

Senior Secondary School Biology Teachers' Perception of their Needs in Kwara State

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Abstract – Perception of human needs have important consequences on human and their output. Teachers' needs if properly taken care of will increase their output. The study assessed senior secondary school biology teachers' perception of their needs in Kwara State, Nigeria. Purposive and Stratified random sampling techniques were used to select two hundred and fifty (250) biology teachers from the three senatorial districts in the state. A questionnaire was prepared, validated and used for collection of data from the biology teachers. Descriptive statistics in form of frequency counts and mean were used to rank the needs of biology teachers in order of most prevalent needs and Chi-square statistical tools were used to analyze the data collected. Two research questions and four hypotheses were raised and tested. The findings revealed that there was a significant difference between perceptions of teachers' on their academic needs based on gender and that male biology teachers want more of academic needs than their female counterparts. Based on the result of this study, it is recommended among others that efforts should be geared towards providing more academic needs for males and encouraging female biology teachers on academic needs. Also, Government should sponsor biology teachers to attend workshop, seminars, and conferences at local, state and international level.

Keywords – Biology, Needs, Nigeria, Perception, Teachers

INTRODUCTION

Education is a veritable tool for bringing about the much desire socio-economic, political, scientific and technological progress for any nation. It is in recognition of this fact that the Federal Government of Nigeria adopted education as an instrument par excellence for effecting national growth. Science and technology education has continued to occupy the center stage in the technological development of nations. This realization has led to investment in science education at all levels of governance in Nigeria. It is however, disheartening, that despite such effort by the government, performance in basic science has continued to be low [1]. Science education is an indispensable component of basic education that prepares learners to live in a world increasingly defined by science and technology [2]. Science education is said to be the most appropriate and fastest vehicle for the planned transformation of any society [3]. Biology is one of science subject taught in senior secondary schools in Nigeria. Despite its importance to mankind and the effort of researchers to improve its teaching and learning

students' performance in the subject remain low [4]. This trend still holds today.

Science is a system of acquiring knowledge based on scientific process in order to organize the body of knowledge based on research. Abimbola [5] stated that science can generally be defined as a body of knowledge, a way of investigating and a way of thinking in pursuit of an understanding of nature. Science as a vast subject is concerned with knowledge of the universe and all that is contained in it. Buseri [6] contends that to meet up with the rapid scientific progress in technology requires the presence of well-trained efficient, knowledgeable and skillful teachers who are versatile in discharging their duties and responsibilities. Science is known to be divided into three major branches which are physics, chemistry and biology. Biology as a branch of science is taught in Secondary schools, Polytechnics, Colleges of Education and Universities

Biology as one of the core science subjects is taught in the Senior Secondary Schools. It serves as prerequisite to studying medicine, microbiology, agriculture, pharmacy, and so on. Abimbola and

Omosewo [5] stated that biology has been integrated into a number of disciplines. These disciplines include: biochemistry, bioengineering, biotechnology, biofeedback phenomenon, biomedicine, biophysics, cell biology, developmental biology, evolutionary biology, marine biology, microbiology, agricultural biology and molecular biology. Ramalingam [7] stated that biology is a natural science concerned with the study of life and living organisms. This include their structures, functions, growth, origin, evolution, distribution and taxonomy. According to Ayodele [8], biology is one of the core science subjects for the science students taught in the Senior Secondary Class one to Class three because of its importance to the survival of living organisms.

Teaching is an environmental arrangement which inevitably involves an organism mentally and physically in a set of organized activities, and facilitates those activities in consonance with it goals (or lack of goals) it age (mental and/ or chronological) and its capacity in an attempt to further its covert and overt behavior [9]. Abimbola [10] defined teaching as the process of facilitating student learning through proper management of interrelationship among students` interest, content, methods and teaching material by the teacher.

