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Entrepreneurship Education for Statistics Students on Establishment of Small-Scale Enterprises

Joseph Bamidele Odeyemi
Department of Statistics, Federal Polytechnic, Offa, Kwara State, Nigeria
bamidele12odeyemi@gmail.com

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Abstract

In Nigeria, excess labor is common everywhere which results in complete unemployment of some polytechnic graduates. This is the reason for entrepreneurial education in the polytechnic of Nigeria. Of note is that entrepreneurship education in the polytechnic has not adequately addressed job creation and infrastructural development due to poor teaching methods, inadequate laboratory equipment, and untrained facilitators. This paper examined methods used in delivering entrepreneurship education and skills to the student of Statistics. It aims to assess learning methods used in delivering entrepreneurship education to the student of statistics. Questionnaire as a data collection instrument was used. The entire 289 students in the Department of Statistics were involved in the study. Average weighted response and chi-square were the statistical tools used to analyze the data collected with the aid of the SPSS package. It was discovered that handout/manual was frequently used in an entrepreneurship class. To this end, entrepreneurship education should involve exhibitions, workshops, and seminars.

Keywords: Entrepreneurship, education, weighted response, job creation, skill.

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1. Introduction

The purpose of introducing entrepreneurship education in statistics in the polytechnic is to make polytechnic graduate employers of labor rather than job seekers. The fact that the supply of labor is more than the demand for it implies that there is an excess of labor in the labor market in Nigeria. Nigerians are now better informed than before of the need to acquire one or more skills that can sustain them and make them independent or self-sufficient. This has led to the introduction of entrepreneurship education into the polytechnic education curriculum.

The Federal Polytechnic, Offa, does not only have a center for entrepreneurship development but has introduced courses like the practice of entrepreneurship and essentials of entrepreneurship development to its curriculum.

According to Alegbeleye (2008), entrepreneurship is a process for creating, nurturing, and growing enterprises. The focus of entrepreneurial education then is to create a mindset in students in order to enhance capacity building, job creation, and infrastructural development. Education is the development of a person for the acquisition of information that translates to knowledge and skills to earn a living. Erkilla (2000) opined those entrepreneurial skills can be acquired through education and training. Therefore, the introduction of entrepreneurship education in tertiary institutions of learning is a measure to promote entrepreneurship (Burger, O'Neil, & Nahadea: 2005). Polytechnic is a learning institution where students are trained on how to acquire knowledge and skills. A polytechnic is expected to focus on delivering knowledge and skills for starting up an enterprise or venture.

The concept of entrepreneurial education is whether it is cognitive or otherwise. According to Vanishree (2013), entrepreneurs are special people who possess special qualities. Some of these qualities can be learned and taught to people. Entrepreneurial education involves teaching and learning entrepreneurial qualities and skills (Gouws, 2002). Entrepreneurial education in the Polytechnic is meant to raise an army of entrepreneurs from polytechnic who will be employers of labor. Bawauah, Buame, and Hinson (2006) claimed that any student who is taught entrepreneurship course in the polytechnic should have the ability to start his/her enterprise

Entrepreneurship education may be approached in different ways. The approach may be formal or informal. Formal education includes teaching and learning entrepreneurship skills in a classroom setting. The informal approach may come anyhow and in any form. In a formal setting, there are different methods of teaching/learning. Henry, Hill, and Leitch (2005) opined that learning methods in entrepreneurship education and training range from lecturing to the discussion, and presentation. The essence is to provide information and evidence on where and how to obtain financial and technical aids, as well as to impart necessary skills and knowledge that will enhance a business.

This paper aims to determine the learning methods used in entrepreneurship education as well as skills acquired by the student of Statistics. Meanwhile, the paper is divided into five sections. The first section is the introduction. The second section is a short review of entrepreneurship education. The third section focuses on the methodology. The fourth section discusses results, and section five is the conclusion and recommendations.

There are three hypotheses for this study.

