Journal of
Education and Practice
(JEP)

Promoting Innovation, Creativity and Entrepreneurship Skills in Science Education Students: A Panacea for Employability

Agommuoh, P. Chinyere and Ndirika, M. C

CARI Journals

Journal of Education and Practice
ISSN 2520-467X (online)
Vol.4, Issue No.3, pp 44 – 55, 2020
www.carijournals.org

Promoting Innovation, Creativity and Entrepreneurship Skills in Science Education Students: A Panacea for Employability

[1*]Agommuoh, P. Chinyere.
Department of Science Education,
Michael Okpara University of Agriculture, Umudike Nigeria
Corresponding Author's E-mail:**agomuohchinyere@yahoo.com**
[2]Ndirika, M. C.
Department of Science Education,
Michael Okpara University of Agriculture, Umudike. Nigeria.

Abstract

Purpose: The purpose of this study is to investigate how science teachers can teach science education students in order to promote innovative, creative and entrepreneurship skills in them to enable them become employable in the labour market. Unemployment in Nigeria is a time bomb waiting to explode at any time except proper and effective interventions is put in place to mitigate the impact of high youth unemployment. This paper uses descriptive survey research design. The population of the study is all the 933 science education students in the Department of Science Education of Michael Okpara University of Agriculture, Umudike.

Methodology: A simple random sampling technique was used to sample 100 (80 males and 70 females) science education students. Three research questions and three hypotheses that were tested at 0.05 level of significance guided the study. The instrument for data collection was the researcher's developed questionnaire of the four-point Likert Scale type of Strongly Agree (SA), Agree(A), Disagree(D) and Strongly Disagree (SD) which are rated 4, 3, 2 and 1 respectively. The instrument was validated and its coefficient of reliability obtained as 0.89. Data collected were analyzed using mean to answer the research questions and t- test to analyze the hypotheses.

Findings: The results obtained indicated that teaching science students in such a way that they will be able to make use of facilitation technique that allows for sharing ideas and freedom to innovate; develop skills for accessing funds and accounting; develop critical skills that will enhance innovative ideas; develop collaborative skills needed for joining cooperative societies like producer and consumer cooperative and develop the ability to organize and build network are some of the things the science teacher should do to promote innovation, creativity and entrepreneurship skills in science students.

Unique Contribution to theory, practice and policy: Based on the findings, it was therefore recommended that science education students should be taught science properly so that they can develop critical skills to enhance their innovative ideas. Also, science students should be taught science in a way that will help them develop collaborative skills needed for joining and organizing cooperative societies.

Keywords: *Science Education. Innovation, Creativity and Entrepreneurship skills*.

1.0 INTRODUCTION

The increase in graduate unemployment has become a national concern. This according to Oppong & Sachs (2015) is a challenge most economies are facing under the current economic circumstances. In Nigeria, graduate unemployment is a very big challenge to the labour market. Stressing this Akintoye (2008) indicated that graduate unemployment as a percentage of total unemployment rose in Nigeria from 1% in 1974 to 4% in 1984. Supporting this, Dabalen, Oni &Adekola (2000) stated that between 1992 and 1997, graduate unemployment is accounted for 32% of the unemployed labour force in Nigeria. Recent publication supplied by National Bureau of Statistics (2016) indicated that a total of 52million citizens within the economically active population of Nigeria are jobless and this figure consisted mostly of newly qualified university graduates. Statistics from Manpower Board and the Federal Bureau of Statics showed that Nigeria has a youth population of 80 million which represents 60% of the total population of the country (Awogbenle&Iwuamadi, 2010). Awogbenle and Iwuamadi (2010) went further to explain that out of this 80 million, 64 million of them are unemployed while 1.6 million are under – employed. The implication is that the tree of unemployment is growing very fast in Nigeria and there is the need for the youth to be trained to possess innovative, creative and entrepreneurship skills for them to be self-employed and be able to carter for themselves. Hence the need for the study.

