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Psychological Factors Influencing Students' Achievement in Physics in Ogbomoso, Oyo State, Nigeria

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Abstract
This research investigated the impact of self-efficacy, achievement motivation, and emotional intelligence as determinants of students' achievement in Physics among secondary school students in Oyo State. The study adopted the correlational research design of the correlation type. A simple random sampling technique was used to select ten secondary schools from Ogbomoso Land in Oyo State while one intact class of SSS II students was randomly selected from each school making a total of 300 students that participated in the study. Four instruments were used for data collection; Academic self-efficacy Scale (r=0.81); Students' Academic achievement Motivation Scale (r=0.78); Emotional Intelligence Scale (r=0.75), and Physics Achievement Test (r=0.87). Data were analysed using Pearson Product Moment Correlation Coefficient and Multiple Linear Regression at 0.05 level of significance. Findings revealed that academic self-efficacy (r=.715); academic achievement motivation (r=.461) and emotional intelligence (r=.321) positively and significantly correlated with achievement in Physics, the joint contribution of the independent variables (student's self-efficacy, achievement motivation, and emotional intelligence) was significant ($F_{(3, 295)}$=131.230; p<0.05), and accounted for 56.5% (Adj. R^2=.565) variation in the prediction of academic achievement. It was recommended that curriculum planners should include student's self-efficacy, achievement motivation, and emotional intelligence among the various student-related variables that could improve students' achievement.

Keywords: Self-efficacy, Achievement motivation, Emotional intelligence, Academic achievement in physics

Introduction

Physics is a field of study that seeks to identify quantifiable physical laws governing everything in and around us through experiments, observations, and mathematical analysis. Physics is the scientific study of matter and natural processes, using both empirical observations and quantitative measurements. According to the rules of physics, there are many technical or basic tools and equipment around our activity. It is a subject that necessitates scientific techniques to comprehend theoretical concepts and their applications in solving real-world situations (Ajadi, 2017). In addition, man's reliance on technology demonstrates the relevance of physics to civilization. In other words, physics-based technologies are the indices of every country's development. Nations are classified as developed, developing, or undeveloped based on their level of scientific and technological achievement. As a result, fundamental physics concepts and principles are essential for national technological growth. This is reflected in the number of students enrolled in physics classes and their achievement in school-based and external exams (Adegoke & Ajadi, 2016).

According to the National Policy on Education (Federal Republic of Nigeria – FRN, (2013), children in Nigeria study physics for three years in secondary schools, which is a senior secondary school (SSS). Teachers at the secondary school level are expected to engage students in hands-on activities such as conducting experiments to develop their scientific knowledge and experimental skills while also arousing, maintaining, and cultivating a positive attitude toward physics and physics-related phenomena (Adegoke & Ajadi 2016). According to data from the West African Examination Council (WAEC), less than 60% of candidates who registered for Physics passed at the distinction and credit levels on average in the last five years (2009-2015), indicating that student performance is below expectations when compared to other science subjects such as Chemistry and Biology. Researchers in Nigerian physics education (such as Olukoya, 2011; Adegoke, 2012; Ajadi, 2017) discovered that the use of inappropriate, ineffective teaching methods, year of teaching experience, teachers', parents', and

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environmental-related factors are all factors that contribute to students not doing well in physics. Furthermore, studies have demonstrated that interactions between teachers and students in the classroom have an impact on students' attitudes about physics and, as a result, their physics accomplishments (Ajadi, 2017). Researchers from various parts of the world have confirmed the same findings. In a study conducted in the United Kingdom, Goe and Silay (2008) discovered that the typical or conventional manner of teaching (notable lecture) hurts students' perceptions of physics. As a result, elements such as self-efficacy, achievement motivation, and emotional intelligence could be blamed for the student's poor performance in (external examination) physics. Several kinds of research on the impact of self-efficacy in the field of education (teaching/learning) have found that it has a beneficial impact. Students' academic self-efficacy affects achievement, according to Aremu (2009). In addition, Ugoji (2013) discovered a link between self-efficacy and academic accomplishment. According to Ugoji (2013), poor academic achievement has increased among secondary school students, particularly those with low self-efficacy. As a result, self-efficacy is a critical aspect of improving student accomplishment. According to Aboma (2009), there is a considerable link between self-efficacy and student accomplishment at various levels of schooling.

