Assesment of Perceived Academic and Incentive Needs of Senior Secondary School Biology Teachers in Kwara State, Nigeria

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ABSTRACT

The study investigated the Assessment of perceived academic and incentive needs of senior secondary school biology teachers in Kwara State, Nigeria. Stratified random sampling technique was used to select two hundred and fifty (250) biology teachers from the three senatorial district of Kwara State. A questionnaire was prepared, validated and used for collection of data from the biology teachers. Statistical Package for Social Sciences (SPSS) version 20.0 package was used for data analysis. Rank order and Chi-square were used to analyze the data collected. Eight research questions and six hypotheses were formulated and tested. The findings revealed that there is a significant difference between perceived academic need of male and female teachers and that male biology teacher want more of academic needs than their female counterpart. Based on the result of this study, it is recommended among others, that effort should be geared towards providing more academic needs for males and encouraging female biology teachers on academic needs. Government should sponsor biology teachers to attend workshop, seminar and conferences at local, state, national and in fact at international level.

Keywords: *assessment, perceived, academic, incentive, needs*

INTRODUCTION

Science is a body of knowledge. It is an enterprise in which developing nations, like Nigeria, depends upon to enable it develop in area of technology (Ajayi, 1991). Abimbola and Omosewo (2006) 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" (p.3).

The importance of science in nation building justifies its inclusion in secondary school curriculum (Ezeliora, 2002). Science permeates our lives and informs our actions. Physics, for example, teaches, us how mirror work, how glasses can aid one`s vision and how heat is treated using various household materials such as plates and utensil. (Horan, 2012). Chemistry discusses the principle of matter, like atoms, molecules and compounds. It discusses the countless different substance that can arise from the minutest variation within compounds. Despite the numerous usefulness of science in everyday life, it has the problem of student

performance in physics, chemistry and biology and this has become a major concern in science education (Abimbola, Ahmed, Olorundare, Omosewo, Upahi& Yahaya, 2011).

Biology, the study of life, teaches us why we are the way we are, why we need what we need to survive, how all living things are categorized, where we all come from(Horan, 2012). Biology is a branch of science that is concern with life and living organism. The Oxford Advanced Leaner's Dictionary (2007) defines biology as the scientific study of the life and structure of plant and animal i.e. the way in which the body and cells of living organism /things behave.

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 choronological) and its capacity in an attempt to further its covert and overt behavior (Honderich, 2005). Abimbola (2009) defines 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 (Olugbuyi, 2011). The teacher is somebody who has a high intellectual capacity to understand the child's growth and development the psychology of learning the management of teaching/ learning system. Ahmed (2007) opines that the work of a teacher is therefore not a simple one for its delicacy. Since teachers deals with human being and whatever they do go a long way to affect and be affected by the society they deal with.

Perception of biology teachers need is the basis for generating motivation. (Dengda &Zhu, 2009). Need is seen as a stand in want of requirement, circumstance requiring some course of action (The Pocket Oxford Dictionary,1994). It can also define as anything that is necessary but lacking; a condition requiring relief. According to Gough (1994) 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 outcomes, such as dysfunction or death.

Maslow (1954) has earlier categorized human needs into phases; basic needs security needs, need for affection, need for achievement and self actualization needs (Chapman, 2007). Science teachers' need varies with location and gender (Figlio and Kenny, 2006). 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. This research will be focusing mainly on incentive needs (such as promotion, increase in salary e.t.c.) and academic needs (such as provision of instructional material and academic qualification) of biology teacher in Kwara state senior secondary schools.

Perception according to Concise Oxford English Dictionary (2005) 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. (Modupe, 2005).

Biology teachers` perception of needs can be defined as the way biology teachers view needs and their idea of what need is like science teacher perceived needs if met will improve science teacher. (Adeyanju, 2003) Adeyanju (2003) further states that science teacher perceived their greatest needs as the availability of instructional materials in the laboratory and classroom.

Assessment is a fact finding activity that describes conditions that exist a particular time. Adeniyi and Oluokun(2001) states that assessment is a process of investigating the status of an individual or group with reference to an expected outcome. They describe assessment as indispensable component in educational system because of its diagnostic motivational, guidance orientative judgment and confirmatory roles. The Oxford English Dictionary (2005) defines assessment as an opinion or a judgment about something that has been thought about very carefully. Assessment is an integral part of learning and teaching with necessary information about the extent to which educational objectives have been achieved.

Science teaching in Nigeria has faced a lot of setback (Akuobguo, 2002). One of the setback is teachers' needs this research is dealing with one of the challenges teachers, particularly biology teachers, are facing. If the needs of biology teachers` can be met biology teachers` performance will be enhanced.

