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BOOSTING STUDENTS' INTEREST IN SCIENCE IN SECONDARY SCHOOLS: THE ROLE OF TEACHERS' ACADEMIC QUALIFICATION AND TEACHING EXPERIENCE

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Abstract: The study adopted the Ex-post Facto research design. This was used to examine the influence of the independent variables on the dependent variables. The population for the study consisted of all the students and Basic Science teachers in the (UBE) section of public secondary schools in Rivers State. The sample for the study consisted of six hundred (600) basic science students and one hundred (100) basic science teachers from the junior secondary section (UBE) selected through a stratified random sampling technique. Thirty (30) junior secondary schools were selected for the study. The simple random sampling technique was further used to select 20 students from each of the 30 selected schools, giving a total of 600 students. Instruments adopted for data collection include the Science Interest Scale (SIS) and Student Achievement scores. The student interest scale has two sections: A and B. Section A measures how students' interest in science is sustained through the teacher's characteristics. It contains ten items in a modified Likert-type format. Responses in this part range from "strongly agree" to "strongly disagree." Items in this part were adopted from Joseph (2019) students' interest scale. The students' achievement was determined by the scores of the students in basic science in the UBE classes. The information was gathered from the study's chosen schools' principals or anyone authorised to release the results. The results of the students did not require further testing for reliability because, according to Gable (1986), any score obtained from the original source does not require any further re-validation. The data collected was analysed using descriptive statistics. The mean and standard deviation were used to answer the research questions, and the Analysis of Variance (ANOVA) was used to test the null hypotheses at 0.05 significant levels:

Keywords: students, interest, Basic Science, qualification, experience secondary schools.

Introduction

Poor academic achievement of students in science as witnessed in recent time is traceable to several variables which have garnered considerable concern and attention of teachers, and other stakeholders in the sector on how to alter or modify the trajectory. Consequent upon the aforesaid, numerous researches have been carried out to establish the true cause(s) of the observed failure. Most of the issues discovered was the decreased interest of students, and has been related to the numerous curriculum modifications which heretofore is considered as a mere activity and has yet made the tendency to remain the same in the subject. There have been various investigations to find the underlying causes of the fragile low achievement of students in the subject and the unexplored side is the function of students' interest and how raising it might influence the trajectory.

The major worldwide shift in focus in the teaching of science in the 60s and 70s brought about the reassessment of the sciences taught in Nigerian schools. This prompted

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to Science Teachers Association of Nigeria (STAN) revise the Biology, Chemistry and Physics syllabuses of WAEC, which brought to the 'birth' of Nigerian Integrated Science Project (NISP).

It was to be taught as described by the National Policy on Education for Science, in keeping with the Nation's Philosophy. The aims of Integrated Science as described in the national policy paper, therefore, are to:

1. Teach students on how to observe the environment, arising from the question about it
2. Sharpen the student's talents;
3. Direct students' attention to topics that is significant to them and to the society in which they live
4. Continue the process of science idea development to learn science vocabulary, not just by definition but by experience; and
5. This experience prepares the pupils for a takeoff into the fascinating realm of science later in their academic careers.

The teaching of Integrated Science, currently termed Basic Science, in Nigeria followed the United State of America's Process Approach Curriculum, which arose as an innovation for producing scientists. However, with the Federal Government's decision to adopt the 9-year Basic Education, the current curriculum for elementary and junior secondary schools were examined and re-structured. What is available now, with the review, is basic science. The overall objectives of this curriculum are relatively similar to those of integrated science with minimal adjustment. The aims of fundamental science are to allow learners to

• develop interest in science and technology;
• acquire fundamental knowledge and abilities in science and technology;
• apply their scientific and technological knowledge and talents to satisfy social demands;
• take advantage of the various job options afforded by science and technology; and
• become prepared for further studies in science and technology.