A teacher is that trained person who manages the teaching and learning process effectively and efficiently. The teacher helps the learner to imbibe ideas, and knowledge to develop skills understanding of good word so that he can develop his own innate potential [11]. The teacher is somebody who has a high intellectual capacity to understand child`s growth and developments the psychology of learning the management of teaching/ learning system. Ahmed [12] opines that the work of a teacher is therefore not a simple one. Since teachers` deal with human beings and whatever they do go a long way to affect the society they deal with.

Perception may be defined from the physical, psychological and physiological perspectives. Allport [13] is of the opinion that perception is the way we judge or evaluate others and things. That is the way individuals evaluate people and things they are familiar with in everyday life. Perception is the reaction elicited when an impression is perceived from without after making connection with other materials in the consciousness (memory). From this point of view two implications could be deduced: firstly, perception cannot be done in a vacuum, it depends on some background information that will trigger a

reaction [13]. Perception according to the Concise Oxford English Dictionary [14] is the ability to see, hear or become aware of something through the senses. It is the state of being or process of becoming aware of something in such a way. Perception is the organization, identification and interpretation of sensory information in order to represent and understand the environment. Perception takes different forms which include perception of sound, of speech, of touch, of taste other senses, and of the social word [12].

Perception of biology teachers need is the basis for generating motivation [13]. According to Gough [17], a need is something that is necessary for organism to live a healthy life. Needs are distinguished from wants because a deficiency would cause a clear negative outcome, such as dysfunction or death [14]. Science teachers` needs vary with location and gender [15]. It can therefore be said that biology teachers` needs will vary from school to school and person to person. However, it is possible to find a common denominator for the various categories of teachers` needs. Biology teachers as well as the educational community as a whole have come under much criticism over the past few years regarding the competence of their teaching. This criticism, in part, result from the growing emphasis on accountability of biology teaching in their mode of teaching. In light of these persistent criticisms, it is essential that attention be directed toward the identification of these areas of needs which secondary school biology teachers feel will improve their lesson delivery and other allied duties.

Biology teachers` perception of needs can be defined as the way biology teachers view needs and their idea of what need is like. Biology teacher perceived needs if met will improve science teacher. Adeyanju [20] further states that science teacher perceived their greatest needs as the availability of instructional materials in the laboratory and classroom. Science teaching in Nigeria has faced a lot of setback [22]. One of the setbacks is teachers` needs. This research dealt with one of the challenges biology teachers, are facing. If the needs of biology teachers can be met, their performance will be enhanced. An American humanistic psychologist, Maslow [14] cited by Chapman [14] expounded the needs of people generally into; Biological and physiological needs, Safety needs, Belonging and love needs, Esteem needs, Cognitive needs, Aesthetic needs, Self – actualization needs and Transcendence needs [14].

Maslow's [14] cognitive needs and esteem needs can be viewed as academic needs while, needs for love and belongingness are seen as incentive needs. Since the scope of needs is wide, this study examined the academic and incentive needs of biology teachers.

Researches on human needs have been on various forms of needs like biology and psychological needs, safety needs, esteem needs, cognitive needs, transcendence needs, self-actualization needs among others and how they can improve teachers' performance, thereby improving teaching and learning of science in general and biology in particular. Examples of such researchers are Lilia, Kamisah, Subahan & Meerah [16]. Chapman [14] and Olugbuyi [11] among others. Teachers' needs are inexhaustible, more so when it involves different individuals with different home and educational background and different socio-cultural affiliations. This research, however, believes that among biology teachers' needs, some common needs could be identified from their incentive and academic needs. The study therefore sought to gather the response of a cross section of biology teachers in Kwara state, so as to assess their academic and incentive needs. This study aimed at identifying what biology teachers felt they needed such that they might be able to effectively impact the much desired knowledge to the biology students and in turn pave the way for scientific and technological growth in Nigeria. Hence, this research focused mainly on incentive needs (such as promotion, increase in salary etc.) and academic needs (such as provision of instructional material and academic qualification) of biology teacher in Kwara State senior secondary schools.

