RELEVANCE OF BASIC SCIENCE CURRICULUM FOR ENTREPRENEURSHIP SKILLS ACQUISITION

Dr. Winifred Chidimma Onwuachu and Dr. Patience O. Okoye

Abstract

This study investigated the relevance of Basic Science Curriculum for Entrepreneurship skills Acquisition. A descriptive survey was used. The population was all the 300 Basic Science Teachers in 261 states owned Secondary School’s Six Education Zones of Anambra State. All the 300 Basic Science Teachers were used for the study since the population was considered not large enough for sampling. Three research questions and one hypothesis guided the study. Data was collected using a 26-item questionnaire developed by researchers. A reliability of 0.84 was established for the instrument using Cronbach Alpha techniques. Mean was used to answer research questions and t-test statistic was used to test the hypothesis at P < 0.05. Results showed among others, that basic science curriculum is relevant for entrepreneurship skills acquisition and innovative teaching strategies foster entrepreneurship skills acquisition. Based on the findings, recommendations were made among which were that entrepreneurial skills of Basic Science Curriculum should be vigorously emphasized to make recipients self-reliant and saleable in the society and that teachers should use teaching strategies that foster entrepreneurship skills instead of relying so much on lecture method.

The National Policy on Education, (NPE), (2004) recognizes education as instrument per excellence for individual and national development. In Nigeria as it is in world over, education is an inalienable right of every child. Through education, every child is expected to acquire desirable and functional knowledge, develop appropriate skills both intellectual and physical as well as positive attitude and values necessary to live successfully and become a useful member of the society. The over-all purpose of basic education is to produce a literate society in which the individual can apply their literacy in terms of knowledge, skills and values to enhance their survival. Technology plays a fundamental role in wealth creation, improvement of the quality of life, real economic growth and transformation of the society. Technology is the primary engine of economic growth and provides the key to unlocking the country’s potentials (Egbogha, 2007). Where this engine for development and economic growth fails, it always results in serious social, economic and developmental problems. These problems among others include unemployment, poverty and underdevelopment.

In Nigeria, the growing problem of unemployment in the country has contributed largely to the worsening problem of poverty among the populace. Nigeria is one of the African countries faced with economic and political problems (Nwachukwu, 1998). These problems have given rise to the depreciation of naira, high rate of unemployment, crime, poverty, hunger and frustration. Olaitan, (1996), stated that unemployment leads to frustration and disillusionment which may result in crimes or drug abuse in a futile attempt to escape from and forget the pains and humiliation of poverty and lack. The problem of unemployment has worsened as millions of school leavers and graduates of tertiary institutions have not secured gainful employment over the years. Many able bodied persons who could not secure gainful employment have remained economically dependent on their parents'. This is because they lack the necessary occupational skills to be self-employed and to effectively function in today's world of work (Ogunkunle 2009). This present situation has occasioned increased awareness in Nigerians of the need for
self-employment and self-reliance, which calls for entrepreneurship education. These occupational skills can be provided through Basic Science education.

Basic Science education is that aspect of education that involves the acquisition of entrepreneurial skills and application of the knowledge of science for the improvement of man's surrounding. This includes dealing with manpower training in professional areas such as engineering, agriculture, business, home economics etc. These skills involve practical works and applications that lead to a particular occupation. Entrepreneurship means setting and running a business in a profitable and sustainable manner (Nwafor, 2007). The federal republic of Nigeria recognized the immense role of the development of entrepreneur skills in her Basic School level products when it states that Basic education level should provide Science and Technological skills for economic development (FRN, 2004). Entrepreneurial skills consist of effective utilization of ideas, information and facts that help a learner develop competencies, services or being productive employees of organizations (Olibie & Obidike, 2008).

