% agreed, stimulating students mind-sets and enabling undergraduates to see entrepreneurial opportunities 90.6% agreed, science undergraduates-private sector collaboration for outreach activities 87.3% agreed and enhancing attitudes towards the learning of entrepreneurial skills was 87.3% agreed. Based on the responses, it was evident that science undergraduates have positive perceptions of the relevance of entrepreneurship study to science education.



**Figure 2:** Multiple Bar Chart Showing the Perception of Undergraduates of the Relevance of Entrepreneurship Study to Science and Technology Education

Figure 2 shows that high percentages of science and technology undergraduates perceived and agreed that entrepreneurship study is relevant to science and technology education and would

sensitize undergraduates, develop innovative and creative skills, stimulate their mind-sets, enhance their attitudes towards acquiring entrepreneurial skills, serve as avenue for undergraduates-private sector collaboration for outreach activities and help to identify opportunities for entrepreneurship.

Using a cut-off mean of 2.50 for the 4-point rating scale, items 10-15 have mean scores above cut-off which indicate that a high number of undergraduates perceived entrepreneurship study to be relevant to science and education.

### 6.3 Hypotheses Testing

6.3.1 Hypothesis 1: *There is no significant difference among the perceptions of science undergraduates in Faculties of Agriculture, Education, Engineering, Science and College of Medicine.*

**Table 3:** ANOVA Summary Showing the Perception of Science and Technology Undergraduates of the Relevance of Entrepreneurship Study by Faculty.

Group	SS	Df	MS	F-cal	F-table
Between Groups	851.72	4	212.93	1.64	2.37
Within Groups	51320.53	395	129.93		
Total	52172.24	399			

p>0.05

Table 3 shows that F-cal 1.64 is less than F-table 2.37 at 0.05 level of significance. The null hypothesis is not rejected. This implies that there is no significant difference among the perceptions of science and technology undergraduates in Faculties of Agriculture, Education, Engineering, Science and College of Medicine of the relevance of entrepreneurship study to science and technology education.

6.3.2 Hypothesis 2: *There is no significant difference between the perceptions of fresh and final year science and Technology undergraduates.*

**Table 4:** t-test Summary Showing the Perception of the Relevance of Entrepreneurship Study to Science and Technology Education by Fresh and Final year Undergraduates

Group	N	Mean	SD	Df	t-cal	t-table
Fresh	96	74.05	17.83	188	1.74	1.96
Final year	94	77.59	8.32			

p>0.05

Table 4 shows that t-cal 1.74 is less than t-table 1.96 at 0.05 level of significance. The null hypothesis is accepted. This implies that there is no significant difference between the perception of fresh and final year undergraduates of the relevance of Entrepreneurship Study to Science and technology Education.

6.3.3 Hypothesis 3: *There is no significant difference between the perceptions of science and Technology undergraduates in Federal and State universities.*

**Table 5:** t-test Summary Showing the Perception of the Relevance of Entrepreneurship Study to Science and Technology Education by Undergraduates in Federal and State Universities

Group	N	Mean	SD	Df	t-cal	t-table
Federal	300	76.17	11.86	398	1.38	1.96
State	100	77.98	9.98			

p>0.05



Table 5 indicates that t-cal 1.38 is less than t-table 1.96 at 0.05 level of significance. The null hypothesis is accepted. This implies that there is no significant difference between the perceptions of science and undergraduates in Federal and State Universities.

## 7. Discussion

The findings of this study reveal that science and technology undergraduates in Faculties of Agriculture, Education, Engineering, Science and College of Medicine show high percentages of perceived relevance of entrepreneurship study to science education. The investigation also reveals that there is no significant difference among the perceptions of science and technology undergraduates in the Faculties of Agricultural, Education, Engineering, Science and College of Medicine. This implies that the perceptions of the undergraduates of the relevance of entrepreneurship study in the various science and technology-related fields are not significantly different from one another. This finding is in agreement with the work of Keat, Selvarajah, and Meyer, (2011) that showed that there was no significant difference between students' programmes of study and inclination towards entrepreneurship.