However, it has been noticed that the aforementioned aims, especially the first one, "the development of students' interest in science and technology," have not been actually realised in the subject. As students' lack of interest in basic science courses has demonstrated throughout time, this is evident in the low academic performance they have showed in these classes over the years (Joseph & Ikechukwu, 2013). In order to restore students' interest in the basic science, this scenario has been a major source of worry for all parties involved in education. In order to shift the narrative of students' low achievement in science, efforts should be taken to increase students' interest in the topic as well as their attitude toward learning basic science in secondary schools. Many studies show that students' lack of interest in the topic is a crucial factor in their low academic performance. Students' interest in the subject may have waned because of the subject's difficulty, but it has not been determined to what extent or for what reasons. Some believe it is due to a lack of adequate teaching and learning facilities and laboratories, which can stimulate students' interest in learning and putting it into practise. Since the development of any nation or people depends largely on the quality of education, it therefore implies that any true and meaningful development must begin with the development of human resources (Wobodo, 2010). Therefore, training and development must begin with the development of human resources and must begin with the country's education, in which science and technology play an essential part.

People are concerned about the future of science and scientists in Nigeria because of the critical role that science and technology play in human development, and because students' poor performance in basic science classes is directly related to their lack of interest in the subject. According to the researcher, the current state of affairs necessitates immediate action, thus he's looked at

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different strategies for boosting students' interest in the subject. It's safe to say that teachers are at the heart of all classroom activity and the implementation of any curriculum or educational strategy. All the knowledge and skills they need to succeed in school are provided by him. Kamel and Gbadamosi (2014) argue that teachers are generally role models that students may readily imitate, and they are critical to students' moral, intellectual, and personal growth. The National Policy on Education (FRN, 2014), It emphasises the importance of a teacher in providing students with a meaningful education at all levels. As Okoye (2011) said, if efforts are not made to produce teachers who will be able to comprehend and carry out any operational curriculum, then implementing a basic education curriculum would be a mirage. This demonstrates the significance of teachers in any meaningful educational endeavour. Therefore, teachers' effectiveness in classroom teaching is important and needs to be critically examined. This effectiveness is determined by a variety of factors, including, but not limited to, the teachers' enthusiasm for teaching and the subject. Teachers' interests need to be thoroughly studied. Against this backdrop, it is convenient to say that the teachers as implementers of learning are very significant to students' academic achievement and interest (Njuguna, 2005).

The Concept of Interest

Interest has been viewed in many ways by various academics, schools of thought, and authorities. An individual with a strong sense of interest in a topic is more likely to stick with it, show dedication, and pick up new skills over time (Hidi & Ainley, 2002). "Interest" is the act of focusing one's attention on someone, something, a situation, or an item. It may either be the outcome of or the source of motivation, which then becomes the driving force or the defining attribute of the interest in the first place. In other words, you're enticing them to get more involved in whatever it is that has the potential to make them happy. Additionally, it may be used to forecast what one sees most of the time in terms of the environment around them. conditions in the environment, such as inspiration and interest, as well as additional value, innovation and novelty, there may or may not be a longer-lasting emotional response to this. Sctiefele (1998) described it as a state in which a person connects the essence of something or a situation to his or her own desires or needs. (Hidi et al., 2000) said a person's interactions with their surroundings lead to the emergence of both personal and situational interests. To sustain one's intense sentiments and passions for a substance, item, or value, one needs a stimulating atmosphere. In other words, teachers may help students build a long-term preference for a topic by purposefully including things or activities in the class that might help students progressively acquire an interest in the subject. It's important for teachers to keep an eye out for ways to make the classroom more engaging for students so that they may better engage them in the material being taught. As a result, it may be of interest to them as a matter of circumstance. Despite the fact that Dewey outlines four categories of educational interest in scientific learning, the consequences for this study are described below. In the first place, there is a desire to engage one's body. Using physical tasks such as manipulating actual objects as examples, Dewey argued that learning may occur not just on a physical level but also mentally. As evidenced by the study's findings, students' mental and cognitive abilities were definitely stimulated while they enthusiastically developed their talents. It's also important to note that the second type of interest is a higher level of action in which children, teens, and adults employ to accomplish their goals. A child's thoughts may turn to the end result and how it will be used when he or she is building a boat using tools. A thing or concept might become a part of me because of my actions. Its cerebral character sets it apart from more spontaneous forms of play. A distant end helps him find his way until he gets to the end of what interests him.