To totally address the issue of unemployment in Nigeria, there is a great need for the acquisition of innovative, creative and entrepreneurial skills for employable individuals. These skills may not be properly acquired without the knowledge of science education. Science education according to European Commission (2015), prepares students to be actively engaged and responsible citizens, creative and innovative, able to work collaboratively and fully aware of and conversant with the complex challenges facing society. The knowledge of science helps in explaining and understanding the world around us. Science education according to European Commission (2015) is very important in promoting a culture of scientific thinking and inspiring citizens to use evidence-based reasoning for decision making. Science education also ensures that citizens have the confidence, knowledge and skills to participate actively in an increasingly complex scientific and technological world. It also helps students develop the competencies for problem- solving and innovation, as well as analytical and critical thinking that are necessary to empower citizens to lead personally fulfilling, socially responsible and professionally-engaged lives therefore inspiring children and students of all ages and talents to aspire to careers in science and other occupations. This also leads students to professions that underpin their knowledge and innovation-intensive thereby making them creative and accomplished. Some of the goals underlying science curriculum and instruction include;

i. Science education should develop a fundamental understanding of, and ability to use, the methods of scientific inquiry (Scientific Method).
ii. Science education should prepare citizens to make responsible decisions concerning science-related social issues (Social Issues).
iii. Science education should contribute to an understanding and fulfillment of personal needs, thus contributing to personal development (Personal Needs).
iv. Science education should inform students about careers in the sciences (Career Awareness).
v. Science education should cause children to understand the importance of evidence when making decisions and to be able to judge whether the claims of the media, advertisers, politicians, journalists, etc., are evidence-based and reliable.
vi. Science education should give pupils enough evidence-based knowledge to be able to make informed personal judgments in order to lead healthy, safe, comfortable and environmentally sustainable lives.
vii. Science students should be proficient at practical work, use of scientific equipment efficiently to know, understand at an abstract level, and be able to apply important scientific theories.

The implication of this according to Enukoha (2002) and Uka (2006) is that scientists and science education students must be persistent, self-confident and patient, inquisitive, thorough, competent, risk-taker, resourceful, rationalization of every act, optimistic, realistic, systematic, determined, very hardworking and resilience. This is why Adeyemo (2009), opined that the 21st century science teachers need to understand and appreciate the dependence of a modern society in science and the changes we now have in the society due to the advent of science and technology. Also, science teachers should understand the social use of innovative, creative and entrepreneurial skills in their day to day science affairs in the classroom, outside the classroom and in the society at large.

According to Mbanefo and Eboka (2017), innovativeness is the ability of introducing or using new ideas or ways of doing things. The process of innovation involves thinking creatively; using imagination to manipulate instruments or variables, to formulate models, to discover possibilities, and to construct objects and images that never existed before. Innovation can be a change made in established laws and practices by the introduction of something new, with the purpose of improving quality, quantity, output, or procedures (Mbanefo&Eboka, 2017). Throwing more light, Mbanefo and Chiaha (2014) stated that innovative learning environments focus on the facilitation and utilization of new knowledge acquisition modes, adoption of problem-solving strategies, integration of knowledge from diverse sources, utilization of self-directed learning, and knowledge extension through elaborate creative expression. Innovation is the process of translating an idea or an invention into good or service that can create value for which customers will pay. An idea must be replicable at an economical cost and must satisfy a specific need for it to innovative. This means that innovation involves deliberate application of information, imagination and initiative in deriving greater or different values from resources, and includes all processes by which new ideas are generated and converted into useful products.