Statement of the Problem

Science education is said to be the most appropriate and fastest vehicle for the planned transformation of any society (Okebukola, 1997). Biology is one of science subject taught in senior secondary school in Nigeria. Despite its importance to mankind and the effort of researchers to improve teaching and learning students` performance in biology in Nigeria remain low (Achor, 2003; Akuogbuo,2002; Ogbeba, 2009 &WAEC chief examiner's Report 2012). These trends still holds today.

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 learning's. Modupe (2005)

Researches on human needs have been studied on various forms of needs like biology and psychological needs, safety needs, Esteem needs, cognitive needs, transcendence needs, self actualization needs among others how they can improve teachers performance, thereby improving teaching and learning of science in general and biology in particular, examples of such researcher are (Lilia, Kamisah, Subahan & Meerah, 2006). Chapman (2007) and Olugbuyi (2011) among others. Teachers` needs are inexhaustible, more so when it involves different individual with different home and education 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 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.

Purpose of the Study

The main purpose of the study was to find out the assessment of the perceived academic and incentive needs of senior secondary school biology teachers in Kwara State, Nigeria. Specifically, this study sought to determine,

1. Perceived academic needs of biology teachers in Kwara State ;
2. Perceived incentive needs of biology teachers in Kwara State;
3. The influence of biology teachers' gender on their perceived academic needs in Kwara State;
4. The influence of biology teachers' gender on their perceive incentive needs in Kwara State;
5. The influence of biology teachers' teaching experience on their perceived academic needs in Kwara State;
6. The influence of biology teachers' teaching experience on their perceived incentive needs in Kwara State;
7. The influence of biology teachers' school type on their perceived academic needs in Kwara State;
8. The influence of biology teachers' school type on their perceived incentive needs in Kwara State;

Research Questions

The following research question were raised and answered in the study.

1. What are the perceived academic needs of biology teachers?
2. What are the perceived incentive needs of biology teachers'?
3. Does gender has influence on biology teachers' perceived academic needs?
4. Does gender has influence on biology teachers' perceived incentive needs?
5. What influence does experience of biology teacher's has on their perceived academic needs?
6. What influence does experience of biology teachers' has on their perceive incentive needs?
7. What are the perceived academic needs of private and public school biology teachers'?
8. What are the perceived incentive needs of private and public schools biology teachers?

Research Hypotheses

HO_1 : There is no significant difference between the perceived academic needs of male and female biology teachers.

HO_2 : There is no significant difference between the perceived incentive needs of maleand female biology teachers.

HO_3 : There is no significant difference between the perceived academic needs of experience and less experienced biology teachers

HO_4: There is no significant difference between the perceived incentives needs of experience and less experienced biology teachers.

HO_5: There is no significant difference between the perceived academic needs of private and public schools biology teachers.

HO_6 : There is no significant difference between the perceived incentive needs of private and public schools biology teachers.

RESEARCH   METHODOLOGY

The study was 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 stratified random sampling method, 90 teachers (46 males and 44 females) were selected from kwara south senatorial district, 80 teachers (50 males and 30 females) each was selected from kwara north and (32 males and 48 females) for kwara central senatorial districts of kwara state. The sample included two hundred and fifty (250) biology teachers in both private and public school selected for the study.

The research instrument was a questionnaire known as Teachers' Needs Questionnaire designed by the researcher. The research instrument was adapted, from Olugbuyi, 2011. The Questionnaire was made up of four (4) section; section A contain questions on biodata, schools and teachers` experience, section B contain questions on academic needs, section C contain questions on incentive needs, and section D contain question on State Teaching Service Commission and other pressing needs of biology teachers not included in section B and C.

The pilot sample was sixty (60) teachers which are outside the sample area for the study. The instrument was subjected to content and face validity and was tested for reliability using test –retest method and 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 independent chi-Square was used in testing the research hypotheses.

ANALYSES OF RESULTS

Research Question 1: what are the perceived academic needs of biology teachers?
Table 1:
Teacher Perceived Academic Needs

N/o		N	sum	mean(x)
1.	Need to update laboratory with microscope aquarium, herbarium, and other biology specimen.	250	729	2.92
2.	Increase in periods allotted for biology teachers.	250	711	2.84
3.	Availability of resource personal in the biology laboratory.	250	710	2.84
4.	Visit from examination bodies e.g NECO, WEAC, e.t.c .	250	700	2.80
5.	Decision on the type of classroom organization by teachers.	250	699	2.80
6.	In-service training for biology teachers.	250	696	2.78
7.	Need to be creative method of teaching biology.	250	696	2.78
8.	Involvement of biology teachers in the selection of topic for biology teaching.	250	687	2.75
9.	Need for online teaching resource for biology teaching.	250	685	2.74
10.	Practical knowledge on how to use multimedia resources for biology teaching.	250	679	2.72
11.	Monitoring from senior colleague.	250	679	2.72
12.	Involvement in marking exercise.	250	676	2.70
13.	Decision on the specification of minimum requirement before students can progress to the next level by teachers.	250	667	2.67

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.