Consequently, entrepreneurship education is a carefully planned process leading to the acquisition of entrepreneurship skills for efficient and effective living. According to Nnamani (2007), entrepreneurship education is an instrument that empowers youths to be in control of their future. It creates job and businesses. The youths have more opportunities to exercise creative freedom, higher self-esteem and over all greater sense of control over their own lives. Considering these importance of entrepreneurship education, it becomes eminent that the inculcation of entrepreneurial skills of our youths should highly emphasized especially through the Basic Science curriculum. Curriculum is the organized knowledge which the society presents to the learner in order to achieve pre-determined goals of education (Etuk, Udosen & Edem, 2004).

Curriculum becomes relevant if it addresses current and anticipated needs, problems and aspirations of the learner and society. Basic Science Curriculum which is in use in Nigeria for science teaching and learning has built-in strategies where learners are required to be involved in inquiry and related activities that can develop critical thinking skills. Critical thinking involves ability to identify a problem raise questions about, seek for information, analyze them and make inferences logically. Adeniyi (2007), stated that the objectives of Basic Science Curriculum are to enable the learners to:
1. Develop interest in science and technology;
2. Acquire basic skills in science and technology;
3. Apply their scientific and technological knowledge and skills to meet societal needs;
4. Take advantage of the numerous career opportunities offered by science and technology; and
5. Become prepared for further studies in science and technology.

To achieve a holistic presentation of science and technology contents to learners, the thematic approach to content organization was adapted. Consequently four themes were used to cover knowledge skills and attitudinal requirements. These are:
1. You and Government
2. Living and non-living things
3. You and technology
4. You and energy

Offorma (2009), sees the curriculum as a document, plan or blueprint for instructional guide for teaching and learning, to bring about positive and describe learners behavioural change. The curriculum describes the teaching, learning materials and assessment strategies available for a given subject/course of study. The curriculum schemata have place a lot of burdens on the pedagogical demands of the teacher. This is why Ugwuda (2009) suggested that Basic Science education needs trained teachers skills and ingenuity to tackle the problem of unavailability of teaching
materials/equipment in schools. It is on this note that Ugwu, Ofuebe and Etiubon (2011) suggested that Basic Science Curriculum implementers (teachers) should look at the prevailing circumstances at the schools and attempt to predict achievements goals and formulate curricular/lessons objectives.

The JSS 3 Basic Science Graduates should be able to Undertake
Animal production skills e.g Fish farming, Rabbitry Poultry production, Animal fattening Piggery, Snail rearing etc.,
1. Food and water quality control skills,
2. Cross breeding skills,
3. Cultivate and nature ornamental flowers,
4. Instructional material production e.g models and charts as improvisation,
5. Soaps and detergent production,
6. Acid production for charging batteries,
7. Production of dyes colouring and paints, etc.
8. on commercial scale for self-reliance and employment:

Basic science curriculum presented in its wholistic nature can avail in the learner a web-like approach to economic and related problems. This paper has therefore set out to investigate the relevance of Basic Science Curriculum for imparting entrepreneurial skills in students.

Research Questions
To guide this study, the following research questions were asked.
1. To what extent is the Basic Science curriculum relevant in entrepreneurship skills acquisition.
2. What are the teaching strategies required of Basic Science Curriculum for Entrepreneurship skills acquisition.
3. What constraints militate against Basic Science students’ entrepreneurship skills acquisition.

Hypothesis
The understated null hypothesis was formulated and tested at 0.05 level of significance.
There is no significant difference between the mean responses of male and female Basic Science teachers’ on the relevance of Basic Science curriculum in entrepreneurship skills acquisition.

Method
A descriptive survey research design was adopted for the study. The study was carried out in Anambra State of Nigeria. There are Six Education Zones in Anambra State namely: Aguata, Awka, Nnewi, Ogidi, Onitsha and Otuocha. The schools are spread across the Six Education Zones of the state. The population of the study comprised all the 300 Basic Science Teachers from all the 261 Secondary Schools in Anambra State. The researchers did not involve any sampling or sampling technique since the number of Basic Science Teachers was not large. The instrument for data collection was a 26-item questionnaire titled Relevance of Basic Science Curriculum on Entrepreneurship Skills Acquisition (RBSCESA) developed by the researchers. The instrument was validated by two Basic Science educators and one specialist in measurement and evaluation from Nnamdi Azikiwe University Awka.