- $H_{0;}$ There is no significant difference in the response of statistics students to entrepreneurship education.
- H_0 : There is no significant difference in the acceptability of entrepreneurship education.
- H_0 : There is no significant difference in the use of learning methods in entrepreneurship education.

2. Methodology

There are 289 students in the Department of Statistics for the survey year (2020/2021 session). This comprises 91 HND2, 84 HND1, 84 ND2, and 30 ND1 Students. All the 289 students were enumerated. Self-drafted questionnaires were distributed to all the students. ND1 students have not been taught entrepreneurship as a course at the time of this survey. The results of the survey were tabulated and analyzed using average weighted response (awr). Chi-square statistical tools were also used.

3. Results and Discussion

Teaching/Learning Methods used in Entrepreneurship Education

Test of Hypothesis 1

Lecture (Scale: SA=Strongly Agree, A= Agree, U= Undecided, D = Disagree, SD= Strongly disagree)

Table 1: Lecture Method (observed and expected responses)

Item	SA(5)	A(4)	U(3)	DA(2)	SD(1)	Total
High zeal of lecturers	28(51.8)	46(51.8)	34(51.8)	112(51.8)	39(51.8)	259
Lecturers are good professional teachers of entrepreneurship	35(51.8)	54(51.8)	60(51.8)	65(51.8)	45(51.8)	259

Lectures explicit and interesting	28(51.8)	58(51.8)	43(51.8)	90(51.8)	40(51.8)	259

Table 1 above depicts the observed and expected frequency. The student of the department disagrees with all the items. 112 out of 259 students disagree with the high zeal of lecturers, 65 out of 259 students disagree with the statement that lecturers are good professional teachers of entrepreneurship, and 90 out of 259 students disagree with the statement lectures are explicit and interesting.

For the first item: $x^2 = 90.8264$

For the second item: $x^2 = 11.6255$

For the third item: $x^2 = 44.0309$

Critical value at 4 df and 0.05 significance level is equal to 9. 49. Therefore, the null hypothesis is rejected. There are differences in the response patterns of students to entrepreneurship education for items 1, 2, and 3.

Group Discussion (Scale: SA=Strongly Agreed, A= Agreed, U= Undecided, D = Disagreed, SD = Strongly disagreed)

Table 2: Group discussion (observed and expected responses)

Item	**SA(5)**	**A(4)**	**U(3)**	**DA(2)**	**SD(1)**	**Total**
Discussions increase understanding	103(51.8)	62(51.8)	40(51.8)	6(51.8)	48(51.8)	259
Enhance student participation	75(51.8)	108(51.8)	51(51.8)	20(51.8)	5(51.8)	259
Enhance skills	97(51.8)	54(51.8)	77(51.8)	19(51.8)	12(51.8)	259

Table 2 above shows the observed and expected frequency. The student of the department agrees with all the items. 103 out of 259 students agree with the statement discussions increase understanding, 108 out of 259 students agree with the statement that discussion enhances student participation, and 97 out of 259 students agree with the statement discussions enhance skills.

For the first item: $x^2 = 96.0772$

For the second item: $x^2 = 133.1814$

For the third item: $x^2 = 103.1428$

Critical value at 4 df and 0.05 significance level is equal to 9. 49. Therefore, the null hypothesis is rejected, there are differences in the response patterns for items 1, 2, and 3.

Test of Hypothesis 2

Table 3: Average Weighted Response for Student Lectures

Item	**SA(5)**	**A(4)**	**U(3)**	**DA(2)**	**SD(1)**	**Total**
High zeal of lecturers	28(140)	46(184)	34(102)	112(224)	39(39)	2.6602
Lecturers are good professional teachers of entrepreneurship	35(175)	54(216)	60(180)	65(130)	45(45)	2.8803

Lectures explicit and interesting	28(140)	58(232)	43(129)	90(180)	40(40)	2.7838

The Average Weighted Response (AWR) for each item is less than 3 but above 2.5. No significant positive response towards entrepreneurship education.