OBJECTIVES OF THE STUDY

The main purpose of the study was to assess the perceived academic and incentive needs of senior secondary school biology teachers in Kwara State, Nigeria. Specifically, it aimed to determine the perception of biology teachers in Kwara State on their academic needs and incentive needs; influence of biology teachers' gender on their perception of their academic needs and incentive needs; influence of biology teachers' teaching experience on their perception of their academic needs and incentive needs.

Research Hypotheses

The following research hypotheses were also tested:

HO₁: There is no significant difference between the perception of male and female biology teachers on their academic needs.

HO₂: There is no significant difference between the perception of male and female biology teachers on their incentive needs.

HO₃: There is no significant difference between the perception of experienced and less experienced biology teachers on their academic needs.

HO₄: There is no significant difference between the perception of experienced and less experienced biology teachers on their incentive needs.

METHODS

The study is a descriptive research of the survey type. The population for the study comprised all biology teachers in selected private and public schools in Kwara State, Nigeria. The sampling technique utilized was purposive and stratified random sampling method, 90 teachers were selected from Kwara South Senatorial District, 80 teachers each was selected from Kwara North and Kwara Central Senatorial Districts giving a total of two hundred and fifty (250) biology teachers. The research instrument was a questionnaire known as Teachers' Needs Questionnaire designed by the researcher. The Questionnaire was made up of four (3) sections; section A contain questions on biodata, schools and teachers' experience, section B contain questions on academic needs and section C contain questions on incentive needs. The instrument was administered with the help research assistant having sought the permission of the principals of the participating schools. The questionnaire was administered to biology teachers and collected after the filling the questionnaire simultaneously.

The instrument was subjected to content and face validity and was tested for reliability using test-retest method and a coefficient value of 0.60 was obtained using Pearson Product Moment Correlation Coefficient. Rank order was used to provide answer to research questions 1 and 2 while Chi-Square was used in testing the research hypotheses 1 - 4.

RESULTS AND DISCUSSION

Table 1 shows biology teachers' perceived academic needs based on their means score in descending order. The highest mean score available to be obtained is 3.00 and the lowest 1.00. The table shows that all the items on the scale were perceived by the biology teachers as highly important academic needs because none of the items were below the

average mean score, which is 1.5. The more the items were closer to 3.00 revealed how important the biology teaching perceived it among academic needs for biology.

Table 1. Perception of Biology Teachers` on Academic Needs (n=250)

| | Mean |
|--|------|
| 1. Need to update laboratory with microscope, aquarium, herbarium and other biology specimen | 2.92 |
| 2. Increase in periods allotted for biology teachers | 2.84 |
| 3. Availability of personnel in the biology laboratory | 2.84 |
| 4. Visit from examination bodies e.g. NECO, WAEC, etc. | 2.80 |
| 5. Decision on the type of classroom organization by teachers | 2.80 |
| 6. In-service training for biology teachers | 2.78 |
| 7. Need to be creative in method of teaching biology | 2.78 |
| 8. Involvement of biology teachers in the selection of topic for biology teaching | 2.75 |
| 9. Need for online teaching resources for biology teaching | 2.74 |
| 10. Practical knowledge on how to use multimedia resources for biology teaching | 2.72 |
| 11. Monitoring from senior colleague | 2.72 |
| 12. Involvement in marking exercise | 2.70 |
| 13. Decision on specification of minimum requirement | 2.67 |

The items with the highest mean score (2.92) is the needs to update laboratory with microscope, aquarium, herbarium and other biological specimen". This area is being supported by most of the biology teachers as the most important academic needs on the scale. The least rated item on the scale is "Decision on the specification of minimum requirement before student can progress to the next level by teachers" with the mean score of 2.67 which also fall within the range of highly need biology academic needs.

