



Effects of resource person on senior school students' achievement and attitude to family planning in Ilorin, Nigeria

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Abstract

Effects of resource person on students' achievement and attitude toward family planning in Ilorin, Nigeria were investigated in this quasi-experimental study. Fifty-seven senior school biology students in two intact classes selected through multistage sampling technique participated in the study. Data gathering was carried out in the study through the use of researcher-designed achievement test and attitudinal questionnaire. Hypotheses were tested using the t-test statistical technique. The results were as follows; the students taught family planning using a resource person had higher achievement than those taught by their class teacher ($t_{(57)} = 2.52, p < 0.05$); significant difference does not exist in students' attitude; and no gender difference in students' achievement. The researchers concluded that using resource person is appropriate and effective in enhancing students' achievement in family planning, and recommended its use for teaching other controversial biology topics.

Keywords: Resource person, attitude, family planning, student's achievement, and biology education.

Introduction

Biology remains the most popular science discipline among Nigerian senior schools students despite being recently delisted from the list of core subjects, as revealed by Federal Republic of Nigeria¹. Biology, an interdisciplinary field of study, is equally an autonomous science discipline as noted Mayr². The autonomy of biology partly rests on the fact that physical science principles such as determinism, reductionism, and essentialism among others are not applicable to biology. These principles have been replaced with biology-specific principles and concepts such as bio population and evolution according to Mayr².

Studies such as that of Cetin, Ertepinar and Geban³, and Olorundare⁴ have revealed that students performed poorly in biology than other science disciplines offered by students at the final West African Senior School Certificate Examinations (WASSCE). Also, Ityokyaa and Adejoh⁵ observed that in Nigeria, biology topics were not well taught in senior schools. Researchers such as Nwagbo and Okoro⁶ and Obiekwe⁷ related students' underachievement to teachers' teaching methods. Students' poor performance in biology may equally be connected to the difficult nature of some biology concepts and theories.

Indeed, biology curriculum is laden with numerous controversial and hard-to-teach and hard-to-learn topics such as evolution, family planning, climate change, genetics, GM food, cloning, environment and so forth, as observed by Cotton⁸ and Koba and Tweed⁹.

Family planning, is one the controversial topics in the biology curriculum. Family planning according to Nigerian Urban Reproductive Health Initiative¹⁰ is concern with spouses taking decision on when to start having children, number of children and birth spacing to enhance healthy family life. It is a potent tool to ensure the health and wellbeing of the nation thereby provides enabling environment for sustainable socio-economic development. Teaching and practice of family planning are crucial to reduction in poverty rate as observed by Mailey, Malkova and Norling¹¹.

The controversy surrounding family planning arose from conflict with religion and socio-cultural perspectives. Socio-cultural practices cum religion beliefs in many societies in Nigeria and elsewhere in the global community frown at family planning. Art Elphick¹² observed that the Taliban, Al-Shabaab, Boko Haram, and several Christian groups opposes family planning, while Catholic Church is still blocking government support for family planning in developing nations. In a study conducted by Ijadunola, Abiona, Ijadunola, Afolabi, Esimai, and Olaolorun¹³ in Nigeria, men's views on family planning was found to be influenced by their religion. It was concluded in the study that men participated poorly in taking decisions on family planning issues and family planning services. Religion, low self-esteem, pervasive myth and misconceptions were major barriers to family planning in Nigeria identified in a study conducted by the Urban Reproductive Health Initiative according to Kim¹⁴. These barriers were equally, identified in a study conducted by the New Zealand Family Planning¹⁵. The barriers equally underpin the controversies surrounding family planning.

Teaching controversial topics such as family planning especially at senior school level biology class is often met with some degree of resistance on the part of the learners, parents and faith-based organizations. In addition, students do experience stressful cognitive conflict in their attempt to reconcile their religion and socio-cultural doctrines with biology explanations. Indeed, the Busy Teacher¹⁶ reported that many teachers do feel queasy and want to run away from dealing with controversial topics. Some teachers had negative attitude towards teaching family planning as reported by Povilaitienė and Radzeviienė¹⁷. However, Tavakoli and Rashidi-Jahan¹⁸ reported that the attitude of some teachers in Teheran towards family planning was positive. Furthermore, Christopher, Vanessa, Justin and Marcus¹⁹ observed that many teachers were not adequately prepared and often feel constrained in their competency to teach controversial topics, while ironically controversial topics are often taught using controversial instructional strategies.