The corrections made by these specialists were noted and used to improve the quality of the final instrument. The instrument was trial-tested on 30 Basic Science teachers that were not involved in the main study. The result was used to determine the reliability of the instrument using cronbach Alpha technique. A face to face method of administration was used to ensure a hundred percent (100%) return of the questionnaire. The research questions were answered using mean while t-test was used in testing the null hypothesis.
A modified four-point Likert Scale was used which was weighted as follows: Strongly Agree (SA) = 4; Agree (A) = 3; Disagree (D) = 2; Strongly Disagree (SD) = 1. A mean value of 2.50 was obtained by adding all the points on the scale and dividing the value by 4. All items of mean of 2.50 and above were accepted as positive responses (Agree) and those below 2.50 as negative responses (Disagree).

**Results**

Data analyses, were presented in tables according to research questions and hypothesis.

**Table 1**

Mean Ratings of Basic Science Teachers on the Relevance of the Basic Science Curriculum for Entrepreneurship Skills Acquisition.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Questionnaire items</th>
<th>Male Mean</th>
<th>Female Mean</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Basic Science curriculum provides enough skills for identifying production areas.</td>
<td>3.35</td>
<td>3.01</td>
<td>Agreed</td>
</tr>
<tr>
<td>2.</td>
<td>Its interdisciplinary and integrative nature avail the learner of web-like approach to economic problems.</td>
<td>3.40</td>
<td>2.95</td>
<td>Agreed</td>
</tr>
<tr>
<td>3.</td>
<td>Contents development are learner centered and oriented to real life situation</td>
<td>3.01</td>
<td>3.10</td>
<td>Agreed</td>
</tr>
<tr>
<td>4.</td>
<td>Identifying the production techniques of different Basic Science Technological enterprises</td>
<td>3.01</td>
<td>3.10</td>
<td>Agreed</td>
</tr>
<tr>
<td>5.</td>
<td>Providing and sourcing raw materials necessary in production</td>
<td>3.46</td>
<td>3.01</td>
<td>Agreed</td>
</tr>
<tr>
<td>6.</td>
<td>Provide skills for marketing of produce</td>
<td>2.97</td>
<td>2.86</td>
<td>Agreed</td>
</tr>
<tr>
<td>7.</td>
<td>For identification and analysis of problems such as pest and disease, food and weather uncertainly</td>
<td>3.43</td>
<td>3.14</td>
<td>Agreed</td>
</tr>
<tr>
<td>8.</td>
<td>Provide collaborative skills in joining corporative societies like producer and consumer corporate.</td>
<td>3.15</td>
<td>3.81</td>
<td>Agreed</td>
</tr>
<tr>
<td>9.</td>
<td>For training students for record keeping such as inventory production, sales, purchase and profit and loss account</td>
<td>2.95</td>
<td>2.89</td>
<td>Agreed</td>
</tr>
</tbody>
</table>
In Table 1, respondents agreed that all the factors outlined for a relevant curriculum are applicable to Basic Science Curriculum for entrepreneurship skill acquisition. They had mean scores above the criterion mean of 2.5.