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An intellectually motivated person believes that intelligence is a necessary component of productive work, and this is the third type of person. There is a search for and adaption of measures to achieve a desired outcome. Achieving an aim or result is at first more important than the methods of achieving it, but this attention shifts to the means of achieving the end when the effort is deliberate. When it comes to education, Dewey underlines several times that what starts out as a direct desire to learn becomes a want to learn indirectly. To put it another way, there is a difference between direct interest and indirect interest. Interest in a subject eventually shifts to an indirect interest as the scope of an activity grows. To put it another way, "the development of indirect interest is merely an indication that a basic activity has evolved into a more complicated one, taking longer and longer amounts of time to complete."

Lastly, there is an interest in people and the community. Social concern is not the same as social curiosity; rather, it is an intellectual interest in the actions and goals of others (Dewey, 1933). As with the other three interests, the social interest is an inherent resource for enhancing and broadening the area of activities.

There have been a few research based on these hypotheses in the field of scientific education. First, Harp and Mayer (1997) applied the notions of emotional and cognitive interest in order to make scientific instruction more enjoyable. They found that students were more interested in the subject if it was presented in an amusing way, but this method was not particularly effective in helping students learn the material in a logical manner. Cognitive curiosity over emotional interest may help students better understand scientific explanations. For the second time, Palmer (2004) employed the notion of situational interest to pique the attention of students in a science lesson. A student's favourable attitude toward science and their academic performance are positively influenced by continuous situational curiosity, according to the study's findings. An action in which the self and the objects are brought together to attain a shared objective is characterised as being motivated by interest. Proponents use a variety of phrases to describe their interest.

1 "Unified action is the result of shared interest. Because the ego and the thing to be mastered are separated in these circumstances, "genuine interest" is not a term that can be used. In order to sustain a self-initiated activity, a person's interest must be accompanied with a willingness to act on that identification of self with a particular item or concept.

To be interested means to be entirely engrossed until one's aims are achieved. To be "fully engaged" is to give one's all to whatever one is doing. Complex activities need several steps in order to complete the final goal. As a means to an end, the activity's objective is viewed as a source of motivation that permeates every step of the way.

Interest is the owner of all intellectual property. When curiosity becomes intellectual, it takes on a degree of interest in finding out the solutions to questions. There is a mental and intellectual component to a student or learner's physical activity. The reason for this is that people who are interested in simple things become more interested in learning about new things later on in life. A man with an intellectual curiosity is able to see the end result of an activity and is looking for a way to achieve it. As a result, intelligence is an essential component of all of the activities "It is feasible for it (intellectual curiosity) to become the primary focus of one's attention.

Teachers may increase students' interest in science by immersing them in activities and putting their full effort into them until they attain their aims or objectives, and these ideas on interest definition are great enough to describe how this can be accomplished. In addition, the pursuit of intellectual property rights is a significant factor in motivating behaviour. Students are more likely to ponder on scientific issues when they have a sincere and intellectual interest in them. This interest in science should be nurtured into an intellectual interest, which not only

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increases the student's enthusiasm in the topic, but may also sustain them throughout their careers.

Principles for boosting interest in students

Motivation is fueled by positive feedback. Interest is one facet of motive that proponents claim. Various theories of motivation, such as extrinsic and intrinsic, have different ways of describing the same sort of interest. Extrinsic motivation theorists, particularly reinforcement theorists, contend that a person's interest develops out of their needs and wants. A child's interest in a precise activity is predisposed by the rewards he obtains for participating in it. Extrinsic incentive, such as a personal interest in a subject, might spur young people to pursue a career in science. However, I feel that there are many more fundamental motivations for a man to choose a career in science than he would think. For the same reason, I think extrinsic motivation is incorrect since any shortcut, such as "getting the answer" via cheating, may be exploited by a guy who is more worried with rewards than success.

