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EFFECT OF TEACHER'S LIKABILITY ON STUDENT'S ATTITUDE TOWARDS PHYSICS: AN EMPIRICAL STUDY OF SECONDARY SCHOOL STUDENTS IN ENUGU STATE, NIGERIA

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Abstract
Physics is one of the most important scientific disciplines taught in Nigeria's secondary school curriculum. Students' poor performance in physics has become a growing concern. The purpose of this study was to see if teacher likability could have an impact on students' views about physics. A cross-sectional survey was used in this investigation. The survey's participants are secondary school students from Enugu State, Nigeria. Male and female senior secondary school students took part in the study. The majority of them came from science class. A total of 139 students were involved in the research. A Teacher's Likability Scale and the Physics Attitude Scale (PAS) were used to collect data. The results revealed that the majority of respondents had a negative attitude toward subject (M = 0.87, SD = 0.35), while only a handful (M = 0.18, SD = 0.39) had a favorable attitude. A linear regression model was used to test the main hypothesis. The findings revealed that teachers' likability statistically significantly influenced students' attitudes toward physics F(1,137), 40.16 p.05. According to the findings, a teacher's likability strongly predicts students' attitudes about physics. As a result, it is suggested that teachers act more as facilitators than harsh educators.

Keywords: *teacher's likability, students, attitude, physics*

INTRODUCTION

The goal of today's global education strategy is to equip people with skills considered essential in today's world (Ince, 2018). Higher-order skills, such as logic, creativity, and problem-solving, are more valued in today's schooling (Bao & Koenig, 2019; Ludwig et al., 2017; Qablan et al., 2019). Science education is vital for every country's progress, including Nigeria's (Ankeli, 2019; Clement et al., 2017; Okwuoyibo, 2012; Olufunke, 2012). Science is intended to improve the overall quality of life, thus making the world a better place. As stated in the national policy and educational curriculum, the government of Nigeria recognizes the importance of science education to the growth and development of learners (Adolphus, 2019; Aina, 2013; Ogunjuyigbe et al., 2006; Sambo et al., 2014). This significance emphasizes science education's critical role in achieving the STEM (science, technology, engineering, and mathematics) dream. Modern and advanced nations are built on the foundation of science (Aderonmu & Obafemi, 2015; Fuwape et al., 2019; Aina, 2013; Odu, 2020). Any society's progress is determined by its technological level, and physics education is essential in advancing technology.

Physics describes a science discipline concerned with energy and matter and how they interact (Faridi et al., 2021; Daramola & Omosewo, 2012). Physics is one of the most crucial science disciplines in Nigeria's secondary school curriculum (Ojediran, 2016; Onah & Ugwu, 2010; Mobolaji et al., 2017; Daramola & Omosewo, 2012; Mbamara & Eya, 2015). The goal of the subject is to give the young learners fundamental physics literacy to function in society, learn critical scientific abilities, and develop favorable attitudes toward ever-increasing technological advancement. Fundamental conceptions and scientific principles are essential for national technological progress (Agbele et al., 2020; Adeyemo, 2010). Physics also encourages pupils to solve more problems without delay, resulting in genuine learning achievement (Santyasa et al., 2020). It is critical to science and technology (Bortfeld & Jeraj, 2011; Bunyamin et al., 2020; Chu, 2020; Moraga-Calderón et al., 2020; Ukoh & Onifade, 2020). As a result, secondary school teachers and students must pay close attention to the subject's teaching and learning for Nigeria to achieve long-term technical progress.

There has been growing concern about the poor performance of physics students worldwide (Coffie et al., 2020; Ebong, 2021; Falode & Ajala, 2014; Folashade & Akinbobola, 2009; Madu & Udoh, 2016; Onah & Ugwu, 2010). Scholars have blamed the trends on various causes, including lousy learning environments, poor teaching strategies, inexperienced instructors, learning methodologies, cognitive patterns, job motivation, peer and family influence, and certain demographic variables (Erdemir, 2009). Indeed, most authors cited student attitudes toward physics as a critical factor in poor physics performance. Meanwhile, the previous study has linked students' attitudes to their academic success (Awang et al., 2013; Guido, 2018; Kabunga et al., 2016; Lumintac, 2014; Nagy, 2018; Ndifor & Ngeche, 2017; Ogembo et al., 2015; Veloo et al., 2015).

Attitudes are a social psychological construct with considerable implications for human behavior. It is commonly conceptualized as an individual's evaluation of any aspect of their social world. In other words, it can likely impact a student's preferences and dislikes of a subject. In the case of physics, a previous study found a link between students' attitudes and their success in the subject (Godwin & Okoronka, 2015). Understanding the connection between physics and attitude has spawned a large body of literature (Abdulkarim & Raburu, 2013; Bedemo, 2020; Ibrahim et al., 2019; Kurniawan et al., 2019; Maison et al., 2020; Mastura et al., 2010; Choudhary et al., 2019; Venida & Sigua, 2020; Vilia & Candeias, 2020). Recognizing learners' attitudes toward physics is critical to developing a practical strategy for improving students' physics proficiency and motivation. More so, prior research has looked at relevant predictors of physics attitudes. For example, (Kapucu 2017) found that student attitudes about physics were influenced by comprehension. Agu and Iyamu (2020) found a link between metacognitive scaffolding and a positive attitude toward physics. The cooperative learning technique successfully improved students' attitudes toward physics (Akinbobola, 2009). Students' perceptions of physics were influenced by their grade and age disparities (Kaya & Boyuk, 2011). Virtual laboratory experiences improved students' attitudes toward physics (Aşiksoy & Islek, 2017). The purpose of this study is to look at the impact of a teacher's likability on students' attitudes toward physics.

