



Biology Teachers' Awareness and their Application of Ethical Codes in Classroom Management in Secodnary Schoos in Anambra State

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Abstract

The study was a descriptive survey aimed at investigating biology teachers' awareness and their application of ethical codes in teaching secondary school students in Anambra state. It also determines the extent to which these teachers apply ethical codes in classroom planning, organization, supervision and funding. The population of the study consisted of all the biology teachers from six (6) Education Zone in Anambra state. One hundred and twenty (120) biology teachers constituted the sample for the study. Five (5) research questions guided the study and data was collected using a structured questionnaire. Analysis of data was done using weighted mean. The findings of this study revealed that biology teachers were aware of ethical codes and applied these codes in their classroom activities. The researchers also identified that some teachers do not update their knowledge in technological advancement for the classroom (through in-servcie training) to make them more refined and productive to improve their professional expertise and suggested that funding of biology laboratory need to be improved; provision of more relevant working facilities such as steady power supply, workable computers, internet facilities should be provided in secondary schools to enable the teachers access the internet anytime and engages in education research to continuously improve their teaching strategies. Post Primary Schools Management Board of every state should provide periodic monitoring and evaluation of biology teachers activities in the classroom. The researchers also recommended that STAN should sponsor biology teachers to both national, international and local conferences and workshops, for this will help to improve the level of application of ethical codes with regards to biology classroom instruction. Again biology teachers should be encouraged to build a qualitative learning in our school system by imbibing the spirit of dedication and resourcefulness so that students will become more responsible, more assertive and more optimistic in their learning abilities.

Keywords: Ethical Codes, Biology teachers, Awareness, Classroom management, Application.

Introduction

Ethics is concerned with what is good for individuals and society and is also described as moral philosophy. It is a system of moral principles and affect people's decisions and the way they lead their lives. Ethics is very essential in education as they help the system progress, sets the standard of what's acceptable and what's not hence protecting the interests of both the instructors and the learners. Teachers should make it upon themselves that they have important role in a student's life by making the students to be aware of these ethics. Teachers do not only impart education but also help develop the personality of a student as the mentor influences an individual's development. Since ethics is cornered with what is right or wrong, good or bad, fair or unfair, student's introduction to ethics comes very early in individual life. Children argue with siblings, peers and mates about what is good or bad, fair or unfair, responsible or irresponsible. Sometimes they receive praise and blame from parents, teachers, guardians and others which serves as a source of encouragement that they are capable of some degree of responsible behaviour. It seems they are both recipients and dispensers of resentment, indignation, and other morally reactive attitudes.



Classroom management is the term educators use to describe methods of preventing misbehavior and dealing with it if it arises. In other words, it is the techniques teachers use to maintain control in the classroom. Productive and efficient teachers expertly manage and organize the classroom and expect their students' contributions in a positive manner. It seems prudent to pay careful attention to classroom climate, given that it can have as much impact on students learning as student aptitude (Wang, Haertel, & Walberg, 2015). Our education has generally focused on developing worthwhile citizens who will contribute to a better society and a better future for all.

The study carried by Lazarowitz, and Ilit Bloch (2006) "Awareness of Societal Issues Among High School Biology Teachers Teaching Genetics" in which the issue of moral, ethics and human values served as the main goals of investigation while teaching genetics, genetic engineering, molecular genetics, human heredity and evolution to high school students. Therefore, this study is aimed to find the extent of application of ethical and moral issues in classroom management among the secondary school biology teachers.

Conner (2000, a) noted the importance of including "bio-ethical issues in order to provide opportunities for students to be prepared to issues in adult life by giving them experience in discussing personal, social and ethical dilemmas related to science and technology". Students should get learning opportunities which require the use of higher thinking skills, such as analysis, synthesis, critical reflecting and evaluation of their ideas about social and ethical issues. These should be provided in the context of learning topics, which are relevant to students (Anderson 2003; Bryant 2002; Bryant and Baggott La Velle 2003 and Lipman 1991. P.50). At the College level, Sadler and Zeidler (2005) explored how students negotiate and resolve genetic engineering dilemmas. They reported that students demonstrated "evidence of rationalistic, emotive and initiative forms of informal reasoning" and most of them "appreciated some of the moral implications of their decisions". Conner (2000, b) raised the problem that since science and technology teachers are often only specialists in their subject matter, they may encounter pedagogical difficulties which require discourse on Science, Technology and Societal (STS) issues. Based on these reports, this study deemed it right to pay careful attention to classroom climate, knowing fully well that lack of effective classroom management reduces learning and can have as much impact on students learning as student aptitude. Therefore, the need for guidance in these matters is probably pivotal in order for them to be able to act as facilitators on these issues suggested in other people's findings.

