

Influence of Biology Teachers' Profile and Their Perception of the Use of Resource Persons in Biology Instruction

¹Odunuga, O. A., ²Aladejana, H.S., ¹Badero, D., ²Akor, J., ³Okonkwo, C.J., and ²Taiwo Agoi, J.O.

¹Department of Integrated Science Education

²Department of Biology Education,

Federal College of Education (Technical), Akoka

³Department of Cell Biology and Genetics, Faculty of Science, University of Lagos. Akoka

penetrator066@gmail.com

Abstract

The level of excellence achieved in teaching and learning of Biology is largely shaped by the pedagogical reference(s) used by the teacher and their willingness to adopt innovative instructional methods that are suitable and fit to solve current and emerging classroom and realworld problems. Such a pedagogical approach can involve incorporating resource persons in Biology or from Biology-related fields. This study examined the relationship between Biology teachers' profile variables (gender, age, academic qualification, and teaching experience) and their perception of the use of resource persons in Biology instruction. By surveying 50 public school Biology teachers using the validated Biology Teachers' Profile and Perception of Resource Persons Questionnaire (BTPPRPQ), the study applied descriptive statistics and Pearson ProductMoment Correlation, and multiple regression analyses to interpret the data. Key findings and recommendations show that Biology teachers generally favour the inclusion of resource persons in their classrooms. A teacher's academic background and experience do not influence their perception, and gender and age do not play a major role in their perception of the use of resource persons. The study suggests that schools should foster partnerships with science professionals and offer training programs to help teachers better integrate these experts into their lessons.

Keywords: Biology teachers, teacher profile, resource persons, perception, instructional strategies

Introduction

Biology is a specialized subject of study in senior secondary school and it is first rooted in

Integrated Science at the junior secondary school level. Biology subject is a ground-laying science subject that encompasses natural science, basic medical science, medical and clinical sciences, it plays a pivotal role in developing careers in aforementioned field and equip learners with knowledge of organisms and their environment, what affect them and how they interact with one other, their sustainability, and also human health and influence on the biosphere. It also serves as a gateway subject for many science-related careers and higher education pathways. Despite its importance, the teaching and learning of Biology at the secondary school level continue to face persistent challenges. These innumerable challenges in developing countries like Nigeria include availability of resources in luring human and physical resources, availability, adequacy and accessibility to such resources (Odunuga & Adanu, 2025), the abstract nature of certain biological concepts, limited instructional materials, and inadequate opportunities for learners to relate theoretical knowledge to real-life experiences (Adewuyi & Olatoye, 2019; Okebukola, 2017). To attend to such persistent challenges, educators in all field have increasingly advocated for innovative and learner-centered instructional strategies that can enhance students' understanding and engagement not just to do excellently in the subjects but also to prepare them for real life experiences. One such management idea is nature of pedagogical approaches employed to address curriculum approaches either based on themes, conceptual or other approaches. One of the ways to address such challenges is the use of resource persons in the teaching and learning process (Odunuga and Nnadozie, 2015). Resource persons are individuals who are still practicing or retired from active and possess specialized expertise, professional competence, or practical experience relevant to specific subject content. In Biology education, these may include Botanist, Zoologist, Clinical and medical practitioners, environmental health officers, agricultural extension workers, laboratory technologists, and other science-related professionals whose real-world experiences can enrich classroom instruction (Akinbobola & Adekunle, 2020).

The involvement of resource persons in Biology lessons exposes students to authentic learning experiences and practical applications of theoretical concepts. Such exposure has been found to improve students' comprehension, stimulate interest, and foster positive attitudes toward science learning by bridging the gap between school knowledge and real-life biological phenomena (Kolawole & Oginni, 2021; Nwagbo & Okoro, 2018).

However, the effective integration of resource persons into classroom instruction is largely influenced by teachers' perceptions of their relevance and usefulness. These perceptions are not formed in isolation but are shaped by teachers' profile characteristics such as gender, academic qualification, years of teaching experience, and school type. Understanding how these teacher related variables influence the use of resource persons is therefore essential for informed instructional planning, effective curriculum implementation, and the overall improvement of Biology teaching and learning outcomes in secondary schools.

It has been detailed by early researchers that there are countless benefits of bringing external experts into Biology classes. This well fact that Biology teachers the merits of involving resource persons in science teaching, their use in Biology classrooms remains limited. Biology teachers often cite time constraints, high costs, and lack of administrative backing as major limitations to use of current and emerging pedagogical approaches. Most Biology teachers are hesitant to engage resource persons due to logistical barriers or a lack of professional confidence.

Currently, there is a lack of detailed and explicit data on how a teacher's personal and academic profile including their experience, gender, and qualifications influences their interest in utilizing these external professionals for Biology instruction. Without this evidence, it is difficult to create effective training or policies to modernize classroom practices. Consequently, this study investigates how Biology teachers' professional profiles correlate with their perceptions of using resource persons in the classroom.

The main purpose of this study was to examine the influence of Biology teachers' profiles and their perception of the use of resource persons in Biology teaching.

Specifically, the study sought to:

1. Determine Biology teachers' perception of the use of resource persons in teaching Biology.
2. Examine the relationship between teachers' academic qualifications and their perception of the use of resource persons.