The term "self-efficacy" describes a person's confidence in their capacity to achieve, especially under particular circumstances or when doing particular tasks. On the other hand, self-efficacy is the most important determinant in influencing academic performance at all levels of school. A learner's self-efficacy is their confidence in their capacity to perform the behaviours necessary to meet specific performance objectives. (Bandura, 1997). Self-efficacy is a person's opinion of his or her capacity to perform properly in a given scenario (Bandura, 1997), which may or may not be accurate. In educational environments, we evaluate achievement based on academic performance. A gifted student with the ability to excel academically may have poor self-efficacy beliefs, lowering his or her chances of academic success (Bandura, 1997). This notion is generalized, in the sense that it is not tied to any particular field of study, and it can be used in a variety of school programs. The belief in one's ability to control one's social environment and behaviour, motivation is self-efficacy (Bahmanabadi & Baluchzade, 2013). This study gives evidence to back up this notion in a classroom setting. Bouffard-Bouchard et al. (1991) found that self-efficacy beliefs and cognitive ability are independent of one another, that self-efficacy beliefs influenced the learning environment for school-aged children and that more self-efficacious students were able to perform at higher levels than those who were less self-efficacious, regardless of cognitive ability.

Academic self-efficacy is a term that describes a person's belief in his or her capacity to solve a problem or complete a task. Self-efficacy is an individual's belief in his or her ability to plan and carry out a specific course of action to solve a problem or complete a task. Academic self-efficacy is defined as an individual's perception that he or she can effectively complete a specific academic task at a certain level (Schunk & Pajares, 2001). Academic self-efficacy explains how much conviction students will show and how long they will persevere in the face of hurdles and frustrating experiences they may meet in their studies. Self-efficacy refers to a person's belief in his or her ability to cope with a variety of demanding conditions (Aremu et al., 2008). It fluctuates across numerous dimensions, including level, generality, and strength, and is context-specific (Zimmerman, 2000). When faced with tough scholastic assignments, great self-efficacy provides a sense of tranquillity or serenity. Self-efficacy is demonstrated by students who are confident in their abilities and can apply a problem-solving strategy. Students with a high level of self-efficacy are more likely to take a broad view of a task to come up with the best approach. They are also more inclined to exert effort toward completing academic activities and to persevere when faced with difficulties (Akomolafe, 2010). Students with poor self-efficacy are more prone to destroy their proficiency and give up, obstructing growth possibilities; they put in less effort and give up quickly when faced with adversity (Ugoji, 2013). Students with low self-efficacy will avoid academic-related tasks if they can or put out the bare minimum effort if they can't. When confronted with a standard academic problem, students with low self-efficacy are more likely to quit (Owodunni, 2019).

The construct of self-efficacy contains many distinguishing features. These characteristics are significant because they provide a benchmark against which other variables may be examined and have consequences for how self-efficacy views should be assessed. First, rather than focusing on personality or psychological qualities or attributes, self-efficacy judgments focus on perceived capacities to do an activity (Zimmerman, 1995). To put it another way, self-efficacy is concerned with "how well can I do something" rather than "what do I like?" Second, self-efficacy precepts are unique in that they are context and task-specific as well as domain-specific. The third characteristic of self-efficacy is that it is based on mastery rather than normative or other performance criteria. For example, students rate how well they can write an essay at a certain level of performance rather than how much better they can write than their classmates. Self-efficacy assessments are also multi-dimensional in the sense

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that they change across different tasks or activities within a domain. Micro analytic, self-efficacy assessment is known for its multi-dimensional level of analysis (Cleary, 2004; Zimmerman, 2004). Before beginning a task or activity, self-efficacy beliefs are usually examined. This antecedent offers the necessary temporal ordering for evaluating the effectiveness percept's function in causal structures. As a result of its direct impact on performance and self-evacuation processes following the performance, self-efficacy has been conceived as a consideration process within self-regulation models (Zimmerman, 2000). If a student is not driven to succeed, no matter how he or she is taught, no matter what talents the teacher employs, it will all result in activities that add nothing to his or her academic accomplishment. Some children, on the other hand, are reported to be active, particularly in regard to their studies and other school activities. They bring up topics for discussion, participate in class activities regularly, ask questions, and are willing to try to answer questions from the courses. Almost everything around them in the school environment seems to excite and encourage them. Students who act in this manner are believed to be motivated, possibly due to influences from their family backgrounds, and as a result, develop a positive feeling that they will succeed in their academic endeavours.