It is common for teachers to use innovative teaching methods when dealing with controversial and hard-to-teach-hard-to-learn topics. The integration of resource person into class instruction is an innovative way of using community resources. Resource person refers to an expert from the community who possesses specialized skills and knowledge relevant to topics in the curriculum; a person who can lend real life experiences to help enhance an interactive lesson. Teachers use experts such as such Craftsmen, Technicians, Nurses, Medical Doctors and other professionals as part of instructional strategy to enhance effective teaching and students seem to like being taught occasionally by resource persons. For instance, in a study conducted by Momodu²⁰ in Benin city, Nigeria it was found out that 476 (83.5%) out of 600 students indicated their likeness for resource persons especially, Doctors, Psychologists and Nurses to teach them sexuality education. A similar study was conducted by Amosa²¹ in Ilorin, Nigeria, the result indicated that students taught using local technician had higher performance than the control group. The result suggests that students may develop positive attitude toward learning controversial topics from resource persons and this could lead to improved performance.

Controversy influences individual's attitudes toward controversial issues. Attitude could be positive, negative or neutral. Attitude is a complex psychological construct concerned with a person's predisposition, and feeling towards a value, events, person, place or thing. Attitudes develop through experience and it significantly influences a person's action and thought process. It is equally associated with students' academic achievement. The result of a study conducted by Usak, Prokop, Ozden, Ozel, Bilen, and Erdogan²², on attitude towards biology indicated that students exhibited neutral attitude. However, the result of the study conducted by Hassaini, Foong, and Kamar²³ in Kebbi State, Nigeria, indicated that students had positive attitude towards biology. In terms of attitude towards sex and sexuality the Demographic Research and Development Foundation, Inc²⁴ reported that more boys than girls had liberal

attitudes towards sex and sexuality education. Naelah, Omran, and Amaal²⁵, reported that university students' attitude toward family planning was positive in Bhutan. Passang²⁶ carried out a study among students and teachers. The result revealed that the attitudes of the students and teachers towards sex education was positive.

Gender disparity goes beyond students' attitude; several studies had reported gender disparity in students' performance in biology and science disciplines in general. For instance, the result of a recent study carried out among students in South-west Nigeria by Abdul Raheem²⁷ indicated that males outperformed the females in science subjects offered at the WASSCE. However, the result of the study conducted by Ibrahim, Sabitu, and Magaji²⁸ among Nigerian students revealed that gender disparity does not exist in students' performance in science subjects.

Objectives: The study sought to determine the: i. Effects of the use of resource person on students' achievement when taught family planning by resource person as an instructional strategy (Experimental group) and those taught by their class teacher (Control group), ii. Students' attitude towards family planning before and after being taught family planning. iii. Gender influence on the achievement of the experimental group students before and after treatment.

Research Questions: Three research questions were formulated in the study. The questions were: i. Does the achievement of the students taught by resource person and those taught by the class teacher differ significantly? ii. Does the attitude of students taught by resource person and those taught by the class teacher differ significantly? iii. Does the achievement of students taught by resource person differ significantly based on gender?.

Hypotheses: The three hypotheses tested in the study were as follows: H₀₁: The achievement of the students taught by resource person and those taught by the class teacher does not differ significantly. H₀₂: The attitude of the students taught by resource person and those taught by the class teacher does not differ significantly. H₀₃: The achievement of students taught by resource person does not differ significantly based on gender.

Design of the Study: The researchers adopted the quasi-experimental research design to carry out the study.

Sample Selection

In this study, the target population was all the second year students offering biology in senior schools (SSII) in Ilorin Nigeria. Sample selection commenced with the grouping of senior schools in Ilorin, Nigeria into Public, Private, Mixed-gender and Single sex schools. Thereafter, 32 mixed-gender, public senior schools in Ilorin were selected using purposive sampling method. The simple random sampling method was then employed to: i. select two Mixed-gender senior schools, ii.

assign the selected schools to experimental and control group, and iii. select an intact class in each selected schools. There were only 57 SSII students in the selected intact classes. All ethical issues that arose from the research design were discussed with the authority of the selected schools, participating teachers, students and their parents thereafter, all the participants voluntarily endorsed Informed Consent Form before the study commenced.