The need for guidance in these matters is probably pivotal in order for them to be able to act as facilitators on these issues. In their study, Lazarowitz and Bloch (2006) posed the following question:

- (a) Are high school biology teachers aware of the social dilemmas while teaching subjects in genetics?
- (b) What are the subjects in genetics that, in the teacher's opinion, should be taught in high school?
- (c) Do these subjects include societal issues (Values, moral and ethics)?
- (d) What are the reasons given by the teachers in favour or against including societal issues in their classes of genetics, molecular genetics, genetic engineering and evolution?
- (e) Do teachers differ in their opinions as to their awareness of these issues due to their years of teaching experience, gender or religious faith?

Lazarowitz and Bloch's findings indicated low level of awareness of societal issues and that teachers do not include societal issues in their teaching. Since their findings are in line with this study, it is pertinent to determine the awareness and extent of application of ethical issues in classroom management among secondary school biology teachers in Anambra State. Therefore, ethics is very important in biology teaching as they help education to progress.

Sadler and Zeidler (2005) concluded that science classrooms are environments where in additions to reason, intuition and emotion are valued. Ethics education has been espoused by a number of professions in an effort to raise awareness of social and ethical issues and to enable the ethical decision making skills required of people (Lysaght, Rosenberger III & Kerridge, 2006). Moreover, this study tends to determine biology teachers awareness and extent of their application of ethical issues in teaching secondary school students.

So ethics provide us with a moral map, a useful Platform to find our way through difficult issues. It addresses matters of public policy and personal matters as well. There is need for teachers to encourage a reasonable atmosphere in which students are willing to listen to and reason with one another. Classroom



environment should be helpful for the biology teachers to provide appropriate platforms that help students evaluate ideas, weigh up evidence, detect bias and justify their decisions.

Statement of the Problem

Science is a tool for economic growth and survival of every nation. Consequently every nation seeks ways of improving science education of its citizens. One of the major concerns of teaching and learning of science is creativities and innovations which implies that science should be taught in such an environment that support the creative and innovative potentials of the learners. Biology is one of the science subjects that involves the students in seeing, handling, and manipulating real objects and materials in an enabling environment. The quality of the products of education depends to a large extent on the quality of classroom interactions between the teachers and the learners. The notion that ethics might be taught at the Junior or Senior high school is merely met with skepticism. Since institutions are designing courses that help students understand ethics, there is need for biology teachers to be in the vanguard of construction and utilization of knowledge by updating and upgrading. Therefore the focus of this study is to investigate how aware the biology teachers are in applying moral and ethical issues in teaching secondary school students.

Research Questions

The following research questions guided the study:

1. What is the extent to which biology teachers are aware of ethical codes?
2. What is the extent to which biology teachers apply ethical codes in classroom planning?
3. What is the extent to which biology teachers apply ethical codes in classroom organization?
4. What is the extent to which biology teachers are aware in applying ethical codes in classroom funding?
5. What is the extent to which biology teachers apply ethical codes in classroom supervision?

Research Method

Design of the study

The study adopted a descriptive survey design. Nworgu (2015) sees descriptive survey research design as the process of collecting data on, and describing in a systematic way the characteristics, features or facts about a given population. It is seen as a design in which a group of people or items are studied by collecting and analysing data from only a few people or items considered to be a representative of the entire group. This design is considered appropriate for this study because the researchers collected and analyzed data from group of teachers in the sample schools in order to ascertain biology teachers awareness and their application of ethical codes in classroom management in secondary schools.