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 been 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 this also fall within the range of highly need biology academic needs.

Research Question 2: what are the perceived incentive needs of biology teachers?

Table2 :

Teachers Perceived Incentive Needs.

$^N/_o$		N	Sum	Mean(x)
1.	Provision of accommodation to school	250	714	2.86
2.	Needs for marking WEAC, NECO, NABTEB, e.t.c	250	709	2.84
3.	Sponsorship by government to attend seminar and workshop both in and outside the state.	250	708	2.83
4.	Giving grant to teachers so as carry out research	250	698	2.79
5.	Provision of conducive office accommodation	250	698	2.79
6.	Need for increasing rate of promotions	250	697	2.79
7.	Preparation of allowance for senior secondary school certificate practical examination	250	683	2.73
8.	Different salary structure from other teachers	250	609	2.44

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 scale 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.

Research question 3: Does gender has influence on biology teacher perceived academic needs? This translate to the corresponding hypothesis (HO_1) which state that

Research Hypothesis 1

There is no significant difference between the perceived academic needs of male and female biology teachers. A chi- square analysis are conducted to determine where there is a significant difference or not the findings are presented in table 3

Table 3:

Chi-square test on perceived academic needs based on gender

	Value	Df	Asymp.sig.(2-sided)
Pearson Chi-square	6.191	2	.045
Likelihood Ratio	6.335	2	.042
Linear – by - Linear Association	5.9521	.015	
N of valid cases	250		
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 is a significant difference between the perceived academic needs of male and female teachers on academic needs on biology teachers because the P –value(0.045) is less than 0.05. Therefore the null hypothesis is rejected

Research Question4:

Does gender has influence on biology teachers perceived incentive needs?

Research hypothesis 2:

There is no significant difference between the perceived incentive needs of male and female biology teachers.

In response to this, a chi square test was conducted to determine if there is a significant difference between the perceived incentive needs of male and female biology teachers, the finding are presented in table 4

Table 4:
Chi- square Test on Perceived Incentive Needs based on Gender.

	Value	DF	Asymp.sig(2sided)
Pearson chi-square	.180	2	.914
Likelihood Ratio	.180	2	.914
Linear-by-linear Association	.023	1	.880
N of valid Cases	250		
a.2 cell(33.3%) have expected countless than 5. The minimum expected count is 4.39.			

The result in table 4 show that $X^2(2)= 0.180$, P= 0.914 >0.05, which means that there is no significant different between perceived incentive needs of male and female biology teachers because the P-value (0.914) is greater than 0.05, therefore the hypothesis is not rejected.

Research Question 5

What influence does experience of biology teachers` has on their perceived academic needs?

Research Hypothesis 3

There is no significant difference between the perceived academic needs of experience and less experienced biology teachers.

In response to this, a chi-square analysis was conducted to determine whether there is a significant difference between the perceived academic needs of experience and less experienced biology teachers. The finding are presented in table 5

Table 5:
Chi- square test on perceived academic needs based on teaching experience

	Value	DF	Asymp.sig(2 sided)
Pearson chi-square	2.065	2	.356
Likelihood Ratio	2.151	2	.341
Linear-by-linear Association	.022	1	.881
N of valid cases	250		
a.0 cell (0%) have expected count less than 5. The minimum expected count is 5.04			

The result In table 5 shows that X (2)=2. 065, P= 0.356>0.05, which means that there is no significant different between the perceived academic needs of experienced and less experienced biology teachers, this is because the P-value (0.356)is greater than 0.05. The hypothesis 3 is not rejected.

Research Questions 6.

What influence does experience of biology teachers` has on their perceived incentive needs?

Research Hypothesis 4:

There is no significant difference between the perceived incentive needs of experience and less experienced biology teachers.

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

Table 6
Chi-square test on perceived incentive needs based on teaching experience

	Value	DF	Asymp. Sig.(2.sided)
Pearson chi-square	.303	2	.860
Likelihood Ratio	.309	2	.857
Linear –by- linear Association	.160	1	.689
N of Valid Cases	250		
a.1 cell (16.7%) have expected count lees than 5. The minimum expected count is 3.78.