While innovation is the implementation of something new, creativity is the capability or act of conceiving something original or unusual. Creativity is thinking new things, the ability to develop new ideas and to discover new ways of looking at problems and opportunities. Creativity according to Ripple (1999) is believed to be a combination of abilities, skills, motivation, attitudes and other factors. This is why Plucker and Runco (1999) believe that techniques for enhancing creativity involved divergent thinking and general problem-solving heuristics. Creativity is not only the ability to come up with new ideas but also narrowly down those ideas to focus on one that can be elaborated (Ndirika&Agommuoh, 2014). Creativity involves two processes: thinking and then producing. Torrance (1990) explained that the core components of divergent thinking are fluency (generating a large numbers of ideas), flexibility (generating ideas of different approaches), novelty (generating unusual ideas) and elaborating (generating ideas in detail). According to Williams (1980), curiosity, imagination, challenge- taking and risk-taking attitudes are very conducive to creativity development and motivational factors like interest, confidence and value in creative thinking are also important determine of divergent thinking.

An entrepreneur according to Ugwoke and Abidde, (2014) is one who undertakes the risk of organizing, managing a business, looks inward into his/her environment to identify problems confronting people (or business opportunities) and introduces new products and services for the purpose of making profit. Entrepreneurship could therefore be seen as the act of identifying, initiating, organizing, and bringing an idea or vision to life, be it a new product, service, process, strategy, or market (Mbanefo and Eboka (2017). This means that it is all about self-employment, which is very important for improving an individual's quality of life and national development. It is therefore imperative that science teachers need to understand and acquire the basic innovative, creative and entrepreneurial skills that will make science students function effectively in and outside the school setting. Based on this, science teachers need to teach science students science in such a way that they will promote some essential innovative, creative and entrepreneurial skills in the students. These skills according to Adeyemo (2009) include: instructional leadership skills, management skills, communication skill, collaboration skill, vision development skills, change management skills, analysis skills, process skills, evaluation skills and parsimony/economy skills. Other skills are innovative skills of being independent, imaginative and creative thinkers, critical thinking skills, decision making skills, team building skills etc. There is therefore the need to identify strategies and ways that the science education teachers can teach science education students to promote innovative, creative entrepreneurial skills in their students in order to make them employable. Various strategies have been identified to help in promoting innovative, creative and entrepreneurial skills in science education students and these include science teachers teaching science education students in such a way that they can develop skills for using new ideas of doing things, develop problem solving skills, make use of facilitation technique that allows for sharing ideas and freedom to innovate, develop collaborative skills needed for joining cooperative societies like producer and consumer cooperative, have the ability to organize and build network, be constructively inquisitive, formulate ideas that have values to them, challenge established wisdom by asking: how would I improve this, be willing to take sensible risks or go out of their comfort zone in their work, be very curious, have strong work ethics, self control and discipline, develop creative thinking skills and manage risk effectively. Based on this, there is a need to promote innovation, creativity and entrepreneur skills in science education students. Hence the study.

The purpose of this study therefore is to investigate the way science teachers can teach science education students to promote innovation, creative and end entrepreneur skills in them.

1.1 Research Questions

The following research questions guided the study

i. What are the mean assessment scores of science education students on the things the science education teachers can do to promote innovative skills in them?
ii. What are the mean assessment scores of science education students on the things the science education teachers can do to promote creative skills in them?
iii. What are the mean assessment scores of science education students on things the science education teachers can do to promote entrepreneur skills in them?

1.2 Hypotheses

The following hypotheses guided the study and are tested at 0.5 level of significance

i. There is no significant difference in the mean assessment scores of male and female science education students on the things the science education teachers can do to promote innovative skills in science students.
ii. There is no significant difference in the mean assessment scores of male and female science education students on the things the science education teachers can do to promote creative skills in science students.
iii. There is no significant difference in the mean assessment scores of male and female science education students on the things the science education teachers can do to promote entrepreneur skills in science students.

2.0 METHODOLOGY

The study adopted the descriptive survey design to investigate how science teachers can teach science education students in order to promote innovative, creative and entrepreneurship skills in them for them to be employable in the labour market. The population of the study is all the 933 science education students in the Department of Science Education of Michael Okpara University of Agriculture, Umudike. A simple random sampling technique was used to sample 100 (80 males and 70 females) science education students. Three research questions and three hypotheses that were tested at 0.05 level of significance guided the study. The instrument for data collection was the researcher's developed questionnaire of the four point Likert Scale type of Strongly Agree (SA), Agree(A), Disagree(D) and Strongly Disagree (SD) which are rated 4, 3, 2 and 1 respectively.The instrument was validated and its coefficient of reliability obtained as 0.89. Data collected were analyzed using mean to answer the research questions and t- test to analyze the hypotheses.