Population of the study

The population of this study consisted of all the Biology teachers from six (6) education zones in Anambra state. Records from Post Primary Schools Service Commission Awka 2018 stipulated the number of these biology teachers as at 281. The distribution of these teachers in the zone presents the following data; Awka zone 79, Aguata zone 45, Nwewi zone 41, Ogidi zone 35, Onitsha zone 60 and Otuocha zone 21; total 281 (source ANPPSSC, Awka 2018).

Sample and Sampling Techniques

One hundred and twenty (120) biology teachers constituted the sample. Thirty (30) teachers were drawn from each of the four (4) zones through simple random sampling techniques to produce a sample size of 120 respondents. Forty (40) males and eighty (80) females were randomly selected through balloting.

Instrument for Data Collection

The research instrument used was a questionnaire titled; "Biology Teachers Awareness and their Application of Ethical Code Questionnaire" was self-developed by the researchers for data collection. The instrument was a 51 item questionnaire in 5 clusters designed to elicit information on the topic from the respondents. Respondents were all requested to tick their sources of awareness and extent of application of ethical codes in classroom, problems and strategies for enhancing the ethical codes of teachers in classroom



management. The response options include: Very Great Extent (VGE), Great Extent (GE), Low Extent (LE), and Not Applicable (NA).

A total of 120 copies of the questionnaire were administered to these Biology Teachers but a total of 110 copies were received and found usable for the study. Thereby yielding 87% response rate.

Validation of the instrument

The instrument was presented to specialists in department of Science Education (Measurement and Evaluation) University of Nigeria, Nsukka for validation. The specialists were requested to validate the instrument with respect to clarity of language, appropriateness and adequacy of the items in measuring what it is supposed to measure. In their correction, they suggested the relatedness of the instrument to the study and that the instruments should cover a considerable number of items. Again, the mean should be rated using real limit of numbers instead of 2.50 as a cut off point. The advice, comments, corrections and suggestions of the specialists helped in the modification of the instrument.

Method of Data Analysis

Data for the study was presented in tables and analyzed using real limit of numbers to rate the mean:

0.5	-	1.49	NA
1.5	-	2.49	LE
2.5	-	3.49	GE
3.5	-	4.00	VGE

Real limit of numbers was considered efficacious in considering the extent of application of ethical codes by biology teachers in classroom management.



RESULTS

Research Question 1: What is the extent to which biology teachers are aware of ethical code?

To answer this research question, the analysis is presented in table 1.

Table 1: Mean Result of Respondents on the extent to which Biology teacher are aware of ethical codes.

S/N	ITEM	VGE	GE	LE	NA	\bar{x}	Decision
1.	Model strong character as patience, fairness and unity.	10	90	3	7	2.94	GE
2.	Obey school policies.					4.00	VGE
3.	Create an atmosphere that is conducive for student teachers as they prepare to serve as educators.	100	10	0	0	3.91	VGE
4.	Do not show favouritism and partiality.	80	15	10	5	3.54	VGE
5.	Attend classes to maintain his/her certificate.	110	0	0	0	4.00	VGE
6.	treat every student with kindness, equality and respect.	40	65	5	0	3.32	GE
7.	Maintain confidentiality.	20	68	14	8	2.91	GE
8.	Do not use relationship with students for personal gain.	100	5	5	0	3.86	VGE
9.	Respect the values and traditions of diverse culture represented in the classroom.	40	65	5	0	3.32	GE
10.	Makes a constructive effort to protect the student from conditions detrimental to learning, health and safety.	40	50	10	10	3.09	GE
11.	Exposure of the students to disparagement.	50	36	24	0	3.24	GE
12.	Endeavor to present facts without distortion, bias or personal prejudice.	82	27	1	0	3.74	VGE
13.	Foster healthy relationship with students.	95	5	7	3	3.75	VGE
14.	Does not charge students for practical materials.	43	57	6	4	3.26	GE
15.	Honestly accounts for all funds committed to his or her own personal opinion.	110	0	0	0	4.00	VGE
16.	Continues professional growth	50	37	13	10	3.15	GE
17.	Avoid gossip.	30	20	60	0	2.73	GE
18.	Does not require students to buy hand-outs.	76	24	10	0	3.60	VGE
19.	Avoid any form of neglect or offensive conduct.	39	41	20	10	2.99	GE
20.	Design lesson plans to meet state standards in teaching their students.	100	4	6	0	3.85	VGE
21.	Engages in education research to continuously improve their teaching strategies.	20	18	70	2	2.51	GE
22.	Participate in curriculum improvements.	3	2	95	10	1.98	LE
23.	Create a well-rounded education plan that appeals to a wide range of learners.	10	17	80	3	3.31	GE
24.	Ensure that their teaching methods are fresh, relevant and comprehensive.	87	20	3	0	2.76	GE
25.	Stay up to date in technical advancements for the classroom.	0	0	100	10	1.91	LE
26.	Consult colleagues for professional advice.	62	28	20	0	3.38	GE
Cluster Mean (\bar{x}) =						3.31	GE