An action that is done for its own purpose rather than as a means to an aim is commonly defined as intrinsic motivation (Hidi, 2000). As humans, we're wired to seek out opportunities to improve our skills. Being able to complete tasks and improve one's skills is a joy in itself (Stipek, 1996). A person's actions are intrinsically motivated when they are driven by their own interest, and the two terms are used almost interchangeably in this context (Tobis, 1994). Flow and self-determination are concepts coined by Chikszentmihaly, Deci, and Ryan to describe the qualities of fascination. Flow means to be completely absorbed in what one is doing. It's about integrating action and awareness, letting up of control, and shifting time. An analogy for the feeling of being in the zone is to relate it to a prototype of what it means to be interested. (Deci, 1992). Deci and Ryan's views on self-determination was having strong feelings, a particular choice, and full support for anything, which is what it means to be self-determining. Any desire for novelty, challenge, or aesthetic appeal that arises as a result of a person's self-affect is considered to be an interest (Deci, 1992). If a person's interests are defined by Mechnermey and et al. (2005) as an individual's ability to carry out their chosen course of action, career, or pursuit thoroughly, then interest is a notion that describes this ability. Interest therefore appears to be particularly valuable as the link between identification, absorption and persistence of a self-initiated activity that provides a simple approach to examine classroom activities.

3 **Intended learning benefits.** Student interest is a result of the anticipated learning gains expected by the students when they engage with an activity that interests them or recognises the worth of the activity is essential for their motivation. Consequently, the way in which a teacher conducts themselves or acts toward their students might power the way in which students perceive the world and the path they plan to take. The instructor can thereby influence students' views on science, which in the instance of secondary school basic science will affect their performance in the subject. For him, interest may be reignited or extinguished by a teacher's efforts to engage students in the subject matter.

The Teachers' role

Factors such as a positive outlook on science have already been discovered. Classes, teachers, and other aspects of instruction all fall into this category. The classroom/teacher had the greatest impact on student learning, as evidenced by the study's findings. That is, characteristics of the instructors, such as their background, training, disposition, and gender.

Teachers' teaching experience.

Years of teaching expertise in education and science contribute to students' interest development and sustainability. It's one of the most crucial employee policies. It's the basis for single-salary schedules. It encourages teacher transfer procedures that emphasise seniority and is a key cause of disparity between schools. The belief is that experience enhances efficacy (Rice, 2010). Experience is important, but more isn't necessarily

better. Hendley et al. (1995) discovered that one of the most common reasons for enjoying or hating the topic was a teacher-related statement in class. The teacher's comments, signals, and gestures can increase or decrease pupils' interest in a subject. Tobias (1990) reveals that many students ascribed their disinterest in science to uninspiring teaching approaches, such as problem-solving strategies and a lack of intellectual perspective (Osborne, 2003). These studies show excellent teaching increases student interest and involvement. They should have strong teaching experience to engage and retain pupils. Hausser and Hoffman (1997) produced a list of ways to engage students in class. The guidelines were also taught to instructors. Provide freshness and relate material to existing experience is two recommendations. These recommendations helped teachers boost pupils' interests and success.

Recognizing and developing opportunities for learning

Teachers might develop or recognize learning windows based on their own experiences. Learning windows are times when pupils are fully engaged, enthusiastic about learning, and eager to learn. Students' interests are stimulated or enhanced to a greater extent when teachers are able to recognize and size learning windows. When a student's interest in a subject is piqued, they will maintain it and their motivation will rise, resulting in improved academic performance. (ii) Creating a productive pedagogy

Productive pedagogy is teaching that brings out the best in students. Teachers using this single style will help students unlock their attributes and develop their skills. If productive pedagogy is not regularly applied, students would show no interest in learning under such a teacher. The consequence is that the students may not see the need to engage in a meaningful venture, which will eventually reduce the chances of the students' poor achievement in the subject. In addition, a science teacher has the tendency to emphasize the instrumental value of science rather than its intrinsic value as knowledge (Munro and Elson, 2002) to boost the interest of students under him.