**Table 2**
Mean Ratings of Teachers on Teaching Strategies Required in Basic Science Curriculum for Entrepreneurship Skills Acquisition.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Questionnaire items</th>
<th>Male Mean</th>
<th>Female Mean</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.</td>
<td>Use of constructionist based teaching strategy</td>
<td>3.22</td>
<td>3.08</td>
<td>Agreed</td>
</tr>
<tr>
<td>15.</td>
<td>Use of conventional talk chalkboard/lecture</td>
<td>1.86</td>
<td>1.83</td>
<td>Agreed</td>
</tr>
<tr>
<td>16.</td>
<td>Use of problem based learning</td>
<td>2.96</td>
<td>3.00</td>
<td>Agreed</td>
</tr>
<tr>
<td>17.</td>
<td>Use of students collaborative project work</td>
<td>3.56</td>
<td>3.25</td>
<td>Agreed</td>
</tr>
<tr>
<td>18.</td>
<td>Use of field trip</td>
<td>3.03</td>
<td>2.92</td>
<td>Agreed</td>
</tr>
</tbody>
</table>

Data in table 2 revealed that the mean ratings of all the items from the respondents were above 2.50 except item 15, thus were accepted as relevant teaching strategies for entrepreneurship skills acquisition Basic Science education.

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**Table 3**
Mean Responses on the Constraints that Militate Against Student’s Entrepreneurship Skills Acquisition in Basic Science Education.
In table 3, the respondents agreed with all the items as constraints except item 22 that is student unwillingness to learn the skills involved.

Table 4
T-Test on the Mean Responses of Male and Female Basic Science Teachers on the Relevance of Basic Science Curriculum for Entrepreneurship Skills Acquisition.

<table>
<thead>
<tr>
<th>Sources of Variation</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>df</th>
<th>t-cal</th>
<th>t-crit</th>
<th>P&lt; 0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Respondents</td>
<td>120</td>
<td>2.62</td>
<td>0.75</td>
<td>298</td>
<td>0.534</td>
<td>1.98</td>
<td>Not significant</td>
</tr>
<tr>
<td>Male Respondents</td>
<td>180</td>
<td>3.24</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4 shows that the t-calculated 0.534, and t-critical was 1.98 at 0.05 level of significance and 298 degrees of freedoms (t-cal < t-critical). Hence, the hypothesis of no significant difference was retained.
Discussion

The findings of this study showed that factors/qualities in table 1 had mean scores above 2.5. These conform to the observation of Afumape (2006), that considering the nature and position Basic Science, it is good to focus on the subject and encourage it at all levels of education in Nigeria for entrepreneurship skill acquisition. In table 2, the study revealed innovative teaching strategies for entrepreneurship skill acquisition Basic Science education. The result showed that these strategies with mean above 2.5, which when applied would empower Basic Science students in entrepreneurship skill acquisition.

Furthermore, this study revealed the constraints that militate against teachers entrepreneurship skill acquisition in Basic Science Education. These findings are in line with the findings of Ogunkunle (2009). His findings underscore the need to address adequacy of time allocated to Basic Science in school time table. Biological science curriculum studies (BSCS) (1993) in consideration of time constraint and voluminous contents of school Basic Science curriculum suggested the "less is more" syndrome- This means selection and in depth study of less contents areas that are important to individuals and the society. The result also revealed that gender has not significant effects on the responses of the subject on the relevance of Basic Science curriculum in entrepreneurship skills acquisition.

Conclusion

A relevant curriculum endows its learners with appropriate entrepreneurship skill acquisition that will enable them in achieving socio-economic and industrial development. Entrepreneurship skill acquisition in Nigeria would entail focusing on what should be done to bridge the gap between the school and industry where the learner will work on graduation, so as to be self-reliant and saleable in the society.

Recommendations

1. The following recommendations are made based on the findings of the study: Entrepreneurial skills in Basic Science curriculum should be vigorously emphasized to make recipients self-reliant and saleable in the society.

2. Teachers should use teaching strategies that foster entrepreneurship skills acquisition instead of relying so much on lecture method.

3. Government should adequately fund Basic Education level so as to provide facilities and materials for entrepreneurial skill acquisition.

4. All the stakeholders should be out to motivate students in the entrepreneurship skill acquisition that will make them employers rather than employees of labour.

References


Dr. Winifred Chidimma Onwuachu and Dr. Patience O. Okoye


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