The drive to attain goals and the act of maintaining that drive is commonly referred to as achievement motivation. Because intrinsically motivated behaviour is defined as behaviour that is motivated by a person's want to do something, emphasizing the relevance of desire would help educators better grasp the impact of intrinsic motivation on learning (Deci, & Ryan, 1991). Achievement motivation is a possible innate urge to succeed solely for the sake of achieving rather than for some other reason (Sprinthall et al., 1994). Achievement motivation has a substantial impact on academic performance. As a result, learning and motivation are two variables that can be analyzed together (Pintrich, 2000). Motivation is a multifaceted phenomenon that may be measured in terms of the determinants and intervening mechanisms that regulate behaviour selection, activation, and persistence. Motivation is concerned with the current determinants of goal-directed behaviour choice, perseverance, and vigour (Beck, 1978). The psychological mechanisms that induce arousal, direction and persistence of intentional acts are referred to as motivation (Mitchell, 1982). Motivation can be defined as an individual's driving factor behind all of their actions. The impact of an individual's needs and desires on the direction of their behaviour is significant. Your emotional and achievement-related goals serve as sources of motivation. Achievement, intrinsic, extrinsic, and physiological motivation are all examples of motivation. Motivation is described as the organized patterning of three psychological functions that help to guide, energise, and regulate goal-directed behaviour, according to the Motivational System Theory: personal goals, emotional arousal processes, and personal agency beliefs (Ford, 1992). The presence of motivation was inferred from behavioural signs, task selection, effort, persistence, and achievement, according to most professionals. Students who are motivated to learn to persevere at assignments when they face challenges in school. Learning may not always result in immediate gratification, thus perseverance is essential. Persistence is the sustained component of motivation, and the more persistence, the more accomplishments and rewards. Persistence is commonly used as a meaningful and quantitative component of motivation by researchers.

In two studies that looked at factors influencing student accomplishment and their effects on students' achievement in learning the Japanese language through satellite television, motivation was determined to be the best predictor of student achievement (Oxford et al., 1993a). In courses where the majority of course materials and resources were accessed and provided through the internet, motivation and attitude were the best predictors of student grade point average (Hendrickson, 1997). Achievement motivation is more accurately described as multifaceted, taking into account individual variances in learning goals and learning orientations. Emotion is the glue that holds the body and spirit together; no human action is complete without it. A set of no cognitive abilities, skills, and competencies that influence one's ability to cope with external demands and stresses. Emotional intelligence is concerned with the emotional, personal, social, and survival aspects of intelligence, as well as the development of emotional skills over time and change. As a result, emotional intelligence is concerned with a person's ability to comprehend his or her own emotions as well as the emotions of others.

Emotional intelligence (EI) refers to the ability to reason accurately about emotions as well as the ability to use emotions and emotional understanding to improve thinking. It is the ability to accurately and adaptively perceive, appraise, and express emotion; the ability to comprehend emotion and emotional knowledge; the ability to access and/or generate feelings when they facilitate cognitive activities and adaptive action; and the ability to regulate emotions in one and others (Salovey, 2001; Mayer, & Salovey, 1997). Emotional intelligence can also be defined as the ability to navigate life towards ever-increasing degrees of freedom by accessing innate skills and integrating emotions and awareness to align feelings and reason, direct actions with vision, solve problems, resolve conflicts, and enhance interpersonal and intrapersonal relationships by integrating emotions and awareness to align feelings

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and reason, to direct actions with vision, to solve problems, resolve conflicts, and to be creative. Emotional intelligence is a set of skills that leads to sensible behaviour, excellent accomplishment, and good mental health. Emotionally intelligent students are good at interpersonal communication, self-management, and goal-setting, and they take personal responsibility for completing tasks and working efficiently (Nelson & Low, 2003). The ability to think critically and act appropriately is referred to as emotional intelligence. Constructive thinking, assertive communication, time management, goal achievement, commitment ethic, and stress management skills have all been found to be major predictors of academic success and assessed performance in studies (Nelson & Low, 2003).