From Table 1, the responses were to a great extent indicating that biology teachers were aware of ethical codes. However, teachers were not aware of being up to date in technological advancement and some do



not participate in curriculum implementation for teaching. Therefore, their responses for items 22 and 25 were to a low extent.

Research Question 2: What is the extent to which biology teachers apply ethical codes in classroom planning?

To answer this research question, the analysis is presented in table 2.

Table 2: Mean result of respondents on the extent to which Biology teachers apply ethical codes in classroom planning

S/N	ITEM	VGE	GE	LE	NA	\bar{x}	Decision
1	Design lesson plans to meet state standards in teaching their students.	100	10	0	0	3.91	VGE
2	Create a well-rounded education plan that appeals to a wide range of learners	35	70	5	0	3.27	GE
3	Ensure that their teaching methods are fresh, relevant and comprehensive.	100	10	0	0	3.91	VGE
4	Engages in education research to continuously improve their teaching strategies.	35	44	21	10	2.95	GE
5	Participate in curriculum improvements.	19	21	60	10	2.45	LE
6	Stay up to date in technical advancements for the classroom.	0	8	92	10	1.98	LE
7	Consult colleagues for professional advice.	11	29	60	10	2.37	LE

Cluster mean (\bar{x}) = 2.98

GE

From table II, responses from items 1-4 shows that biology teachers applied ethical codes in classroom planning to a great extent while they responded to a low extent in items 5, 6 and 7 indicating that these teachers do not participate in curriculum improvements, or update their knowledge in technological advancement and do not consult colleagues for professional advice.

Research Question 3: What are the extent to which biology teacher apply ethical codes in classroom organization?

To answer this research question, the analysis is presented in table 3

Table 3: Mean result of respondents on the extent to which Biology Teachers apply ethical codes in classroom Organisation.

S/N	ITEM	VGE	GE	LE	NA	\bar{x}	Decision
1.	Makes a constructive effort to protect the students from conditions detrimental to learning, health and safety.	20	78	12	0	3.07	GE
2	Endeavours to present facts without distortion, bias or personal prejudice.	96	15	5	0	2.77	GE
3	Exposure of the students to disparagement.	95	15	0	0	3.86	VGE
4	Respect the values and traditions of diverse cultures represented in the classroom.	40	50	16	4	3.15	GE

Cluster mean (\bar{x}) = 3.46

GE

From table 3, the responses shows that biology teachers applied ethical codes in classroom organization to a great extent indicating that the respondents were in agreement with items 1 to 4.

Research Question 4: What is the extent to which biology teachers apply ethical codes in classroom funding?



To answer this research question, analysis is presented in table 4.

Table 4: Mean result of respondents on the extent to which Biology teachers apply ethical codes in classroom funding.

S/N	ITEM	VGE	GE	LE	NA	\bar{x}	Decision
1	Honestly accounts for all funds committed to his or her own personal opinions.	40	32	28	10	2.93	GE
2	Does not charge students for practical materials.	84	20	6	0	3.71	VGE
3	Continues professional growth.	20	50	35	5	2.77	GE
4	Foster healthy relationship with students.	108	2	0	0	3.71	VGE
5	Does not require students to buy hand-out.	100	5	3	2	3.85	VGE
Cluster mean (\bar{x}) 3.45							GE

From table 4, the extent to which biology teachers applied ethical codes in classroom funding was great, indicating that the teachers do not charge students for practical materials, they foster healthy relationship with students, honestly accounts for all funds and as well do not require students to buy hand-out.

Research Question 5: What is the extent to which biology teachers apply ethical codes in classroom supervision?

