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Extent of Supply of Biology Teachers Demanded in Secondary Schools in Anambra State Based on School Location: Implications for Self-Sustainability

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ABSTRACT

The study investigated the extent to which the biology teachers demanded are supplied to secondary schools in Anambra State based on location and its implications for self-sustainability. It also ascertained the adequacy of biology teachers, generally, irrespective of school location. The population of the study was all the 259 government – owned secondary school principals in the six education zones of the state, out of which 137 were selected for the study from four education zones through simple random sampling. 34 urban and 103 rural located schools were involved. A questionnaire titled "Demand and Supply of Biology Teachers (DSBT)" was used as the instrument for data collection which was validated and the internal consistency established using Cronbach alpha (□) reliability test method. One research question and one null hypothesis were formulated to guide the study. The research question was answered using frequency table and ratio formula, while the null hypothesis was tested using Chi-square at 0.05 statistical level of significance. Findings showed that biology teachers are inadequate, that there is significant difference in the supply of biology teachers based on school location. Implications for self sustainability were discussed and Recommendations made.

INTRODUCTION

Generally, the importance of education cannot be over emphasized. Education can be equated to the key that unlocks the development of personal and national potentials and to all kinds of rights and powers (National Institute for Educational Planning and Administration, 2004).

Two important issues of quality control are the "teacher as a quality controller" and "the utilization of teachers". Quality control is an "Activity, process or study of ensuring that the output of production processes conforms to a prescribed standard" (French and Saward, 1975). It is therefore expected that teachers, at the classroom level would explore different ways of ensuring

that the output of education conforms with the expected standard by paying attention to the inputs of education always.

The core of the problems of the quality of the schools lies solidly with the issue of teacher recruitment, training and retention. Two factors are involved as far as recruitment is concerned, these are demand and supply. Where there is a shortfall in supply of teachers demanded, a problem is created. Eze (1983), stated that the efficiency of a teacher might be impaired because of the number of students that a teacher has to cope with. The National Policy on Education (2004), prescribes that teacher – students ratio in Primary and Secondary School as 1:40. A class of 40 pupils is credited with the advantage of increased opportunity for closer attention of a teacher over individual students placed under his care.

Distribution of biology teachers by location leads to an imbalance in the demand and supply of teachers in various secondary schools. This imbalance may exist among the rural and urban settings (Williams, 1979). Teachers are posted to different locations either by direction or incentive, but all the same, there is need for fair distribution of teachers. Enaohwo (1990), suggested that the distribution of teachers should be changed drastically to ensure that staffing is made based on relative school population or enrolment in both urban and rural areas. This will enhance quality control in education for self sustainability in both urban and rural located schools. It has been observed that a lot of families leave the rural areas for the urban areas for one reason or the other. Definitely, admission should be sought for their children into the urban secondary schools with these schools standing the risk of being overpopulated.

Consequent upon this, the researcher decided to find out the number of biology teachers supplied in relation to the number demanded in secondary schools in Anambra State based on location, with a view to ascertaining whether there is disparity in supply as well as if the human resources needed to actualize self sustainability are adequate in both urban and rural located schools. This is to avoid an imbalance in the acquisition of entrepreneurial skills among the students all over the state. This is because biology as a subject is activity – based and involves a lot of process skills to which students are exposed to during practical lessons. Acquisition of these skills in future helps them to organize, operate and assume the risk for business venture, use various resources to create and sustain wealth, create a market, and be innovative, take a dynamic risk as well as creative and growth oriented behaviour for self sustainability. These are only possible where biology teachers are in adequate supply.

Research Question

The following research question was formulated to guide the study:
What difference exists in the demand and supply of biology teachers due to school location in secondary schools in Anambra State?

Null Hypothesis

There will be no significant difference in the demand and supply of biology teachers to secondary schools in Anambra State due to location.

Research Design

The study was a descriptive survey research. It involved ascertaining and analyzing the data collected on the demand and supply of biology teachers based on location, in secondary schools in Anambra State.

Area of the Study

The study was carried out in Anambra State which comprised six education zones, namely: Aguata, Awka, Nnewi, Ogidi, Onitsha, and Otuocha.

Population of the Study

All the 259 government owned secondary school principals in Anambra State were involved. These principals were in various schools as distributed in the six education zones of Anambra State according to location as shown in Table 1.

Table 1: Population Distribution of Principals based on the Education Zones according to Location

Education	*Urban Schools*		*Rural Schools*		
Zone	No. of	No. of	No.of	No. of	**Total No. of** Principals
Schs.	Principals	Schs.	Principals	schools	
Aguata	32	32	17	17	49
Awka	40	40	24	24	64
Nnewi	32	32	17	17	49
Ogidi	28	28	13	13	41
Onitsha	22	22	10	10	32
Otuocha	12	12	12	12	24
Total	**166**	**166**	**93**	**93**	**259**

Source: Anambra State Post Primary Schools Service Commission, Awka, 2004.

Sample and Sampling Technique

Simple random sampling technique was used in selecting 4 (Awka, Ogidi, Onitsha and Otuocha) out of the six education zones in Anambra State comprising 161 secondary schools with 161 principals. Using the same method, 137 principals (55 from Awka, 35 from Ogidi, 27 from Onitsha and 20 from Otuocha education zones) were selected from the 161 and used as

the main sample of the study. 34 principals out of the 137 were from the urban schools while 103 were from the rural located schools.