Fulmer and Barry (2004) argue that intelligence, both cognitive and emotional, has an impact on the bargaining process. Because it shows how a person uses the information in the current circumstance, Emotional Intelligence can help predict success. Emotional intelligence training is employed in businesses, schools, and leadership development programs. Individuals gain from emotional intelligence because it improves problem-solving skills, serves as a source of motivation and inspiration to achieve life objectives, has greater academic achievement, builds stronger personal relationships, increases optimism, and is better. Knowing yourself, selecting yourself, and giving yourself are all components of emotional intelligence (Six Seconds, 2001). It encompasses the abilities, habits, and perceptions that form our thoughts, feelings, and behaviours in our interactions with ourselves and others. The implementation of the Six Seconds definition consists of three parts: Knowing oneself entails becoming more conscious of the patterns and mechanisms that govern your thoughts, feelings, and behaviours. This entails developing emotional literacy as well as recognizing trends. Choosing yourself entails rerouting those patterns depending on your deliberate commitment to the future. This could be accomplished through the use of consequential thinking evaluation and re-choosing self-choice and optimistic motivation.

Statement of the Problem

Man's reliance on technology demonstrates the importance of physics to civilization. As a result, physics-based technologies are used as indicators of a country's development. Any country's survival is primarily reliant on scientific and technical advancement. To suit human needs, technology shapes and changes the physical world. Students, on the other hand, perform below expectations in external examinations, according to data from assessing bodies. Scholars have experimented with various strategies and teacher-related variables such as pedagogical knowledge, teacher teaching skills, and teaching methods without taking into account student-related variables such as academic self-efficacy, academic achievement motivation, and emotional intelligence in their efforts to address the problem. These three psychological variables have been shown to have a significant impact on student's academic achievement in school subjects such as English Language, Mathematics, Guidance and Counseling, and Psychology, among others, according to studies, but they have not been used to predict students' academic achievement in Physics in Oyo State, Nigeria. As a result, the study looks into self-efficacy, achievement motivation, and emotional intelligence as determinants of students' physics achievement.

Research Questions

This study sought to provide answers to the following research questions:

1. Is there any relationship that exists between the independent variables (student's self-efficacy, achievement motivation, and emotional intelligence) and the dependent variable (academic achievement in Physics) among secondary school students?
2. What is the joint contribution of student's self-efficacy, achievement motivation, and emotional intelligence to students' achievement in Physics?
3. What is the relative contribution of student's self-efficacy, achievement motivation, and emotional intelligence to students' achievement in Physics?

Methodology

A correlational design was adopted in this study. This strategy was chosen since the study's variables were already present and did not require the researcher to manipulate them. The population in this study comprised all public secondary school students in Ogbomoso, Oyo State, Nigeria. The study used a multistage sampling technique. For the first step, five (5) local government areas in Ogbomoso land in Oyo State were chosen. The second stage entailed selecting two (2) secondary schools in each local government region using basic random sampling. The third stage entailed selecting thirty (30) secondary students from each school using simple random sampling, for a total of three hundred (300) students who took part in the study. A structured questionnaire was used to obtain relevant data from the participants. The questionnaire was comprised of five sections labelled A - E. Section A: Respondent demographics; Section B: Academic self-efficacy Scale (r = 0.81); Section C: Students' Academic

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Achievement Motivation Scale (r = 0.78); Section D: Emotional Intelligence Scale (r = 0.75); Section E: Physics Achievement Test (r = 0.87). Data were analysed using Pearson Product Moment Correlation Coefficient and Multiple Linear Regression to test the three research questions.

Results

Research Question 1: Is there any relationship that exists between the independent variable (student's self-efficacy, achievement motivation, and emotional intelligence) and the dependent variable (academic achievement in Physics) among secondary school students?

Table 1: Descriptive Statistics and Correlation Matrix of Variables on Students' Achievement (n=300)

Variables	Mean	SD	1	2	3	4
1. Physics Achievement	53.91	5.25	1.000			
2. Academic self-efficacy	36.28	7.41	.715**	1.000		
3.Academic achievement Motivation	64.31	4.42	.461**	.692**	1.000	
4. Emotional Intelligence	37.54	8.41	.312**	.016	.119*	1.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 1 reveals the inter-correlation matrix between the independent variables (academic self-efficacy, academic achievement motivation, emotional intelligence) and the dependent variable (Physics achievement) among secondary school students in Oyo State, Nigeria. Academic self-efficacy (r =.715; p<0.01); academic achievement motivation (r =.461; p<0.01) and emotional intelligence (r =.312; p<0.01) imply that self-efficacy, academic achievement motivation and emotional intelligence positively and significantly correlated with physics achievement among secondary school students. There was a significant relationship between academic self-efficacy and emotional intelligence (r =.016; p<0.01), and academic achievement motivation and emotional intelligence (r =.119; p<0.01). Similarly, there was a positive significant relationship between academic self-efficacy and academic achievement motivation (r =.692; p<0.01) implying a very strong relationship.