Research Instruments

Three instruments were used in this study, they were; Family Planning Instructional Guide, (FPIG), Questionnaire designed by the researchers entitled Students Attitude towards Family Planning Questionnaire (SATFPQ, and Family Planning Concepts Achievement Test (FPCAT). The FPIG contained the contents of family planning stipulated in the biology curriculum and relevant guidelines. The SAQFP and FPCAT were used to generate data on students' attitude and measure their achievement respectively.

Instrument Validation and Reliability

The research instruments; FPCAT, FPIG, and SAQFP were validated by three science education lecturers who are specialists in biology and two experience biology teachers in two senior schools . FPCAT and SAQFP were subjected to test-retest procedure, while the reliability Co-efficient of 0.75 and 0.77 respectively were obtained using PPMC statistics.

Data Gathering and Analysis

The Resource person, who was a professionally trained and certified Senior Nurse that specializes in family planning was given a copy of FPIG two weeks before class teaching commenced. The researchers discussed the contents of FPIG

with the resource person and led the resource person to visit the experimental school to get familiar with the school environment.

Data gathering started with the first administration of FPCAT and SAQFP as pretests during the first week. In the second week, the resource person discussed family planning with the experimental group using FPIG. The regular class teacher used FPIG to teach the control group family planning. A second administration of FPCAT and SAQFP was carried out as posttest exercise. Items in each instrument were reshuffled before they were administered as posttest. Hypotheses were tested at 0.05 alpha level using the t-test. The results were summarized and presented in tabular format.

Results

Research Question One: Does the achievement of the students taught by resource person and those taught by the class teacher differ significantly?

Table-1 revealed the mean gain mean score (4.34) of the students taught by the resource person and mean gain score (1.83) of those taught by the class teacher. This implies that experimental group had higher achievement compared with the control group.

Hypothesis-1: Significant difference does not exist in the achievement of the experimental group and the control group when taught family planning.

The t-test statistical technique was used to test this hypothesis at 0.05 alpha level as indicated in Table-2. The calculated t-value, $t_{(1,26)} = 2.52$, $p = 0.018$ was not significant since the p-value was less than 0.05. Hence, Hypothesis 1 was rejected.

Table-1: Comparative Analysis of the Experimental and Control Group Mean Scores.

Groups	Number of Students	Pretest Scores		Posttest Scores		Mean Gain Scores
		Mean Score	Standard Deviation	Mean Score	Standard Deviation	
Experimental Group	27	6.22	2.01	10.56	3.13	4.34
Control Group	30	6.70	1.42	8.53	2.78	1.83

Table-2: t-test Analysis of Significant Difference between the Achievement of the Experimental and Control Group.

Groups	Number of Students	Mean Score	Standard Deviation	Degree of Freedom	t-value	Significance level (2-tailed)
Experimental Group	27	10.56	3.13	26	2.52	.018
Control Group	30	8.63	2.32			

P < 0.05.

Research Question Two: Does the attitude of students taught by resource person and those taught by the class teacher differ significantly?

As revealed in Table-3, the pretest mean score of the students taught by resource person was 3.76 while those taught by the class teacher had 3.60. Those taught by the resource person and those taught by the class teacher had posttest mean scores of 3.78 and 3.70 respectively. The mean scores indicated that the attitude of students toward family planning was positive before and after they were taught family planning.

Hypothesis 2: The attitude of the students taught by resource person and those taught by the class teacher does not differ significantly.

Research hypothesis 2 was tested using the t-test statistical technique, the result was presented in Table-4. The t-value, $t_{(1, 853)} = 1.592$, $p = 0.299$ was found to be significant. This means that the attitude of the students towards family planning does

not differ significantly when taught using either resource person or regular class teacher, hence hypothesis 2 was not rejected.

Research Question Three: Does the achievement of students taught by resource person differ significantly based on gender?

The male students had a mean score of 3.10 while that of the female students was 5.06 as shown in Table-5. Obviously, the females had slightly greater achievement than their male counterpart.

Hypothesis-3: The achievement of students taught by resource person does not differ significantly based on gender.

The t-test was used to test the hypothesis at 0.05 level of significance. Table-6 indicated that the t-value, $t_{(1, 9)} = 1.57$, $p = 1.52$, was significant consequently, the researchers failed to reject the hypothesis. This implies that the achievement was not significantly influenced by their gender.

Table-3: Comparative analysis of the experimental and control group attitude towards family planning.