The result in table 6 show that $X^2(2)= 0.303$, P=0.860>0.05, which means that there is no significant different between the perceived incentive needs and teaching experience because the P- value (0.860) is greater than 0.05. Therefore hypothesis 4 is not rejected.

Research Question 7:
What are the perceived academic needs of private and public schools biology teachers?

Research hypothesis 5:
There is no significant difference between the perceived academic needs of private and public schools biology teachers.

In response to this, a chi- square analysis was conducted to determine whether there is a significant difference between the perceived academic needs of private and public school biology teachers. The findings are presented in Table 7.

Table7
Chi-square test on perceived academic needs based on school type

	Value	DF	Asymp.sig.(2.sided)
Pearson chi-square	1.898	2	.387
Likelihood Ratio	1921	2	.383
Linear-by-linear Association	1.215	1	.270
N of Valid Case	250		
a.0 cells(0%) have expected countless 5. The minimum expected count is 5.76

The result in table 7 shows that $X^2(2)=1.898$,P= 0.387>0.05, which means that there is no significant difference between the perceived academic needs of private and public schools because the P-value (0.387) is greater than 0.05. Therefore hypothesis 5 is not rejected.

Research question 8:
What are the perceived incentive needs of private and public school biology teachers?

Research Hypothesis 6:
There is no significant difference between the perceived incentive needs of private and public schools biology teachers.

In response to this, a chi-square analysis was conducted to determine whether there is no significant difference between the perceived incentive needs of private and public school teachers. The finding are presented in Table 8

Table 8:
Chi-square test on perceived incentive needs based on school type

	Value	DF	Asymp.sig(2 sided)
Pearson chi-square	2.744	2	.254
Likelihood Ratio	2.768	2	.251
Linear-by-linear Association	.126	1	.723
N of Valid Cases	250		
9.2calls (33.3%)have expected count less than 5. The minimum expected count is 4.32			

Table 8 shows that $X^2(2)=2.744, P=0>254>0.05$, which means that there is no significant different between the perceived and incentive needs of private and public school, because the-value (0.254) is greater than 0.05. Therefore hypothesis 6 is not rejected.

DISCUSSION

Almost all research that worked on needs agreed that needs affect performance both positively and negatively. Modupe(2005) (Lilia, Kamisah, Subahan, & Meerah, 2006), Champman 2007, (Dengda & Zhu, 2009) and Olugbuyi 2011 e.t.c. Positively in the sense that its increase the teachers productivity if their needs are met, which will influence their performance in teaching biology and students performance in learning science(biology) and vice versa.

From the result, for all the items of both academic and incentive needs, were perceived by biology teachers as highly important needs because none of the items were far 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 been 2.67 for academic needs and 2.44 for incentive needs. This is above the average mean score of 1.5.

The result shows that school type and teaching experience as variable shows no significant differences exist with both academic and incentive needs. This is so because the null hypothesis for both academic and incentive needs for school type and teaching experience, shows no significant differences and the research hypothesis is not rejected. This shows that regardless of school type and experiences, teachers perceived the content of the needs of academic and incentive needs as highly needed needs. This is in agreement with findings of Modupe (2005) and Olugbuyi 2011.

Gender as a variable, shows that there is a significant difference between the perceived academic needs of male and female biology teachers, this is because the null hypothesis is rejected, while for gender on incentive need, the null hypothesis is accepted, this is because there is no significant different between the perceived incentive needs of male and female biology teachers.

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.

Modupe (2005) 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.Modupe (2005) needs are also peculiar to the needs of this study which are in-service training, classroom organization decisions, allowances and to evaluates students.

Idris (2002), Modupe (2005), Lilia et al, (2006) and Olugbuyi (2011) believe 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

This study assessed 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 falls under the major needs of science teacher 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.

All teachers regardless of their sex, experience and school type believed in all the content of the questionnaires as needs that could trigger them to increase their productivity and enhance effective and efficient teaching and learning process.

RECOMMENDATIONS

The following recommendation is suggested based on the finding of the research.

1. 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 member of professional non-governmental organization such as STAN, so as help them to grow academically
2. Government should give grants to biology teachers to carry out practicals with the view of solving various problem and challenges facing science education.
3. 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.
4. The rate of promotions of science teachers particularly biology should be increase, this is to spur them highly to perform both effectively and efficiently.
5. Finally, government should fund properly science education since it is the bedrock of national development and technological advancement.

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