Table 2 shows the biology teachers perceived incentive needs based on their mean score in descending order. The highest rank incentive needs is provision of accommodation closer to the school with (2.86) while the lowest incentive needs on the scale is different salary structure from other teachers with (2.44), both still falling under highly perceived incentive needs.

Table 2: Perception of Biology Teachers` on Incentive Needs (n=250)

| | Mean |
|---|------|
| 1. Provision of accommodation to school | 2.86 |
| 2. Needs for marking WAEC, NECO, NABTEB, etc. | 2.84 |
| 3. Sponsorship by government to attend seminar and workshop both in and outside the state | 2.83 |
| 4. Giving grant to teachers to carry out practical | 2.79 |
| 5. Provision of conducive office accommodation | 2.79 |
| 6. Need for increasing rate of promotions | 2.79 |
| 7. Preparation of allowance for senior secondary school certificate practical examination | 2.73 |
| 8. Different salary structure from other teachers | 2.44 |

Table 3. Significant difference between the perception of male and female biology teachers on their academic needs (n=250)

| | value | df | Asymp.sig (2-sided) |
|------------------------------|-------|----|---------------------|
| Person Chi-square | 6.191 | 2 | .045 |
| Likelihood ratio | 6.335 | 2 | .042 |
| Linear-by-linear Association | 5.952 | 1 | .015 |

a.0 cell (.0%) have expected count less than 5. The minimum expected count is 5.86

The result in Table 3 shows $X^2(2)=6.191$, $P=0.045<0.05$, which means that there was significant difference between the perception of male and female teachers` on their academic needs because the P – value (0.045) is less than 0.05. Therefore, the null hypothesis is rejected

Table 4. Significant difference between the perception of male and female biology teachers on their incentive needs (N=250)

| | value | df | Asymp.sig (2-sided) |
|------------------------------|-------|----|---------------------|
| Person chi-square | .180 | 2 | .914 |
| Likelihood Ratio | .180 | 2 | .914 |
| Linear-by-linear Association | .023 | 1 | .880 |

a.2 cell(33.3%) have expected count less than 5. The minimum expected count is 4.39

In response to this, a Chi square test was conducted to determine if there was a significant difference between the perception of male and female biology teachers` on their incentive needs, the findings are presented in Table 4.

The result in table 4 show that $X^2(2) = 0.18$, $p = 0.914 < 0.05$, which means that there was no significant difference between perception of male and

female biology teachers` on d incentive needs because the P-value (0.914) is greater than 0.05, therefore the hypothesis is not rejected.

Table 5. Significant difference between the perception of experience and less experienced biology teachers on their academic needs (N=250)

| | value | df | Asymp.sig (2-sided) |
|------------------------------|-------|----|------------------------|
| Person chi-square | 2.065 | 2 | .356 |
| Likelihood Ratio | 2.151 | 2 | .341 |
| Linear-by-linear Association | .022 | 1 | .881 |

a.0 cell (0%) have expected count less than 5. The minimum expected count is 5.04

Table 5 reveals the result of Chi-square analysis to determine whether there is a significant difference between the perception of experience and less experienced biology teachers on their academic needs.

The result in table 5 shows that $\chi^2 = 2.065$, $p = 0.356 > 0.05$, which means that there is no significant different between the perception of experience and less experienced biology teachers` and their academic needs, this is because the P-value (0.356) is greater than 0.05. The hypothesis 3 is not rejected.

Table 6. Significant difference between the perception of experience and less experienced biology teachers on their incentive needs (N=250)

| | value | df | Asymp.sig (2-sided) |
|------------------------------|-------|----|------------------------|
| Person chi-square | .202 | 2 | .860 |
| Likelihood Ratio | .309 | 2 | .857 |
| Linear-by-linear Association | .160 | 1 | .689 |

a.1 cell (16.7%) have expected count less than 5. The minimum expected count is 3.78

In response to this, a chi-square and analysis was conducted to determine whether there is a significant difference between the perception of experience and less experienced biology teachers` and their incentive needs. The findings are presented in Table 6.