Groups	Number of Students	Pretest Score		Posttest Score		Mean Gain Score	Difference in Mean Gain Score
		Mean Score	Standard Deviation	Mean Score	Standard Deviation		
Experimental Group	27	3.76	1.474	3.78	1.465	0.02	0.08
Control Group	30	3.60	1.503	3.70	1.483	0.10	

Table-4: t-test analysis of significant difference in attitude of the experimental and control group towards family planning.

Groups	Number of Students	Mean Score	Standard Deviation	Degree of Freedom	t-value	Significance level (2-tailed)
Experimental Group	27	3.78	1.465	853	1.592	299
Control Group	30	3.70	1.483			

$p > 0.05$.

Table-5: Comparative analysis of experimental group achievement based on gender.

Groups	Number of Students	Pretest Score		Posttest Score		Mean Gain Score	Difference in Mean Gain Score
		Mean Score	Standard Deviation	Mean Score	Standard deviation		
Male	10	6.10	1.912	9.20	2.044	3.10	1.96
Female	17	6.29	2.114	11.35	3.427	5.06	

Table-6: t-test analysis of gender difference in the achievement of the experimental group students.

Groups	Number of Students	Mean Score	Standard Deviation	Degree of Freedom	t-value	Significance level (2-tailed)
Male	10	9.20	2.044	9	-1.57	.152
Female	17	11.40	3.204			

$p > 0.05$

Research Outcomes: The major outcomes were presented below: i. The students taught family planning using a resource person had higher achievement than those taught by their class teacher. ii. Students that participated in the study had positive attitude towards family planning before and after been taught family planning. iii. Gender does not significantly influenced the achievement of students that were taught by the resource person.

Discussion of the Research Outcomes

A major outcome in this study indicated that the students that were taught by the resource person had higher achievement compare with those taught by the class teacher. Most probably, the resource person fascinated the students in this group because the use of resource person was very rare. The use of resource person broke the monotonous teacher and students face-to-face class interactions thereby stimulated students to paid special attention in the class. In addition, it is plausible to ascribe the finding to the skillful demonstration of how to use family planning materials by the resource person. Indeed, biology class teachers do not have access and opportunity to use most of the family planning materials and equipments used by the resource person. The finding is consistent with that of Momodu²⁹ which revealed that students had a greater confidence in resource persons such as nurses, and medical doctor when dealing with sex education. In addition, the result agreed with findings of the study conducted by Amosa³⁰ in which local technician in a mechanical workshop was used as a resource person to teach basic technology. Moreover, the control group's relative under achievement might be due to incompetency and negative attitude of the class teacher towards teaching controversial topic like family planning.

Another major finding revealed that the attitude of the students towards family planning was positive before and after they were taught family planning. Although significant gap existed between the achievement of the experimental and control group, this finding, implies that students' attitude does not significantly influenced their knowledge of family planning. Students' positive attitude towards family planning may be part of scientific attitude they had developed in biology and other science subjects. This result is in accord with some earlier studies such as Hassaini, Foong, and Kamar²³ and Naelah, Omran, and Amaal²⁵ which indicated that students had positive attitude towards biology and family planning.

The third major finding indicated that the achievement of students taught family planning by the resource person (experimental group) was not significantly influenced by gender. This finding implies that resource persons can be used in mixed gender class during family planning lesson. The result could be due to the expertise of the resources person in handling family planning matters. The third finding was consistent with that of Ibrahim, Sabitu, and Magaji²⁸. It was however, at variant with the report of Abdul Raheem²⁷ which revealed that males performed better than females in science disciplines.

Conclusion

In conclusion, the use of resource person in class instruction significantly enhanced students' achievement in family planning. Moreover, significant gender difference does not exist in students' achievement when taught family planning by resource person, while the students' attitude towards family planning was not significantly influenced by the use of resource person.

Recommendations: The under listed recommendations were put forward as part of measures to effectively teach family planning and other similar controversial topics in biology at senior school level: i. Biology teachers need to consider integrating resource persons into their class instruction when dealing with controversial, topics such as family planning, evolution, climate change and so forth. ii. Biology teachers should endeavor to identify and establish mutual rapport with various categories of resource persons within the school immediate community in order to make use of them in the class whenever the need arises. iii. Efforts should be made by biology teachers to sustain and even improve upon students' positive attitude towards family planning such that at their adulthood they will be informed users of family planning services. iv. Gender parity in students' achievement is not negotiable in teaching and learning hence, biology teachers should employ instructional strategies that could promote gender parity such as the incorporation of resource person into their class instructions.

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