

STRATEGIES FOR ENHANCING ENTREPRENEURIAL SKILLS IN BIOLOGY FOR NATIONAL ECONOMIC GROWTH: A CASE FOR ADMINISTRATION OF TEACHER EDUCATION AND THE 7-POINT AGENDA

By

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Abstract

The study was a survey of perception of secondary school biology teachers in Anambra State regarding strategies for enhancing entrepreneurial skills in biology through project instructional method for national economic growth. A total of 322 biology teachers made up the population. The entire target population was used for the study, without sampling. Instrument of data collection was a structured questionnaire of 3 items in Section A, and 25 items in Section B built on a 4-point rating scale of Likert-type. It was validated through consultation with 3 veteran researches in science education. It was also pilot-tested for reliability and internal consistence (homogeneity) Values of 0.88 and 0.89 were obtained respectively for Pearson's Product Moment Co-efficient of Reliability (r) and Cronbach Alpha (α). One research question was answered, using arithmetic mean (\bar{X}). One null hypothesis was tested, at 0.05 level of significance, using Z-test. Results show 16 items accepted as strategies for enhancing entrepreneurial skills in biology through project instructional method for national economic growth. The mean perception of the teachers does not significantly depend on gender, as measured at the 0.05 statistical level of significance ($P > 0.05$). The findings

Pristine

of the study were discussed, the basic implication was given and recommendation was made. The conclusion of study is that there are many strategies for enhancing entrepreneurial skills in biology students through project instructional method, for national economy growth.

Strategies are feasible techniques of achieving results. Chikobi, Ezeani and Ezeobi (2001) observed that such strategies abound in biology curriculum of Nigerian secondary school system.

The primary essence of enhancing entrepreneurial skills in students is to develop them into viable citizens for national economic growth. National economic growth is progressive increase in productivity of the country, as concerns the economy of the nation. In the school system, entrepreneurial skills are developed in students. In biology, the entrepreneurial skills are developed in the biology students as the curriculum permits. The Federal Republic of Nigeria – FRN (2004) observes in the National policy on Education (NPE) that education will be used to build, among other things, a great and dynamic economy.

Project instructional method is one important way of early entrepreneurial skills in biology students. An instructional method is a way of teaching. The project is a way of teaching through practical assignments. Several sub-themes or sub-ideas arising from a bigger one can be allocated to groups of students to work on. A large theme, like ecology of the school compound can be split into sub-units such as the soil, animals, plants, weather.

Urevbu (1990) notes that science projects are one way of acquainting students with the process of science. The project method of instruction is desirable or inculcation of skills of entrepreneurship in biology students. It is however necessary that the strategies by which teachers would effectively use the project method for enhancement (or inculcation) of the entrepreneurial skills be determined. This is the thrust and purpose of this study.

Biology is an important science subject that is studied by most secondary school students (WAEC, 2008). Regrettably, except for higher education and paid employment the biology students find it hard to fend for themselves due to lack of requisite entrepreneurial skills. It was in the light of this that the study was conceived of.

Research Question

What are the strategies for enhancing entrepreneurial skills in biology through project instructional method, for national economic growth as perceived by male and female biology teachers?

Null Hypothesis

Male and female biology teachers do not significantly differ in their mean perception of the strategies for enhancing entrepreneurial skills in biology through project instructional method, for national economic growth ($P > 0.05$).

Method

The investigation was descriptive and undertaken by survey design. Area of study was Anambra State, in South- East of Nigeria. The population of study consisted of all biology teachers in all secondary schools of Anambra State Government, under management of the State Post-Primary Schools Services Commission (PPSSC). The schools are 266 in number with a total of 322 biology teachers, according to statistical records of the PPSSC Headquarters in Awka (the capital of Anambra State) as at February 2nd 2009. All the Biology teachers were used for the study by census; there was no sampling.

The instrument for data collection was a structured questionnaire, constructed by the researchers from experience and literature. It was titled Questionnaire on Entrepreneurial Skills (QES). The QES was valued through consultation with 3 veteran researchers in science education. It was pilot-tested in Enugu state for reliability and internal consistence (Homogeneity) through test-retest approach in using an interval of one month between the first administration and second administration of instrument. Chikobi (1997) observed that the interval of one month is sufficient for the respondents to have forgotten or at least not to remember exactly their responses at the first administration whether or not the instrument is disguised. A pilot sample of 20 biology teachers was used for the test. The pilot teachers were selected by sampling technique of convenience, on basis of easy reach by the researchers. Enugu state was used for the pilot-test to avoid undue sensitization of the actual subjects of study in Anambra State.

Responses of the pilot-test were subjected to calculation of Pearson's Product Moment Co-efficient of Reliability (r) and Cronbach Alpha (α). Values of 0.88 and 0.89 were obtained respectively for (r) and (α). These respectively indicated to the researchers that the QES was reliable and internally consistent (homogenous) for the investigation.