Table 4: Average Weighted Response for Group Discussion

Item	SA(5)	A(4)	U(3)	DA(2)	SD(1)	AWR
Discussions increase understanding	103(515)	62(248)	40(120)	6(12)	48(48)	3.6409
Enhance student participation	75(375)	108(432)	51(153)	20(40)	5(5)	3.8803
Presentations enhance skills	97(485)	54(216)	77(231)	19(38)	12(12)	3.7915

Source: Field Survey, 2021

The Average Weighted Response (AWR) for each item is greater than 3 students who respond positively to entrepreneurship education.

Test of Hypothesis 3

Use of Teaching Aids (Scale: A=Always, F= Frequently, O= Occasionally, R= Rarely, N= Never)

Table 5: Average Weighted Response for Teaching Aids

Academic Level	A (5)	F (4)	O (3)	R (2)	N (1)	AWR
HND2	11 (55)	10 (40)	24 (72)	31 (62)	15 (15)	2.6813
HND1	8 (40)	10 (40)	14 (42)	34 (68)	18 (18)	3.5476
ND2	2 (10)	5 (20)	23 (69)	30 (60)	24 (24)	2.1786
AWR						2.8025

Source: Field Survey, 2021

The Average Weighted Response (AWR) in HND1 is less than 3 there is no significant use of teaching aids in that class as the Total Average Weighted Response {TAWR} is less than 3, the null hypothesis cannot be rejected meaning that there is no significant use of teaching aids in the statistics department.

Use of Handout and Manual (Scale: A=Always, F= Frequently, O= Occasionally, R= Rarely, N= Never)

Table 6: Average Weighted Response for Handout/Manual

Academic Level	A (5)	F (4)	O (3)	R (2)	N (1)	AWR
HND2	38 (190)	33 (132)	20 (60)	0 (0)	0 (0)	4.1978
HND1	45 (225)	30 (120)	9 (27)	0 (0)	0 (0)	4.4286
ND2	51 (255)	30 (120)	3 (9)	0 (0)	0 (0)	4.5714
AWR						4.3993

Since the Average Weighted Response (AWR) in each of the programme levels is greater than 3 and the Total Average Weighted Response {TAWR} is also greater than 3, then the null hypothesis is rejected meaning that there is significant use of handout/manual in the department.

Use of Audio-Visual Material (Scale: A=Always, F= Frequently, O= Occasionally, R= Rarely, N= Never)

Table 7: Average Weighted Response for Audio- Visual Materials

Item	A (5)	F (4)	O (3)	R(2)	N (1)	AWR
HND2	0 (0)	0 (0)	2 (6)	65 (130)	24 (24)	1.7582
HND1	0 (0)	0 (0)	0 (0)	70 (140)	14 (14)	1.8333
ND2	0 (0)	0 (0)	0 (0)	2 (4)	82 (82)	1.0238
AWR						1.5384

Since the Average Weighted Response (AWR) in each of the programme levels is less than 3 and the Total Average Weighted Response {TAWR} is also less than 3, then the null hypothesis cannot be rejected meaning that there is no significant use of audio-visual material in all the department.

Use of Workshops and Seminars (Scale: A=Always, F= Frequently, O= Occasionally, R= Rarely, N= Never)

Table 8: Average Weighted Response for workshops and Seminars

Programme level	A (5)	F (4)	O (3)	R(2)	N(1)	AWR
HND2	5 (25)	2 (8)	67 (201)	14 (28)	3 (3)	2.9121
HND1	0 (0)	1 (4)	76 (228)	8 (16)	0 (0)	2.9524
ND2	0 (0)	0 (0)	61 (183)	23 (46)	0 (0)	2.7262
AWR						2.8636

Since the Average Weighted Response (AWR) in each of the programme levels is less than 3 and the Total Average Weighted Response {TAWR} is also less than 3, then the null hypothesis cannot be rejected meaning that there is no significant use of workshops/seminars. These values are greater than 2.5.

