

THE STATUS OF HUMAN AND MATERIAL RESOURCES USED IN TEACHING BIOLOGY IN ILORIN, KWARA STATE

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Abstract

The study explored the status of human and material resources used in teaching biology in public schools in Ilorin. A descriptive survey method was adopted. All senior school students in Ilorin constituted the population, out of which 2% secondary schools were randomly selected. A checklist tagged Inventory of Resources for Teaching Science (IVRTS) was used for data collection. The data were analyzed using frequency count and percentages. The findings revealed a wide range of biology apparatus, equipment, reagents, charts, models, slides and specimens. However, many schools are characterized with inadequate resources and the available ones are not frequently utilized by the teachers. The study recommends that government should employ adequate professional qualified science teachers and laboratory personnel and that the untrained teachers should be mandated to go for professional training; it was also recommended that unavailable materials should be improvised.

Keywords: Biology, human resources, availability, adequacy, level of use

Introduction

Science deals with an attempt to understand the happenings around us. It could be described as a discipline and a way of life. Abimbola and Omosowo (2006) defined science as a body of knowledge, a way of investigating and a way of thinking in pursuit of understanding of the World. The aforementioned descriptions of science show that doing science is an integral aspect of science teaching.

Several branches of science have been identified; these are biology, chemistry and physics. Biology is one of the branches of science that studies life and living organisms. Hellweg (2009) viewed biology as the study of characteristics phenomenon or life processes of living things. Its significance had been felt in the area of medicine, nursing, agriculture, dentistry and a host of other profession that has direct relationship with man.

Biology like other sciences must be examined from the theoretical as well as the practical aspect in order to expose students to the idea of what happens in nature for meaningful learning. The practical aspect emphasizes on doing sciences. When teaching the theoretical or practical aspect of biology, it is required that we support our teaching with resources which give a mental picture of what is intended. The importance of resource which may be human and material in conceptual understanding cannot be overemphasized.

This is because it makes phenomenon to be real, concretize the instructional content, enable learners to appreciate the

usefulness of resources around us, as well as direct learners thinking towards the same direction. Resources refer to human and non-human materials used by teachers to support his teaching.

Human resources are the experts, the apprentices, teachers, technologists or technicians endowed with relevant knowledge and who partake in instructional dissemination to learners. Obomanu & Akoporehwe (2011) defined human resources as teachers and laboratory attendants who take active role in the implementation of the curriculum. Non-human materials / resources on the other hand refer to consumables and non-consumable resources used by teachers for illustrations, explanations and examples in the course of teaching-learning exercises. Ifeakor (2006) described material resources as a wide variety of equipment and materials for teaching and learning spanning from consumables and non-consumable resources like computers, projections, microscope, etc.

The significance of human and non-human resources is enormous. Physical illustrations of information through the use of resources assist learners in meaningful construction and assimilation of the observed concepts or what the teacher is trying to explain. The recognition of the significance of the use of instructional resources as far back as 1950's had sensitized the then government and non-governmental agencies like UNICEF, UNESCO to donate equipment to educational institution in Nigeria.

It is therefore required that resources are utilized in the teaching of scientific concepts owing to the facts that

which contains a number of abstract concepts, facts or series which must be concertize for perfect understanding, and the tendency of having a scientifically literate society will consequently contribute to a state of man power development in the nation. Studies have in Nigeria and abroad have established the significance of instructional materials to students' performance in the concerned subject. Awolaju (2016) examined the instructional material as a correlate of academic performance in biology and found that students taught with instructional performance performed better than those taught without the instructional material.

Nnorom and Okoli (2014) explored the status of resources for teaching biology in Colleges of Education. While adopting descriptive survey method, a total of 121 academic staffs, supporting staffs and students were involved. A checklist of reliability index 0.81 was used to collect data. The collected data was analysed using percentages, mean and standard deviation. The study found that the no of academic staffs are inadequate while the supporting staffs and material resources are not and that the available ones are not properly utilized.

Atok (2016) also assessed the availability of ICT resources for teaching and learning of biology by secondary schools in Masai Gishu County, Kenya. A total of 114 teachers were sampled using stratified random sampling. Two instruments, a structured questionnaire and interview schedule were used for data gathering. Frequency counts, percentages, mean and standard deviation were used to analyze the data. Finding indicated that schools lack some of the important ICT resources for teaching and learning

Statement of the problem

It is an undisputable fact that resources utilization are crucial for meaningful understanding of scientific concept, especially biology that has direct dealing with human lives. Hence, the resources must be available and optimally utilized in order to feel its positive impact in educational processes. Several researches had been conducted on availability, adequacy and level of use of resources in the sciences and non-science subject and at different levels of education. Unlike the present study, which was conducted in biology at the secondary school level and in which only the HoDs of the concerned school are involved, Osarenren-osaghae and Labor (2012) utilizes both students and staff of the public universities.

The study by Nnorom and Okoli (2014) utilized the same instrument for data collection but at variance with this study

in that it was conducted at NCE level and did not utilized % for their result. Awolaju (2016) study's was examined the instructional material as a correlate of their performance while the present study examined the status of human and material resources for teaching science subjects in senior secondary schools.