Journal of Education and Practice
ISSN 2520-467X (online)
Vol.4, Issue No.3, pp 44 – 55, 2020
www.carijournals.org

3.0 RESULTS

The findings got are represented in the tables below

Table 1: Mean scores of students' assessment of what science teachers should do to promote innovative skills in science education students

S/N	ITEM	SA	A	D	SD	X	Remark
1	Acquire innovative skills of being independent, imaginative and creative thinkers	64	28	1	7	3.49	Agree
2	Develop skills for using new ideas of doing things	65	34	0	1	3.63	Agree
3	Develop skills for idea formulation	42	54	4	0	3.38	Agree
4	Think critically	60	33	2	5	3.48	Agree
5	Develop problem solving skills	61	35	2	2	3.55	Agree
6	Acquire managerial skill for establishing, managing and sustaining business, e.g. for record keeping like inventory of production, sales, purchase and profit and loss account	50	44	6	0	3.44	Agree
7	Make use of facilitation technique that allows for sharing ideas and freedom to innovate	47	42	8	3	3.33	Agree
8	Develop critical skill that will enhance innovative ideas	44	51	3	2	3.37	Agree
9	Develop collaborative skills needed for joining cooperative societies like producer and consumer cooperative	38	54	4	4	3.26	Agree
10	Develop decision making skills	57	39	2	2	3.51	Agree
11	Develop team building skills	38	51	8	3	3.24	Agree
12	Have the ability to organize and build network	32	52	11	5	3.11	Agree
13	Develop skill for accessing funds and accounting	38	48	13	1	3.23	Agree

Where X is the mean score.

Result in Table 1 clearly showed that all the items had mean scores greater than 2.50 which is the mean value of the four-point scale used for the study. The table also showed that all the students agreed that all the twelve items listed above are the things the science teachers can do to promote innovative skills in science students.

Table 2: Mean scores of students' assessment of what science teachers should do to promote creative skills in science education students

S/N	ITEM	SA	A	D	SD	X	Remark
1	Be constructively inquisitive	51	47	2	0	3.49	Agree
2	Formulate ideas that have values to them	47	51	2	0	3.45	Agree
3	Be confident in the validity of their own view point	54	43	1	2	3.49	Agree
4	Be open to new ideas	50	46	3	1	3.45	Agree
5	Have insights into sustainable development trends and knowledge on how to use them to their creative or entrepreneur advantage	52	44	4	0	3.48	Agree
6	Promote their creative problem-solving skill that could potentially address sustainability-based issues	53	44	3	0	3.5	Agree
7	Harness their imagination	44	46	8	2	3.32	Agree
8	Be motivated and ambitious for change for the better	47	49	2	2	3.41	Agree
9	Be able to apply creative process to other situations	46	49	2	3	3.38	Agree
10	Be able to lead and work well with others	48	44	5	3	3.37	Agree
11	Be able to identify and solve problems	55	38	3	4	3.44	Agree
12	Develop and apply a set of skills that they can use in the creative process eg. being able to: clarify, analyze, and redefine the problem or question to uncover new ways of looking at it	51	45	2	2	3.45	Agree
13	Ask thoughtful questions	49	44	4	3	3.39	Agree
14	Notice connections between seemingly unrelated subject matter	43	46	6	5	3.27	Agree
15	Challenge established wisdom by asking: how would I improve this	53	41	4	2	3.45	Agree
16	Recognize alternative possibilities	45	51	3	1	3.4	Agree
17	Look at things from different perspectives	47	52	0	1	3.45	Agree
18	Beware of their own skills, both strength and limitations	46	46	6	2	3.36	Agree
19	Think of a range of different strategies or approaches to use in response to a problem or question	41	53	4	2	3.33	Agree
20	Plan which approach to use	45	51	2	2	3.39	Agree
21	Monitor their work, and being flexible enough to change a different approach if necessary	47	48	3	2	3.4	Agree
22	Critically evaluate their work at appropriate points	48	50	1	1	3.45	Agree