Use of Exhibition (Scale: A=Always, F= Frequently, O= Occasionally, R= Rarely, N= Never)

Table 9: Average Weighted Response for Exhibition

Programme level	A(5)	F (4)	O(3)	R(2)	N(1)	AWR
HND2	0 (0)	0 (0)	49 (147)	29 (58)	13 (13)	2.3956
HND1	0	0	0	20 (40)	64 (64)	1.2381
ND2	0	0	0	41 (82)	43 (43)	1.4881
AWR						1.7073

The Average Weighted Response (AWR) in each of the programme levels is less than 3 and the Total Average Weighted Response {TAWR} is also less than 3, the null hypothesis cannot be rejected. This means that there is no significant use of exhibition in all the programme levels.

Research question number 1

Table 10: Combination of responses for student lectures

Combined Responses		
A	U	D
74(28.6%)	34 (13.1%)	151 (58.3%)
89 (34.4%)	60 (23.2%)	111 (42.9%)
86 (33.2%)	43 (16.6%)	130 (50.2%)

In all 131 (50.5%) disagreed with the items of the questionnaire. It cannot be decided whether the students respond positively or negatively towards entrepreneurship education.

Table 11: Combination of student responses for group discussion

Combined Responses		
A	U	D
165 (67.7%)	40 (15.4%)	54 (20.8%)
183 (70.6%)	51 (19.7)	25 (9.7%)
151 (58.3%)	77 (27.7)	31 (12%)

Source; Field Survey, 2021

In all 166 (64%) agreed with items of the questionnaire. This shows that students have a positive response towards entrepreneurship education.

Effect of Entrepreneurship Education

Table 12: Skill Acquisition

Skills	**HND2 (%)**	**HND1 (%)**	**ND2 (%)**	**%**
Networking and Communication	15 (16.5)	32 (38.1)	34 (40)	31.3
Technical l	85 (93.4)	49 (58.3)	63 (75)	76.1
Administrative/Leadership	56 (61.5)	50 (59.5)	58 (69)	63.3
Can identify opportunity/customers need	32 (35.2)	30 (35.7)	21 (25)	32
Can register business	13 (14.3)	18 (21.4)	0 (0)	12
Can write acceptable business proposal	3 (3.3)	2 (2.4)	0 (0)	1.9
Can start small business	71 (78)	68 (81)	35 (41.7)	67.2
Can take risk	46 (50.5)	35 (41.7)	16 (19.1)	37.5
%	44.1	42.3	33.8	40.2

Of the 259 students surveyed 40.2 percent of students acquired one kind of entrepreneurship skill or the other. 44.1 percent of the 91 HND2 students, 42,3 percent of the 84 HND1 students, and 33.3 percent of the ND2 students acquired entrepreneurship skills.

Table 13: Challenges of Students in Acquiring Entrepreneurship Education and Skills in the Polytechnic

Challenges	**HND2(%)**	**HND1(%)**	**ND2(%)**	**%**
Awareness and enlightenment	53 (58.2)	39 (46.4)	46 (54.8)	53.3
Electricity	72 (79.1)	77 (91.7)	63 (54.7)	81.9
Finance	90 (98.9)	84 (100)	84 (100)	99.6
Documentation/Archives	91 (100)	84 (100)	83 (98.8)	99.6
Timeliness	76 (83.5)	47 (56)	66 (78.6)	73
Laboratory/Equipment	90 (98.9)	84 (100)	84 (100)	99.6
Class Size/space	82 (90.1)	67 (79.8)	61 (72.6)	81.1
%	87	82	82.8	84

84 percent of the students affirmed the existence of a different form of challenges confronting the students in entrepreneurship education. Of this 87 percent of the 91 HND2 students, 82 percent of the 84 HND1 students, and 82,8 percent of the 84 ND2 students claimed to have challenges.

5. Conclusion

From the above, it can bed conclude that handouts and manuals are popularly used in the teaching and learning of entrepreneurship in the department. This is grossly inadequate for the student to acquire entrepreneurship skills after graduation. Therefore, other ways of acquiring knowledge should be involved.

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