Teachers' Qualification

Impactful and influential teachers are defined in terms of their impact on students' academic achievement and growth, which can be measured in how they create and sustain students' interest in the subject they teach. The preceding supports the belief of Koledeye (2011), who discovered that teachers with higher academic qualifications have more subject matter knowledge, competences, and skills for teaching and, as a result, have a greater impact on the teaching-learning process. The qualifications of teachers have been shown to be one of the most important factors influencing the proper development of students' interest in science. According to Aaron and Rachel (2007), students see two types of images of their teacher: the image of an ideal teacher and their own self as a teacher. The ideal teacher impacts the knowledge of the subject on the students in such a way that students get interested in whatever he does, such that even when the subject is not appealing and intriguing, the students develop an interest in the subject because of the image of the teacher. On the other hand, the self-proclaimed teacher is the image that sees the teaching job as a means of earning a living and presents his lessons without minding whether the students are interested in them or not.

Classroom and instructor impact

Numerous studies indicate that the classroom atmosphere significantly affects students' enthusiasm for science. Myers and Fouts (1992) discovered that the most favourable opinions were related to a high degree of engagement and personal support, close connections with classmates, and the utilisation of a range of teaching styles and unconventional learning activities (quoted from Osborne). According to Haussler and Hoffman (1992), the most accurate predictor of students' interest in science is their self-concept, which is contingent on a positive learning environment.

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Research Questions

1. Is there any difference in the mean interest scores of students taught by teachers with different educational qualifications in Basic science?
2 Is there any difference in the mean interest scores of students taught by teachers with different years of teaching experience in Basic science?

Hypotheses

Ho_1: There is no significant difference in the mean interest scores of students taught by teachers with different qualifications.

Ho_2. There is no significant difference in the mean interest scores of students taught by teachers with different years of teaching experience.

Methodology

Ex-post Facto research was used in this study. This was done to see how the independent variables affected the dependent variables. All students and Basic Science teachers in the (UBE) section of public secondary schools in Rivers State were included in the study. Two hundred (200) basic science students and one hundred (100) basic science teachers from the junior secondary section (UBE) were randomly selected for the study using a stratified random sampling technique. The survey included ten (10) junior and secondary schools. The basic random selection technique was further utilized to select 20 students from each of the 10 selected schools, yielding a total of 200 students. The Science Interest Survey is one of the instruments used to collect data**.** The student interest scale has two sections: Aand B. Section A measures how students' interest in sciences is sustained through the teacher's characteristics. It contains ten items in a modified Likert-type format. Responses in this part range from "strongly agree" to "strongly disagree." Items in this part were adopted from Joseph (2019) students' interest scale. The students' achievement was determined by the scores of the students in basic science in the UBE classes. These data were gathered from the principals or anyone authorized to release the results in the study's chosen schools. The results of the students did not require further testing for reliability because, according to Gable (1986), any score obtained from the original source does not require any further re-validation. The data collected was analyzed using descriptive statistics. The mean and standard deviation were used to answer the research questions while the Analysis of Variance (ANOVA) was employed to test the null hypotheses at.05 levels of significance

Results and Discussion

Research question 1: Is there any difference in the mean interest scores of students taught by teachers with different educational qualifications in basic science?

Table 1: The difference in the mean interest scores of students taught by teachers with different educational qualifications in basic science

Teacher Qualification	Mean and SD	Science students interest
Certificate	Mean	75.08
	N	12.00
	SD	8.54
Bachelor	Mean	74.00
	N	68.00
	SD	10.28
Master degree	Mean	75.88
	N	17.00
	SD	7.58
PhD	Mean--	70.67
	N	3.00
	SD	15.50

Table 1 shows the difference in the mean interest scores of students taught by teachers with different educational qualifications in basic science. The table revealed that the mean interest of the students whose teachers had certificates was 75.06, SD=8.54. The mean interest of students whose teacher holds a bachelor's degree was 74.00, SD = 10.28. The mean interest score of students taught by teachers holding master's degrees was 75.88,

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SD = 7.58. The mean interest score of students taught by teachers holding PhDs was 70.67, with an SD of 15.50.