The results of this investigation also reveal that fresh and final year science and technology undergraduates have high perceived relevance of entrepreneurship study to science and technology education. The findings indicate that there was no significant difference between the perceptions of fresh and final year undergraduates of the relevance of entrepreneurship study to science and technology education. This study is in contradiction with the explanation of Onwusu-Ansah and Poku, (2012) that it is possible that the high predisposition, as well as the overwhelming perception of desirability of business start-ups by undergraduates in-between their first year and after graduation, is partly attributed to the exposure to entrepreneurship education.

Results of the study also indicate that there is a high percentage of perceived relevance of entrepreneurship study to science technology e and education by science undergraduates in both federal and state universities. This shows that there is no significant difference between the perceptions of science and technology undergraduates in Federal and State universities. This implies that university status has no significant influence on the perceptions of undergraduates. This is in line with the results of the findings of Maria, Felipe and Mario, (2018) that shows that there is no evidence of a difference of the influence of public and private Brazilian university environments on entrepreneurial intentions of students, but they express the desire to learn about entrepreneurship.

## 8. Conclusion and Recommendations

The results of this investigation have clearly indicated that a high number of Science and Technology undergraduates perceived entrepreneurship study as relevant to their university education.

Based on the findings of this study, the following recommendations are offered:

- 1 Educators in science and technology related fields, should endeavour to make the presentations of their courses entrepreneurship-driven to the students/teachers
- 2 and start to de-bunk and re-orientate them on the old belief in paid employment.
- 3 The Federal Government should engage in strengthening universities-private sector collaboration with attention to science-related disciplines to facilitate entrepreneurship development in areas such as agriculture, medicine and exploitation of solid minerals etc.
- 4 Universities authorities should include sensitization on entrepreneurship in the programme of events during the orientation week for fresh undergraduates.

## References

Akhuemonkhan, I.A., Raimi, L. & Sofoluwe, A.O. (2013). Entrepreneurship education and employment stimulation in Nigeria. *Journal of Studies in Social Sciences*. 3(1), 56-73.



- Akpan, C. & Etor, C. (2013). University lecturers' perception of entrepreneurship education as an empowerment strategy for graduate self-employment in south-south Nigeria. *International Journal of Asian Social Science*. 3(5), 1181-1189.
- Akpomi, M.E. (2009). Achieving millennium development goals through teaching entrepreneurship education in Nigeria higher education institution. *European Journal of social sciences*. 8(1), 152-159.
- Alarape, A. A. (2008). On the road to institutionalizing entrepreneurship education in Nigerian universities. *International Journal of Management Education* 7(2), 85-86.
- Bamiro, O.A. (2012). *The Nigerian university system and the journey through the valley of death*. Convocation Lecture Delivered at the Ekiti State University. Ado- Ekiti: Petoa Education Publishers.
- Chen, F. and Liwen, C. (2019) Exploring the Entrepreneurial Intentions of Science and Engineering Students in China: A Q Methodology Study 11 (10), 10.3390/su1102751
- Garba, A. S. (2010). Refocusing education system towards entrepreneurship development in Nigeria: a tool for poverty eradication. *European Journal of Social Sciences* 15 (1), 145-149.
- Maria, R.M.B, Felipe, G.R, & Mario, D.C, (2018). RAUSP Management Journal, Volume 53(1), January–March 2018, Pages 122-133
- Oviawe, J.I. (2010). Repositioning Nigerian youth for economic empowerment through entrepreneurship education. *European Journal of Educational Studies*, 2(2), 114-118.
- Owusu-Ansah, W. & Poku, K. (2012). Entrepreneurship education, a panacea to graduate unemployment in Ghana. *International Journal of Humanity and Social Science* 2(15), 211-218.
- Tyler Darly (2018) what are 10 advantages of science and technology? Retrieved on 10th December, 2019 from <https://www.quora.com/What-are-10-advantages-of-science-and-technology>