Methodology

A survey research method was adopted. All senior secondary schools in Ilorin, Kwara State constituted the population, out of which 20 secondary schools were randomly selected using simple random sampling technique. A researcher designed checklist tagged Inventory of Resources used for Teaching Science (IVRTS). The instrument consisted of two sections A and B. Section A contains five items information on category of human resources for teaching biology while section B consist of list of biology laboratory apparatus, equipment, chemicals, models, charts, plastics, prepared slides and specimen recommended by WAEC for 50 students

Having sought for the consent of the sampled schools and Heads of Department for their involvement in the study, the researcher personally administered the checklist to the HOD of the selected schools because they are more likely to be aware of the equipment and apparatus stocked by the school than any other teachers. Copies of checklist were retrieved on completion.

Data analysis and results

Frequency counts and percentages were used to answer all the research questions.

Research Question 1. What are available human and material resources for teaching of biology subjects in senior secondary schools?

Table 1 revealed that the available human resources in biology teaching are professional teachers, untrained/nonprofessional teachers, laboratory technicians, laboratory assistance and cleaner. The table also shows that 51% of the human resources are available out of the expected 100%. It was also evident from Table 1 that professional teachers are adequate, i.e., 18 (90%) out of 20 while untrained biology teachers, technicians, laboratory assistance and cleaner are in inadequate with percentages 35, 35, 45 and 50 respectively.

Table 1: Available Human Resources for Teaching Biology Subjects

Human Resources	No. of Sampled School	Available Personnel	Percentages
Prof Bio Teacher	20	18	90
Untrained Bio Teacher	20	7	35
Biology Lab Tech	20	7	35
Biology Lab Assist	20	9	45
Biology Lab Cleaners	20	10	50
Total	100	51	

The available material resources are grouped into laboratory apparatus, laboratory equipment, chemical reagents, charts or plastic models, biology models, prepared slides and specimen. It is pertinent to note that, each of the apparatus contains list of apparatus, equipment or chemicals as the case may be. Laboratory apparatus for instance comprised of 40 items, equipment 24 while chemical reagents is made up of 55 lists. Others are 27 charts or plastic models, six models, 12 lists of prepared slides and three specimens. The availability, adequacy and level of use of these resources were assumed to be at 50% upward while the inadequacy and non-usage was assumed to be less than 50%.

It is important to state that all the 27 charts or plastic models that were surveyed to be available, though not display on the table, are not adequate and their level of use was low.

Likewise, contrary to the available quantity of available Biology Models, the adequacy and utilization were very low. This is the situation of all the surveyed resources for biology teaching.

The detailed of their availability, adequacy and level of use is illustrated in Tables 2. A critical examination of Table 2 shows that most of the surveyed laboratory apparatus are available. The available apparatus are however, inadequate and not subjected to optimal use. This is reflected from the higher percentages obtained under not adequate and rarely used. Equipment, models, prepared slides and specimens for instance had 100% not adequate and 100% rarely use. This implies that the apparatus are not adequate and the available ones are not often used.

Table 2: Biology Material Resources

S/N		AVAILABLE				ADEQUACY				LEVEL OF USE			
Resources		Available		Not Available		Adequate		Not Adequate		Frequently		Rarely	
			%		%		%		%		%		%
1	Apparatus	35	87	5	0	3	8	37	92	6	15	24	58
2	Equipment	20	83	4	17	0	0	24	100	0	0	24	100
3	Chemical Reagents	28	51	27	49	1	2	54	98	0	0	55	100
4	Charts & Plastic models	18	67	9	33	0	0	27	100	2	7	25	58
5	Models	5	83	1	17	0	0	6	100	0	0	6	100
6	Prepared Slides	11	92	1	8	0	0	12	100	0	0	12	100
7	Specimens	1	33	2	67	0	0	3	100	0	0	3	100

Discussion

Most of the sampled schools are aware of the need for professional teachers. This assertion is inferred from what was obtained from the field, most of the schools had greater percentages of qualified teachers compared to the percentages of unqualified ones. However, some of the sampled schools lack laboratory personnel, i.e., technicians, assistance and cleaners. The study often found that the needed materials for biology teaching are available in short

supply and that the available ones are not subjected to proper usage. The non-utilization of these materials could be due to the inadequacy of the available resources. The findings agrees with that of Osarenren-osaghae & Ogun (2012); Ashaver & Igyuve (2013) who found that the human and material resources for teaching skill acquisition at the university is inadequate; also resources for teaching at the college of education are inadequate and that they are characterized with rare usage respectively.

Conclusion

- 1 The study found that the selected schools have professional qualified ; few unqualified teachers, laboratory technicians, laboratory assistant and cleaners
- 2 There are available material resources although, the resources are inadequate and characterized with minimal level of use.

Recommendations

The study recommends that government should employ adequate professional qualify teachers and laboratory personnel .It was also recommended that untrained teachers should be mandated to go for professional development in order to equip themselves with the needed skills as far as teaching profession is concerned .

The study also recommends the provision of minimum basic materials resources needed for effective implementation of the curriculum. Teachers are also encouraged to improvise for the unavailable ones to ensure adequacy and optimal utilization so as to yield the expected outcome as far as students' learning is concerned.

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