The QES has 3 items on demographic (personality) variables in Section A, and 25 items on entrepreneurial skills in Section B built on a 4-point rating scale as follows:- Strongly Agree (SA) = 4points, Agree (A) = 3 points, Disagree (D) = 2 points, Strongly Disagree (SD) = 1 point.

A total of 322 copies of instrument were distributed, duly completed and returned. Arithmetic mean (\bar{x}) was used to answer the research question. Items with \bar{x} values of 2.50 and above were given positive interpretation. Others were interpreted negatively.

Results

Table 1: Ratings by Male and Female Biology Teachers on the Strategies for Enhancing Entrepreneurial Skills

S/N	ITEMS	MEAN (\bar{x})	
		Male	Female
1.	Organizing co-operative groups	3.74	3.62
2.	Identifying business oriented subject matter	3.20	2.84
3.	Identifying technical skills needed	3.50	2.67
4.	Making feasibility studies in micro-society	2.72	3.30
5.	Planning micro-scale business	3.05	2.91
6.	Making a model of business	2.40	2.34
7.	Planning for procurement of resources	2.80	2.92
8.	Planning for development of resources	2.27	2.22
9.	Identifying market in micro-society	3.47	2.75
10.	Execution of business	2.93	3.01
11.	Advertising of products and services	2.42	2.29
12.	Marketing of products and achievement of services	3.66	3.25
13.	Accounting for business	3.43	3.05
14.	Auditing of business	2.34	2.42
15.	Reporting on business success and failures	2.05	2.02
16.	Planning for improvement of business	2.29	2.33
17.	Identifying prospects	3.12	3.37
18.	Identifying problems	2.81	2.72
19.	Guarding against problems	2.87	2.76
20.	Identifying hazards	2.86	2.78
21.	Guarding against hazards	2.97	2.54
22.	Providing security	2.73	2.77
23.	Evaluating business	2.88	2.74
24.	Giving seminar on proposals and problems	2.69	2.58
25.	Giving workshops on process of business	3.49	3.12

Table shows that the items of S/N 1, 2, 3, 4, 5, 7, 8, 9, 10, 12, 13, 17, 18, 19, 20, 21, 22, 23, 24, 25 have for both the male and female biology teachers mean values of 2.50 and above. Hence the teachers of both genders perceive the items as being strategies of enhancing entrepreneurial skills in biology through project instructional method for national economic growth. The other items of S/N 6, 8, 11, 14, 15, 16 have for both gender of teachers mean values of less than 2.50. They were thus rejected.

Table 2: The z-test of Different between Ratings of Male and Female Biology Teachers.

Variable	Number of cases (N)	Mean (\bar{X})	Standard Deviation (SD)	Standard error (SDE)	z-cal	t-crit	Level of Sig.	rejected
Male biology Teachers	120	2.87	4.49	0.22	0.33	1.96	0.05	Ho Upheld
Female biology teachers	202	2.77	2.67					

Table shows the null hypothesis as upheld (accepted).

Discussion

The results of study show that 19 items out of 25 investigated, representing 76%, were accepted by the male and female biology teachers of the study as strategies for enhancing entrepreneurial skills in biology through project instructional method for national growth. The other 6 items which represent 24% of the 22 investigated were rejected by the teachers of both gender.

The result above was not surprising. This is because all the 19 items accepted by the teachers are doubtlessly important for meaningful business venture. Within the framework of biology as a discipline many business ventures exist. They include fishery, snailry, rabbitry, poultry farming, market gardening, horticulture, environmental protection, pest control and management, development of biology instructional materials. A close look at the 16 items accepted by the teacher’s shows that each of them is unequivocally important for initiating, developing and managing any of the biology-based businesses.

There is need for potential entrepreneurs, particularly of the secondary school students, to organize themselves into corporative groups. Such corporative groups will help them in putting together minds to plan for business. Therein, they will affect the different items of strategy investigated.

It is not obvious why the teachers rejected 6 items of S/N 6, 8, 11, 14, 15 and 16. It may be however, that they did not consider the items as being of priority importance in the school setting.

Gender did not significantly influence perception of the teachers. The finding was expected. The reason for the expectation is that both male and female biology teachers are responsible professionals with adequate professional competence from both academic and professional training. Accordingly, they had objective and convergent views of the substance of study.

Implications

A basic implication of the study is that biology teachers need to emphasize the project method of instruction in teaching of biology. This should be in such a manner that they will help in enhancing the spirit of entrepreneurship in students. They can identify, develop and motivate the entrepreneurial spirit in the students through the entrepreneurial skills of the research.

Conclusion

The summary of the study is that project method of instruction is important for identifying, developing and motivating the spirit of entrepreneurship in students, for national economic growth. In conclusion, there are many strategies for enhancing entrepreneurial skills in biology students through project instructional method, for national and economic growth.

Recommendations

Sequel to the above implications the researchers recommended that

1. The biology teachers take heed to such emphasis of the project method, and
2. Endeavours to actually identify, develop and motivate the spirit of entrepreneurship in the students by way of inculcating in them the entrepreneurial skills of the investigation.

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