Result in Table 2 clearly showed that all the items had mean scores between 3.27 and 3.50 which is greater than 2.50 which is the mean value of the four-point scale used for the study. The table also showed that all the students agreed that all the twenty- two items listed above are things the science teachers can do to improve creative skills in science education students.

Table 3: Mean scores of students' assessment of what science teachers should do to promote entrepreneur skills in science education students

S/N	ITEM	SA	A	D	SD	X	Remark
1	Have understanding and competence on how to align business strategies with macro level social and environmental priorities	49	44	2	5	3.37	Agree
2	Promote their self-directed continuous education in advancing sustainable business goals and the importance of lifelong learning in other to be a frontrunner of innovative thinking and creative problem solving for sustainable development	47	51	0	2	3.43	Agree
3	Be willingly to take sensible risk or go out of their comfort zone in their work	47	49	1	3	3.4	Agree
4	Be very curious	50	43	6	1	3.42	Agree
5	Be good time managers	57	41	1	1	3.54	Agree
6	Develop strategic thinking skills	57	39	2	2	3.51	Agree
7	Be resilient and persistent	47	45	6	2	3.37	Agree
8	Have good communication skill	51	41	6	2	3.41	Agree
9	Grow a network business opportunity	41	50	7	2	3.3	Agree
10	Have awareness on how local action impact global situation and, in turn, how global challenges should be solved locally	42	51	6	1	3.34	Agree
11	Develop creative thinking skills	52	43	2	3	3.44	Agree
12	Have leadership skills	59	35	5	1	3.52	Agree
13	Have strong work ethics	48	48	3	1	3.43	Agree
14	Be self-control and discipline	61	36	1	2	3.56	Agree
15	Manage risk effectively	54	43	2	1	3.5	Agree

Result in Table 3 clearly showed that all the items had mean scores greater than 2.50 which is the mean value of the four-point scale used for the study. The table also showed that all the students agreed that all the fifteen items listed above are things the science teachers can do to improve entrepreneur skills in science education students.

Table 4: Summary of t-test scores of male and female science students' assessment of what science teachers should do to promote innovative skills in science education students.

SEX	N	Mean	SD	Df	t-cal	t-crit	level of Sig.	Remarks
Male	48	3.37	0.33		-0.596	1.96	0.05	Significant
Female	52	3.41	0.34	98				

Table 4 showed that the calculated t-value 0f 0.596 is less than the critical t-table value of 1.96 at 0.05 level of significance. The null hypothesis is therefore not rejected as postulated. Thus, there is no significant difference in the mean assessment scores of male and female science education students on the things the science education teachers can do to promote innovative skills in science students.

Table 5: Summary of t-test scores of male and female science students' assessment of what science teachers should do to promote creative skills in science education students.

SEX	N	Mean	SD	Df	t-cal	t-crit	level of Sig.	Remarks
Male	48	3.38	0.27		-1.089	1.96	0.05	Significant
Female	52	3.45	0.34	98				

Table 5 showed that the calculated t-value 0f -1.089 is less than the critical t-table value of 1.96 at 0.05 level of significance. The null hypothesis is therefore accepted. Thus, there is no significant difference in the mean assessment scores of male and female science education students on the things the science education teachers can do to promote creative skills in science students.

Table 6: Summary of t-test scores of male and female science students' assessment of what science teachers should do to promote entrepreneur skills in science education students.