The result in Table 6 show that $X^2(2) = 0.303$ $P = 0.860 > 0.05$, which means that there was no significant different between the perception of experience and less experienced biology teachers` and their incentive needs because the P-value (0.860) is greater than 0.05. Therefore, hypothesis 4 is not rejected.

Summary of the major findings

All of the items of both academic and incentive needs, were perceived by biology teachers as important needs. There was significant difference

between the perception of male and female biology teachers on their academic needs. There was no significant different between the perception of male and female biology teachers on their incentive needs. Teaching experience as variable did not influence teachers` perception of their academic and incentive needs.

DISCUSSION

Almost all researchers that worked on needs agreed that needs affect performance both positively and negatively [12], [16], [14], [11], [13]. Adequate provision of needs increases the teachers` productivity, it consequently influences their performance in teaching biology and students` performance in learning science (biology) are enhanced

From the result, all of the items of both academic and incentive needs, were perceived by biology teachers as important needs because none of the items were below the average mean score of 1.5. This shows that all the teachers were in agreement with both contents of academic and incentive needs with the lowest mean score being 2.67 for academic needs and 2.44 for incentive needs. These are above the average mean score of 1.5. The result shows that teaching experience as a variable did not influence teachers` perception of their academic and incentive needs. This is so because the null hypothesis for both academic and incentive needs for teaching experience, shows no significant differences and the research hypothesis was not rejected. There is a significant difference between the perception of male and female biology teachers on their academic needs, this is because the null hypothesis was rejected, while for gender on incentive need, the null hypothesis was not rejected, this is because there was no significant difference between the perception of male and female biology teachers on their incentive needs.

Most teachers wanted need to update laboratory with microscope, aquarium, herbarium and other biology specimen, increase in period allotted for biology teaching, available of resource personnel in the laboratory, need for marking, WAEC, NECO, provision of accommodation closer to school, and also wants sponsorship to attend seminar, conferences etc. by government within and outside the state. Osokoya [12] listed some needs as priority needs, which are a necessity for a science teacher, these needs include in-service training, allowance, liberty to decide on class organization, involvement in evaluation of students.

Osokoya [12] needs are also peculiar to the needs of this study which are in-service training, classroom organization decisions, allowances and to evaluates students. Idris [24], Osokoya [12], Lilia et al [23] and Olugbuyi [11] believed that in-service training is essential for science teachers to be effective in the classroom. It had been shown in this research that in-service training is a major and common need between male and female biology teachers. All these are in agreement with the findings of this study.

CONCLUSION AND RECOMMENDATION

This study determined the academic and incentive needs of senior secondary school biology teachers in Kwara State, it was found out that all the items on both academic and incentive needs were perceived as highly important needs because none of the items were below the average mean score. Some of the reason for these, in the opinion of the biology teachers was that all the items on the both academic and incentive needs fall under the major needs of biology teachers particularly biology teachers which if in place increase biology teachers' productivity. Other reason was that biology teachers needs will enable teachers to see themselves as important stake holders in the education system and that these will improve science teaching specifically biology teaching.

It is recommended that effort should be geared towards providing more academic need for male and encouraging female biology teachers on academic needs, such as use of instructional resources for teaching, furthering their studies in related field in biology and frequent in-service training and re-training. Male and female biology teachers' academic needs should also be reinforced. Biology teachers should be member of professional non-governmental organization such as STAN, so as help them to grow academically.

Government should give grants to biology teachers to carry out practicals with the view of solving various problem and challenges facing science education.

Government should sponsor biology teachers to attend workshops seminars, conferences at local, state and international levels, so as to enrich them academically and increase their classroom productivity.

The rate of promotions of science teachers particularly biology should be increase, this is to spur them highly to perform both effectively and efficiently.

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