Instrument for Data Collection

A structured pattern questionnaire titled "Demand and Supply of Biology Teachers (DSBT)" was used as an instrument for data collection. Part 1 of the questionnaire was on the personal and demographic data of the respondents while part 2 centred on the focus of the study – the Demand and Supply of Biology Teachers.

Validation of the Instrument

The instrument was both face and content validated by three specialists in Educational Management and Policy, chosen from the faculty of Education of Nnamdi Azikiwe University, Awka. The instrument was assessed in terms of the content coverage, relevance of the items to the research question and hypothesis, the language used in developing the items, adequacy of the items to the level of the respondents and appropriateness of the arrangement, directions/instructions.

Reliability of the Instrument

The responses of 40 principals from Enugu State owned secondary schools used for trial testing were collected and the internal consistency of part 2 of the questionnaire calculated using cronbach alpha (□) reliability method. This gave a reliability coefficient of 0.73, high enough for the instrument to be considered fit for the study.

Method of Data Collection

The instrument (questionnaire) was administered face-to-face by the researcher with the help of three research assistants. All the 137 copies of the questionnaire were returned.

Method of Data Analysis

The research question was answered using frequency table and ratio formula, while the null hypothesis was tested using Chi-square at 0.05 statistical level of significance.

PRESENTATION AND DISCUSSION OF RESULTS

Table 2a: Frequency of the Demanded and Supplied Biology Teachers in Urban

Urban Schools					
Educ. Zone	No. of trs. supplied/ Available	No. of Students	No. of trs. demanded based on 1:40	Aggregate Tr./stu. ratio	No. of Trs. needed
Awka	31	8,080	202	1:261	171
Ogidi	16	2,364	59	1:148	43
Onitsha	33	13,204	330	1:400	297
Otuocha	08	960	24	1:120	16
Total	88	24,608	615		527

Table 2b: Frequency of the Demanded and Supplied Biology Teachers in Rural Schools.

		Rural Schools			
Educ. Zone	No. of trs. supplied/ Available	No. of Students	No. of trs. demanded based on 1:40	Aggregate Tr./stu. ratio	No. of Trs. needed
Awka	42	7,154	179	1:170	137
Ogidi	41	5,236	131	**1:128**	**90**
Onitsha	**22**	**286**	**07**	1:13	-15
Otuocha	17	1,140	29	1: 67	12
Total	122	13,816	346		224

* 34 Urban and 103 Rural Schools were used in this study.

Tables 2a and b show that more biology teachers are supplied in the rural located schools than in the urban ones. This could be attributed to situations where teachers are offered employment if only they accept to teach in the rural areas, for example in 2005, 500 (five hundred) teachers who were willing to teach in the rural areas were recruited. However, there are more students in the urban located secondary schools than in the rural ones. Specifically, a total of 88 out of the 615 (14.31% supply) teachers demanded for in the 34 urban located schools were supplied, while 122 out of 346 (35.26% supply) teachers demanded in the rural located schools were supplied. It is also seen that biology teachers are inadequate in all the education zones irrespective of location except in rural schools in the Onitsha Education Zone.

Table 3: Analysis on the Responses of Principals on the Demand and Supply of Biology Teachers due to School Location.

Location	No. of trs. Supplied	No. of trs. Demanded	df	χ^2	Cal. χ^2	Critical P>0.05
Urban	88	527	1	72.21	3.84	0.05
Rural	122	224				
N =	**310**	**751**				

Table 3 shows that at 5 percent level of significance and 1 df, the Calculated χ^2, 72.21 is greater than the Critical χ^2,3.84. The Null hypothesis is therefore rejected. The researcher then concludes that there is significant difference in the demand and supply of biology teachers to secondary schools in Anambra State due to school location. This gains support from Williams (1979), Enaohwo (1990), and Reichardt and Buhler (2002).

Implications for Self-Sustainability

The study shows that biology teachers are in short supply in all the Education zones of Anambra State irrespective of location. This is evident from the teacher-students' ratio as well as the number of teachers needed.

Again, there is disparity in the distribution of biology teachers based on location. These imply that with the shortage of human resources that are expected to equip students with entrepreneurial skills necessary to empower them towards being productive, self-reliant and sufficient after their educational career, a big problem is now created for the state in particular and the nation in general.

Recent advances recorded in the fields such as biochemistry, physiology, ecology, genetics, and molecular biology, have made biology a central focus in most human activities such as management of resources, wealth creation, food production and disease control. Any disparity in supply of biology teachers based on location, or any inadequacy of biology teachers will produce half-baked students that cannot sustain themselves in future and may resort to all forms of social vices which will hamper the economic development of the nation generally.

CONCLUSION

An imbalance in the distribution of biology teachers in the state secondary schools should as much as possible is avoided.

RECOMMENDATIONS

Staffing should be based on relative school population or enrolment in both urban and rural located schools as a matter of policy to maintain a balance between the two areas.

Biology teachers should be supplied to schools as demanded for effective teaching and learning

Government should through the school's service commission, enforce implementation of the statement in the National Policy on Education that specifies the teacher – student's ratio of 1:40, for effective teaching – learning process.

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