H_{01}: There is no significant difference in the mean interest scores of students taught by teachers with different educational qualifications in Basic Science

Table 2: Summary of ANOVA on the difference in the mean interest scores of students taught by teachers with different educational qualifications in Basic Science

Variable	Source of variation	Sum of Squares	Df	Mean Square	F	Sig.	Eta	Eta Squared
Science students interest	Between Groups	95.402	3	31.801	.329	.805	.101	.010
	Within Groups	9285.348	96	96.722				
	Total	9380.750	99					

Table 2 shows the summary of ANOVA on the mean interest scores of students taught by teachers with different educational qualifications in basic science. It shows that there is no significant difference in the mean interest (F3, 96=0.329, p=.805, partial eta square scores of student taught by teachers with different educational qualifications in basic science. The null hypothesis one, there is no significant difference in the mean interest scores of student taught by teachers wi6th different educational qualifications in Basic Science was retained at .05 alpha levels.

Research question 2: Is there any difference in the mean interest and achievement scores of students taught by teachers with different teaching experience in Basic Science?

Table 3: the difference in the mean interest of students taught by teachers with different years of teaching experience in Basic Science

Years of teaching experience		Science students interest
0-5 Years	Mean	73.54
	N	41.00
	SD	10.88
6-10 Years	Mean	74.88
	N	16.00
	SD	9.86
11- 15 Years	Mean	75.75
	N	24.00
	SD	7.75
16-20 years	Mean	75.14
	N	7.00
	SD	9.79
21 Years and above	Mean	73.17
	N	12.00
	SD	10.14

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Table 3 displays the difference in the mean interest scores of students taught by basic science instructors with varying years of expertise. It indicates that the mean level of interest among children whose teachers had 0–5 years of experience was 73.54, with a standard deviation of 10. The mean level of interest among children whose teachers had between six and ten years of experience was 74.88, with a standard deviation of 9. The mean interest score of students taught by instructors with 11–15 years of experience was 75.75, while the standard deviation was 7. 75.14 were the mean interest score of students taught by instructors with 16 to 20 years of expertise. The mean interest score of pupils taught by experienced teachers was 73.17, with a standard deviation of 10.14. The data shows that children whose professors with 11 to 15 years of experience had the highest average interest score. Interestingly, pupils whose teachers have the most experience had the lowest average interest scores (mean = 73.17).

Table 4: Summary of Factorial Design ANOVA on the effect of interaction of teachers' background and professional training on the mean achievement scores of students in Basic Science

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	1562.091[a]	24	65.087	1.016	.458
Intercept	100718.948	1	100718.948	1572.129	.000
Qualification	227.772	3	75.924	1.185	.321
Experience	311.368	4	77.842	1.215	.312
Training	.105	1	.105	.002	.968
Qualification * Experience	152.537	6	25.423	.397	.879
Qualification * Training	78.677	3	26.226	.409	.747
Experience * Training	115.369	4	28.842	.450	.772
Qualification * Experience * Training	93.468	3	31.156	.486	.693
Error	4804.899	75	64.065		
Total	331381.000	100			
Corrected Total	6366.990	99			

a. R Squared = .245 (Adjusted R Squared = .004)

Table 4 displays the summary of the Factorial Design ANOVA about the influence of the interaction between teachers' background and professional training on the mean achievement scores of pupils in elementary science. It demonstrates that there is no statistically significant interaction between the background and professional training of instructors and the mean accomplishment scores of pupils in elementary science (F3, 75 =.486, p >.05). The null hypothesis, that the interaction of teachers' background and professional training has no significant influence on the mean success scores of students in Basic Science, was maintained at an alpha level of.05.