Research Questions 2: What is the joint contribution of student's self-efficacy, achievement motivation, and emotional intelligence to students' achievement in Physics?

Table 2: Regression Analysis Showing Joint Contribution of the Variables on Students' Achievement in Physics

Multiple R = .674
R Square R^2 = .568
Adjusted R Square = .565
Standard Error of the Estimate = 3.856

Model		Sum of Square	Df	Mean Square	F	Sig.
1	Regression	3972.121	3	973.534	131.230	.000[b]
	Residual	3432.645	295	9.133		
	Total	6404.766	298			

Table 2 reveals that the joint contribution of the independent variables (student's self-efficacy, achievement motivation, and emotional intelligence) to the dependent variable (academic achievement in Physics) was significant ($F_{(3, 295)}$ = 131.230; p<0.05). The coefficient of the determination is .568. There is an indication that students' achievement in Physics is jointly determined and significantly influenced by self-efficacy, achievement motivation, and emotional intelligence. The Adjusted R^2 value of .565 implies that 56.5% of the variance in physics students' achievement can be accounted for by the predictor variables in this study. Students' achievement in Physics is accounted for by the student self-efficacy, achievement motivation, and emotional intelligence while 43.5% can be attributed to other factors that were not captured by this study.

Research Questions 3: What is the relative contribution of student's self-efficacy, achievement motivation, and emotional intelligence to students' achievement in Physics?

Table 3: Multiple Regression showing the Relative Contribution of each of the Variables

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Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta (β)		
(Constant)	27.544	3.124		12.918	.000
Self-Efficacy	.475	.035	.754	13.406	.000
Achievement Motivation	.142	.067	.391	2.922	.002
Emotional Intelligence	.127	.034	.233	5.915	.004

*Significant at 0.05 level

Table 3 shows the relative contribution of self-efficacy, achievement motivation, and emotional intelligence among secondary school students in Oyo State. The table also shows that student's self-efficacy has the highest contribution ($\beta = .754$: $t = 13.406$: $p<0.05$), then achievement motivation ($\beta = .391$: $t = 2.922$: $p<0.05$), and lastly emotional intelligence ($\beta = .233$: $t = 5.915$: $p<0.05$) made significant contribution to achievement in Physics. This implies that an increased influence of self-efficacy will increase students' achievement by 75.4%, achievement motivation will increase students' achievement by 39.1%, and emotional intelligence will increase students' achievement by 23.3%.

Discussion

First, is there a link between the independent factors (student self-efficacy, success motivation, and emotional intelligence) and the dependent variable (physics academic achievement) among secondary school students? The results of this study suggest that there is a positive association between the independent factors (student self-efficacy, achievement motivation, and emotional intelligence) and the dependent variable (physics academic achievement) among secondary school students. The findings of this study demonstrate a favourable significant association between students' self-efficacy and academic achievement in Physics. This conclusion could be because self-efficacy belief is an essential psychological construct that influences students' academic success. This research backs up Ugoji's (2013) findings, which demonstrated a link between self-efficacy and academic accomplishment. This makes self-efficacy a critical aspect in improving student accomplishment; additionally, Aboma (2009) hypothesized a link between self-efficacy and student achievement at various levels of schooling. The findings support Akomolafe's (2010) findings that students with a high level of self-efficacy are more likely to take a broad view of a task to identify the optimal approach, and are more likely to exert effort toward completing academic assignments and persist when faced with difficulty. Students with poor self-efficacy, on the other hand, are more inclined to give up (Owodunni, 2019). Also, according to Ugoji (2013), students with low self-efficacy are more prone to doubt their abilities and give up readily, limiting their prospects for improvement; they put in little effort and give up soon when faced with problems.