SEX	N	Mean	SD	Df	t-cal	t-crit	level of Sig.	Remarks
Male	48	3.42	0.28		-0.521	1.96	0.05	Significant
Female	52	3.46	0.46	98				

Table 6 showed that the calculated t-value 0f -0.521 is less than the critical t-table value of 1.96 at 0.05 level of significance. The null hypothesis is therefore not rejected as postulated. Thus, there is no significant difference in the mean assessment scores of male and female science education students on the things the science education teachers can do to promote entrepreneur skills in science students.

4.0 DISCUSSION

Result in Table 1 clearly showed that all the students agreed that all the thirteen items listed above are ways the science teachers can promote innovative skills in their students in the course of teaching. Specifically, science teachers in teaching their students science should help promote innovative skills in them by helping them to develop skills for using new ideas of doing things, develop problem solving skills, acquire managerial skill for establishing, managing and sustaining business, eg. for record keeping like inventory of production, sales, purchase and profit and loss account, develop critical skill that will enhance innovative ideas, develop decision making skills, have the ability to organize and build network and even think critically. This result is in agreement with Mbanefo and Eboka (2017), who opined that innovativenessis the ability of introducing or using new ideas or ways of doing things, a process that involves thinking creatively, using imagination to manipulate instruments or variables, and to construct objects and images that never existed before. This is also in line with the opinion of Mbanefo and Chiaha (2014) who stated that innovative learning environments focus on the facilitation and utilization of new knowledge acquisition modes, adoption of problem-solving strategies, integration of knowledge from diverse sources, utilization of self-directed learning, and knowledge extension through elaborate creative expression.

Result in table 2 showed that all the students agreed that all the twenty-two items listed above are ways the science teachers can promote creative skills in their students in the course of teaching. Such ways teachers can help science students promote creative skills in them includes helping the students to be constructively inquisitive, formulate ideas that have values to them, be confident in the validity of their own view point, be open to new ideas, have insights into sustainable development trends and knowledge on how to use them to their creative or entrepreneur advantage, be motivated and ambitious for change for the better, ask thoughtful questions and even critically evaluate their work at appropriate points. This is in line with Ripple (1999) who believes that creativity is a combination of abilities, skills, motivation, attitudes and other factors. This is also in agreement with Williams (1980), who opined that curiosity, imagination, challenge- taking and risk-taking attitudes are very conducive to creativity development and motivational factors like interest, confidence and value in creative thinking are also important determine of divergent thinking.

Table 3 clearly showed that all students agreed that all the fifteen items listed above are ways the science teachers can promote entrepreneur skills in their students in the course of teaching. The implication is that the science teacher can help science students promote their entrepreneur skills by teaching them science in such a way that they will have understanding and competence on how to align business strategies with macro level social and environmental priorities, promote their self-directed continuous education in advancing sustainable business goals and the importance of lifelong learning in other to be a frontrunner of innovative thinking and creative problem solving for sustainable development, be willingly to take sensible risk or go out of their comfort zone in their work, be very curious, have awareness on how local action impact global situation and, in turn, how global challenges should be solved locally, be resilient and persistent, grow a network business opportunity and manage risk effectively among others. This also is in agreement with Ugwoke and Abidde, (2014) who stressed that an entrepreneur is one that undertakes the risk of organizing, managing a business, looks inward into his/her environment to identify problems confronting people (or business opportunities) and introduces new products and services for the purpose of making profit. The result is also in line with Adeyemo (2009) who stated that entrepreneur skills include: instructional leadership skills, management skills, communication skill, collaboration skill, vision development skills, change management skills, analysis skills, process skills, evaluation skills and parsimony/economy skills.

Tables 4, 5, and 6 have t-cal to be -0.596, -1.089, and -0.521 respectively. This shows that the t-calculated is less than the t-table of 1.96. The implication of this is that all the students both male and female agreed that all the items listed are ways the science teacher can promote innovative, creative and entrepreneur skills in science students. This means that gender does not play any role.