3. Determine the relationship between teaching experience and teachers' perception of the use of resource persons.

4. Examine the influence of age on teachers' perception of the use of resource persons.

Research Hypotheses

The following null hypotheses were tested at $p < 0.05$ level of significance:

Ho1: There is no significant relationship between Biology teachers' academic qualifications and their perception of the use of resource persons.

Ho2: There is no significant relationship between Biology teachers' teaching experience and their perception of the use of resource persons.

Ho3: There is no significant relationship between Biology teachers' age and their perception of the use of resource persons.

Ho4: There is no significant relationship between Biology teachers' gender and their perception of the use of resource persons.

Methodology

This study utilizes a descriptive survey design to examine the existing relationships among variables. The design is appropriate for collecting data that describe teachers' profiles and perceptions. The population comprised all Biology teachers in public secondary schools within the study area. A sample of 50 Biology teachers from 50 public senior secondary schools in Education District IV and Education District II of Lagos State were selected using voluntary response sampling based on Biology teachers' interest in participation. Data were collected using a researcher-developed questionnaire titled Biology Teachers' Profile and Perception of Resource Persons Questionnaire (BTPPRPQ). The instrument consisted of two sections: the Teachers' profile information section and the Teachers' perception of the use of resource persons. Content and face validity of the questionnaire were established by experts in Biology Education, using Cronbach's alpha for internal consistency, with a reliability coefficient of 0.87. Pearson correlation and regression analysis were used to test the research hypotheses at a $p < 0.05$ level of significance.

Results

Research Hypothesis

Hypothesis One: There is no significant relationship between academic qualification and perception of use of resource persons to improve learning of biology.

Table 1: Correlation between academic qualification and perception of use of resource persons to improve learning of biology.

Variable	N	Mean	Standard Deviation	r calculated	p-value	Remark
Academic Qualification	50	2.26	0.565	0.000	1.000	NS
perception of use of resource persons to improve learning of biology	50	7.00	1.212			

NS – Not Significant

A Pearson Product Moment Correlation Coefficient was calculated for the relationship between academic qualification and perception of use of resource persons to improve learning of biology. A very weak neutral correlation which was not significant was found ($r = 0.000$; $p=1.000$). Therefore, there is no significant relationship between academic qualification and perception of use of resource persons to improve learning of biology.

Hypothesis Two: There is no significant relationship between teachers' experience and perception of use of resource persons to improve students' performance in biology.

Table 2: Correlation between teachers' experience and perception of use of resource persons to improve students' performance in biology.

Variable	N	Mean	Standard Deviation	r calculated	p-value	Remark
Teachers' experience	50	2.22	0.764	0.166	0.250	NS

Perception on use of resource persons to improve students' performance in biology 50 10.12 1.560

NS – Not Significant

A Pearson Product Moment Correlation Coefficient was calculated for the relationship between teachers' experience and perception of use of resource persons to improve students' performance in biology. A very weak positive correlation, which was not significant, was found ($r = 0.166$; $p=0.250$). Therefore, there is no significant relationship between teachers' experience and perception of the use of resource persons to improve students' performance in biology.

Hypothesis Three: There is no significant relationship between teachers' age and perception of use of resource persons to learning objectives in biology.

Table 3: Correlation between teachers' age and perception on use of resource persons to learning objectives in biology.

Variable	N	Mean	Standard Deviation	r calculated	p-value	Remark
Age	50	3.40	1.400	- 0.293	0.039	S
Perception on use of resource persons to learning objectives in biology	50	5.94	0.935			

S –Significant

A Pearson Product Moment Correlation Coefficient was calculated for the relationship between teachers' age and perception of use of resource persons to learning objectives in biology. A very weak negative correlation which was significant was found ($r = - 0.293$; $p=0.039$). Therefore, there is no significant relationship between teachers' age and perception of use of resource persons to learning objectives in biology.

Discussion

The findings of this study revealed that Biology teachers generally perceive the use of resource persons as beneficial to effective teaching and learning. The relationship between academic qualification and perception suggests that most teachers, irrespective of qualifications, are more receptive to innovative instructional strategies. Although there are few studies on this research area, Odunuga & Adanu, (2025) showed that there is a significant relationship between Biology teachers' preference for the use of resource persons in teaching and learning Biology compared to certain pedagogical approaches. Similarly, Odunuga & Nnadozie, (2015) also showed that experienced teachers may have greater confidence and professional networks that encourage collaboration with resource persons. The lack of significant influence of age indicates that perception of instructional innovation is not age-dependent.

Conclusion

The study concluded that Biology teachers' profiles, particularly academic qualifications, age and teaching experience, do not make any difference in their perception of the use of resource persons in Biology instruction. Encouraging the integration of resource persons into Biology teaching is supported by Biology instructors irrespective of age, length of service or qualification. It is therefore pertinent that there should be institutional support and teachers' professional development to support the use of resource persons in teaching Biology.

Recommendations

1. Curriculum planners should encourage the use of resource persons as an alternative to the commonly used field trip in the curriculum.
2. Ministry of Education, School administrators and stake holders should encourage partnerships with professionals in Biology-related fields.
3. Workshops, seminars, and update programs should be organized to sensitize teachers on the benefits of using resource persons.
4. Teacher training programs should emphasize innovative instructional strategies, including the use of external experts.

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