Present study

Investigating the variables influencing school success (Abubakar, 2020) is critical for educational development. As a result, this research aims to look into teacher likability as a factor that may account for differences in secondary school students' attitudes toward learning physics. The learners' general favorable attitude toward the teacher is referred to as the teacher's likability (Feistauer & Richter, 2018). The term relates to a person's overall impression of attractiveness, friendliness, and pedagogy. Students may be more impacted by the instructor's personality traits and develop a good

attitude toward the teacher and the subject taught by the teacher. As a result, according to Cottringer (2002), likable factors have a beneficial influence on others. Academic likability has already been explored in various domains (Chatelain, 2015; Delucchi & Pelowski, 2000). In the Nigerian setting, however, little is known regarding the relationship between teachers" likeability and students' attitude about physics. The main goal of this research is to see how perceived teacher likability affects secondary school students' attitudes about physics.

Hypothesis: A teacher's likeability will predict students' attitudes toward physics.

Method

The study's population comprises secondary school students in the Enugu state, Nigeria. Participants were both male and female seniors in secondary school. The majority of them came from science class. Between April and June of 2022, 162 pupils were approached with the assistance of school teachers and administrators. Before the study's initiation, the research goal was communicated to and explained to the students. 155 out of 162 students approached agreed to participate in the study and were given the questionnaire to complete on the spot. Except for the 16 incorrectly completed questions, the remaining 139 questionnaires were subjected to statistical analysis.

Measure

Teachers Likability

Respondents rated the teacher's likability on a 10-item Linkert scale with 5-point evaluations ranging from 1 (not at all liked) to 5 (very likable) (very likable). Following a pilot investigation, a Cronbach alpha reliability coefficient of 0.78 was determined for the scale. A higher score implies a more likable teacher.

Student's attitudes toward physics

Attitude towards physics was measured using the Physics Attitude Scale (PAS) (Kaur & Zhao, 2017), designed to measure students' attitudes toward physics. A Cronbach alpha .78 reliability coefficient was obtained in the study.

Result

The mean and standard deviation score of attitudes towards physics revealed (M = 0.87, SD = 0.35) for negative attitude and (M = 0.18, SD = 0.39) for positive attitude. This indicates a higher negative attitude towards physics among the respondents.

Table 1:

Attitude towards physics	N	Mean	S D
Negative attitude	81	0.87	0.35
Positive attitude	58	0.18	0.39
Total	139	0.58	0.49

Testing the study hypothesis

The primary assumption of the study is that teachers' likability would account for the variation in students' attitudes towards physics. A linear regression model was conducted to test the hypothesis. The result of the linear regression established a statistically significant effect of teacher's likability on students' attitude towards physics, F(1,137), 40.16 P< .05 with R^2 of 173. Thus, the result offered support to the central hypothesis of the study.

Table 2:

	B	SEB	β	t	R2	Sig
Constant	1.85	.047		38.77	.173	.000
Teacher’s likability	-.69	.062		-.69	-11.17	.000

Discussion

The purpose of the study was to establish whether a teacher's likability influences students' attitudes about physics. The mean and standard deviation score of attitudes toward physics revealed that most respondents (M = 0.87, SD = 0.35) had a negative attitude toward the subject, while only a minority (M = 0.18, SD = 0.39) had a positive attitude. This finding implies that respondents have a more negative view of physics. This is consistent with prior research (Godwin & Okoronka, 2015), which found a significant positive link between students' attitudes and academic achievement in physics. Therefore, a negative attitude toward physics may be associated with low physics performance among youngsters.

In addition, a linear regression model was applied to determine the variation in student attitudes about physics predicated on the teacher's likeability. The analysis found that the predictor variable strongly predicted attitude toward physics F(1,137), 40.16 p.05, with the adjusted R^2 indicating that the predictor variable contributed 17.3% of the variance in attitude toward physics. Thus, the result confirmed the study's hypothesis that the teacher's likeability would explain the variation in physics attitudes. This conclusion is congruent with the findings of Morgan and Bergeron (2007). They found a substantial link between teacher likeability and the likelihood of future enrollment increases in courses taught by a likable teacher. Students are significantly influenced by instructors who serve as role models (Choudhary et al., 2019). Possibly, the qualities of a teacher are crucial to learning, particularly in early education. This study suggests that a teacher's likability considerably impacts students' views toward any subject, including mathematics and chemistry. Additionally, a teacher's likability may increase students' motivation to engage in academic activity. In contrast, a teacher's likeability does not inevitably result in improved physics performance. Students who established a positive attitude toward the subject due to the features of the teacher may not have a greater understanding of general physics. Better general physics performance depends on the processing and storing of information (Solis-Foronda, 2020). However, a teacher's likeability gives a means by which a student's ability to learn could be boosted.

Strength, Limitations, and future direction

The study demonstrated the significance of a teacher's likeability in influencing students' attitudes toward physics learning. The recent discovery may provide education stakeholders, parents, and the general public with essential information for improving students' performance in general physics. Despite this finding, caution is suggested when generalizing the study's outcome because the self-report measure used in the research may be problematic. In addition, the sampling technique may influence the generalizability of the finding. However, the study suggests that future researchers employ other data collection methods and increase sample sizes for a complete result.

Conclusion

This study aimed to investigate the factors that influence attitudes toward learning physics among secondary school students. The likeability of the teacher was selected as the independent variable. The outcome indicated that the predictor variable explained the variance in physics attitudes. Therefore, it may be inferred that a teacher's likeability is a substantial predictor of physics attitude. Thus, the study suggests that teachers strengthen their pedagogical traits to engage their students.

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