To answer this research question, the analysis is presented in table 5.

Table 5: Mean result of respondents on the extent to which biology teachers apply ethical codes in classroom supervision.

S/N	ITEM	VGE	GE	LE	NA	\bar{x}	Decision
1	Creates an atmosphere that is conducive for student teachers as they prepare to serve as educators.	8	100	2	0	3.05	GE
2	Model strong character such as patience, fairness and unity.	90	15	5	0	3.77	VGE
3	Do not show favouritism and partiality.	85	20	3	2	3.71	VGE
4	Treat every student with kindness, equality and respect.	45	60	5	0	3.36	GE
5	Attend classes to maintain his/her certification.	110	0	0	0	4.00	VGE
6	Obey school policies.	100	10	0	0	3.91	VGE
7	Maintain confidentiality	20	60	22	8	2.84	GE
8	Do not use relationship with students for personal gain.	90	10	10	0	3.73	VGE
9	Avoid any form of neglect or offensive conduct.	40	40	19	11	2.99	GE
Cluster mean (\bar{x}) 3.48							GE

From table 5, the researchers agreed with the respondents that the teachers applied ethical codes in classroom supervision to a great extent indicating that these teachers model strong character, maintain their certification, treat students with respect and avoid any offensive conduct among others.

Discussion

The result presented in the tables shows that the biology teachers used for the study were aware of ethical codes to a great extent. Therefore, they created a well-rounded education plan that appeals to a wide range of learners.

The findings also indicated that the biology teachers applied ethical codes in classroom planning, organization, funding and supervision to a great extent. This implies that the extent of biology teachers' awareness of moral and ethical issues will determine the extent of utilization for biology teaching.

The result further shows that the teachers do not update themselves in technological advancement. This could be as a result of not engaging themselves in in-service training (conferences, workshops,



seminars, enlightenment programmes) not knowing that the world is changing and changing fast as well do not participate in curriculum improvement and do not consult colleagues for professional advice.

Furthermore, the teachers honestly accounts for all funds, foster healthy relationship with the students, does not charge students for practical materials and makes a constructive effort to protect the students from conditions detrimental to learning, health and safety to a great extent.

Conclusion

Ethics is not only about the morality of particular courses of action, but it is also about the goodness of individuals and what it means to live a good life. It is important that the classroom environment is one in which students can share their views and listen to one another with respect. Individuals are required to specialize in knowledge from a particular viewpoint, become an expert in that area. They then use their knowledge to argue their case. Therefore, a range of classroom activities can be used to facilitate the development of students' ethical thinking skills. However, in the 5 clusters under study, the respondents' response shows that biology teachers are aware and applied ethical codes in their teaching of secondary school students in Anambra State.. The researchers' decision indicated that biology teachers applied ethical issues to a high extent in order to attain and sustain social, economic and ecological wellbeing as key to address development issues. The study further highlight that some biology teachers do not update their knowledge in technological advancement (through in-service training) to make them more refined and productive to improve their professional expertise. This shows very unserious and laissez-fair attitude of some teachers and their inability to use information channels. This affects students' knowledge output in biology, considering the relevance of biology as a subject to individuals, science and technological advancement, society and the nation at large. Biology teachers should be involved in the curriculum reformation for this aimed at optimizing individuals' contribution, integrating related information and communication component and coordinating delegated tasks in the management process. This will enhance learning and provide students with new sets of skills sustain and update their knowledge in biology education.

Recommendation

The results of the current study indicated that some teachers were found wanting in their awareness and application of ethical issues in their classroom activities. This leads to the following recommendation:

1. Post Primary Schools management Board of every state should provide periodic monitoring and evaluation of biology teachers activities in the classroom.
2. Biology teachers should be encouraged to build a qualitative learning in our school system by imbibing the spirit of dedication and resourcefulness so that students will become more responsible, more assertive and more optimistic in their learning abilities.
3. Government should provide adequate working facilities such as steady power supply, workable computers and internet facilities among others in secondary schools to enable the teachers access the internet anytime and engages in education research to continuously improve their teaching strategies.
4. STAN should sponsor biology teachers to both national, international and local conferences and workshops. This will help to improve the level of application of ethical codes with regards to biology classroom teaching.

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