5.0 CONCLUSION AND RECOMMENDATIONS

The acquisition of innovative, creative and entrepreneurial skills by science students is a very important especially now that there is an increase in unemployment of school leavers. For science students to be employable after their course of study, science teachers have to employ some pedagogical strategies to teach science in a way that can promote innovative, creative and entrepreneurial skills in the learners. Based on the findings of this study the following recommendations are made:

1. Innovative, creative and entrepreneurial skills education should be incorporated in the science curriculum science education students. This will help prepare these students for the labour market after graduation.
2. Science teachers should be trained on ways to teach science education students to promote innovative, creative and entrepreneurship skills in them.
3. Workshops, seminars and conferences should be regularly organized for science teachers for them to improve themselves and update their knowledge on ways they can promote innovative, creative and entrepreneurship skills in their students
4. Government should provide infrastructural facilities in our secondary schools for science teachers to be able to meet up with the demands of teaching science to arouse the interest of students.

REFERENCES

Adeyemo, S. A. (2009). Understanding and Acquisition of Entrepreneurial Skills: A Pedagogical Re- Orientation for Classroom Teacher in Science Education (57-65).

Akintoye, I. (2008)., Reducing Unemployment through the Informal Sector A case study of Nigeria. European Journal of Economics, Finance and Administrative Science. 1(1), pp97- 106.

Awogbenle, A.C. &Iwuamadi, K.C. (2010). Youth Unemployment: Entrepreneurship

Developmen Programme as an Intervention Mechanism. African Journal of Business Management, 4(6), 831-835.

Dabalen, A., Oni, B. &Adekola, O. (2000)., Labour Market Prospects for University Graduate in Nigeria., Higher Education Management. 14 (1) pp1-36.

Enukoha, O. I. (2002). Security as vocation. Scientific method and the development of security consciousness in the Nigerian Hotel Industry. Calabar; African Journal of Vocational

Education 2(1).

European Commission (2015). Commission Staff Working Document. Turkey 2015 Report.

Mbanefo, M.C. &Chiaha, G.T. (2014). Curriculum innovations in science and technology for quality, relevance sustainability in teacher education in Nigeria. In: Onyegaegbu N & Eze U. (Eds.), Teacher Education in Nigeria: Quality, Relevance and Sustainability. Nsukka:Institute of Education, UNN. pp. 74-85.

Mbanefo, M. C. &Eboka, O. C. (2017). Acquisition of Innovative and Entrepreneur Skills in

Basic Science Education for Job Creation in Nigeria. Journal of International Council of Association for Science Education. Pp 207- 213

National Bureau Statistics (2016). Unemployment and Underemployed Watch in Nigeria (Quarter 4) National Bureau of Statistic, Publication, Abuja, Nigeria.

Ndirika, M. C. &Agommuoh, P. C. (2014). Identification of Factors influencing Science Teachers Creativity in Abia State Secondary Schools. Proceedings of the 55th Annual Conference of the Science Teachers Association of Nigeria (STAN). Pp 127-134.

Oppong, S. & Sachs, S. (2015)., Managing Graduate Unemployment in Emerging Economies Critical Analysis of the Skill Mismatch and Over Supply Theses. JEL poslovnaizvrsnost Zagreb, God, ix, vol 1.JEL classification, May, pp125-135.

Plucker, J. A., & Runco, M. A. (1999). Enhancement of Creativity. In Runco, M. A. (Edu), Encyclopedia of Creativity, 1, 669-675.

Ripple, R.E. (1999). Teaching creativity. In Runco, M. A. (Ed), Encyclopedia of Creativity, 2, 629- 638.

Torrance, E. P. (1990). Torrance tests of creative thinking. Bensenville, IL: Scholastic Testing Service.

Ugwoke, S.C &Abidde, E. (2014). Entrepreneurial skill development in basic education for wealth creation. International Journal of Educational Research, 13(1), 65-80.

Uka, N. K. (2015). Developing Entrepreneurial Skills in Secondary School Students through Effective Mathematics Education in Aba Nigeria. International Journal of Education Learning and Developing. 3 (7) 1-11.

Williams, F. E. (1980). Creativity assessment packet. East Aurora, N.Y: DOK.