The results of this study show that academic accomplishment in Physics and academic achievement motivations have a favourable significant association. This could be because achievement motivation can have the desired effects on students in the classroom. There will be a strong desire to succeed and a great dislike of defeat. Academic achievement has a positive link with academic achievement motivation, according to the findings of the study. This means that as accomplishment motivation improves, student academic achievement improves as well. This study supports the finding that motivation is the best predictor of student accomplishment in two studies that looked at factors influencing student achievement and their influence on students' achievement in learning the Japanese language via satellite television (Oxford, Park-Oh, Ito & Sumrall, 1993a). Achievement motivation is more accurately described as multifaceted, taking into account individual variances in learning goals and learning orientations. Also, despite the presence of stressful events and settings, this research confirms that pupils who are well-adjusted in school and can sustain their academic performance have high levels of accomplishment motivation (Gonzalez & Padilla, 1997). According to Perry (2001), the transition period can be unpleasant for students who have low levels of success motivation, and many of these students drop out before graduation. This conclusion backs up Gupa and Mili's (2006) findings, which demonstrated a link between achievement motivation and academic success. This conclusion, on the other hand, contradicts Obiero's (2018) findings, which found no link between achievement motivation and academic achievement in their investigations.

This study's findings demonstrate a favourable and significant association between emotional intelligence and students' Physics achievement. It may be because developing good emotional intelligence skills is a necessity for a student's capacity to adjust to the arduous demands of school transfer. Individuals who score low on emotional

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clarity and report an inability to manage their emotional states are thought to have poor emotional adjustment on multiple measures, according to this theory (Salovey, 2001). Furthermore, research reveals that students with higher emotional intelligence perform better in school, with better grades, self-assessments, attendance, and academic behaviour, as compared to their classmates with lower emotional intelligence (Quarterly et al., 2007). Emotional intelligence is also a predictor of academic achievement, according to the studies. This finding is consistent with that of Tyagi and Gautam (2017) and Jan et al. (2018), who found a link between emotional intelligence and academic achievement in their various participants. This conclusion is justified by the fact that emotional intelligence aids in the reduction of academic anxiety and negativity, hence enhancing academic achievement.

The second research question is: what role do self-efficacy, achievement motivation, and emotional intelligence play in students' achievement in Physics? The findings demonstrated that the independent variables (student self-efficacy, achievement motivation, and emotional intelligence) all have an impact on the dependent variable (physics achievement). It reveals that when the three factors (student self-efficacy, achievement motivation, and emotional intelligence) are combined, they account for 56.5% of secondary school student's academic achievement in physics. It indicates that the three independent variables are practically intertwined in the teaching and learning process since they give much-needed psychological impetus capable of motivating students to achieve their maximum academic potential. This research supports Collins et al. (2004) findings that students' success motivation and self-efficacy have an impact on their academic achievement in external examinations. Adeyemo (2008) also discovered a link between emotional intelligence and secondary school students' academic achievement. This backs the idea that accomplishment motivation is defined as the ability to produce high-quality work in school. Achievement-motivated behaviour is exemplified by the ability to do something distinctive (Quarterly et al., 2007).

What is the relative impact of student self-efficacy, achievement motivation, and emotional intelligence on students' achievement in physics, according to the third study question? The findings demonstrated that all three characteristics were significant predictors of academic success. Academic self-efficacy, on the other hand, contributed the greatest contribution to academic accomplishment, followed by achievement motivation and emotional intelligence, in order of magnitude. Students' achievement in Physics would likely improve if they had more self-efficacy, achievement motivation, and emotional intelligence. This study is in line with Fakeye (2017) who found that students' academic performance was a function of accomplishment motivation, with students with high success motivation outperforming students with low achievement motivation.

Conclusion

The study's key contribution was empirical proof showing students' self-efficacy had a significant impact on academic progress in physics. Based on these findings, it is possible to conclude that students' self-efficacy has a significant impact on high-achieving secondary school student's academic achievement; achievement motivation has a positive relationship with the academic achievement of high-achieving secondary school students, and emotional intelligence has a positive relationship with academic achievement of high-achieving secondary school students.

Recommendations

The following are suggestions based on the study's findings:

i. To improve students' accomplishment in physics and science in general, secondary schools should highlight student-related elements (student self-efficacy, achievement motivation, and emotional intelligence) that facilitate students' achievement during the teaching/learning process.
ii. Physics teachers should employ effective teaching techniques that will help students attain their goals.
iii. Physics teachers should attend regular conferences, workshops, and seminars to keep up to date on the subject's content and pedagogical understanding.
iv. Among the different student-related characteristics in the school, curriculum planners should incorporate student self-efficacy, achievement motivation, and emotional intelligence.

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