Discussion

The result in table 1 revealed four categories of teacher's qualification: certificate, bachelors, master, and doctorate.

Furthermore, the results revealed various degrees of influence that teachers' qualifications contributed to students' interest development in basic science. The mean interest score of students increased with the teacher's qualification. (x = 75.88, SD = 7.58). The implication of the findings was that the higher the qualification of the teacher, the higher it boosts students' interest in the subject. This result may be due to the fact that teachers may have acquired better skills, better classroom behavior, and methods that they applied in teaching. The findings were consistent with the findings of Krapp and Prezel (2011), who said that to deal with the problem of interest in science and technology in students, the qualification of the teacher is germane. In addition, the methodology and instructional strategy adopted by the teacher and the approach used are essential. Also, the finding corroborates the findings of Osborne and Dollon (2008), OECD (2006), and Turner and Peek (2009), who independently found that students' interests positively correlate with the teacher's qualification.

The findings of student interest scores depending on instructors' years of experience are presented in Table 2. Again, the table demonstrated that the number of years of experience a teacher has a substantial impact on students' interests and academic success in state secondary schools for fundamental sciences. The table also revealed that the performance of students taught by instructors with less experience was inferior to that of students taught by teachers with more experience. In accordance with the findings of Belts et al. (2003), instructors with fewer than five years of experience were categorised as inexperienced and were shown to have had significant detrimental effects on the academic success of their pupils. The data indicated that teachers with 11–15 years of experience increased the average student interest score (75.75).

The analysis of variance indicated, as shown in table 8, a substantial difference in the interest scores of pupils. This difference may be attributable to the fact that professors may have learned superior abilities and mastered ways to handle pupils so as to pique their attention, hence increasing their interest in fundamental science. The present study's findings concur with those of Budin and Zamarro (2009), who discovered that instructors' credentials and experience have a favourable influence on students' general interest and academic success in science. These findings match those of Rivkin, Hanushek, and Kain (2005), who similarly discovered a substantial correlation between teachers' years of experience and students' enthusiasm.

The ANOVA on the effect of interaction on the main variables (teachers' qualifications and experience with the dependent variables) showed varied results; the result of the interaction between teachers' qualifications and teachers' attitudes showed no significant influence on interest and achievement. However, teachers' experience and teachers' attitudes revealed significant interaction that both tend to influence interest and achievement (Tables 4). In the same vein, teachers' background and professional training never had any significant interaction effect on students' interests.

Conclusion

The findings make it abundantly evident that a multitude of variables are to blame for the gradual waning of students' interests in the sciences, and that these factors continue to contribute to this gradual waning of students' interests in the subject matter. The achievement of the students was negatively impacted as a direct result of this, which in turn put the nation's progress in the fields of science and technology in jeopardy. This is because uninterested students have a tendency to entirely disengage from the study of scientific topics. Happily, the finding has shown that among the factors, the interest of students can be boosted when the qualifications and teaching experience of the teacher are properly harnessed, when the school learning environment is placed to create students, and when the curriculum is value-oriented. [Citation needed]

References

Alexander, Jetton, & Mulikowich (1995). Interrelationship of Knowledge, Interest, and Recall: Assessing a Model of Domain learning. *Journal of educational psychology*, 87 (4), 559-575.

Ainley, M., Hidi, S., & Bagmar Berndorff (2002). Interesting, Learning, and the Psychological process that medicate their relationship. *Journal of educational psychology*, 94 (3), 545-561.

Bae, Min-Jung(2002). *An Analysis of the Psychological Structure of 'Learned Helplessness': A case Study*. Seoud: Seoul National University Press.

Betts, J.R.,. Zan, A. C. E., & Rice, L. A. (2003). *Determinants of students achievement: New Evidence from San Diego*. San. Francisco, C.A. Public Policy Institute of California

Buddin, R. & Zamarro, G.(2011) *Teacher Qualifications and Student Achievement in Urban Elementary Schools*. RAND Corporation, 1776 Main Street, P.O. Box 2138, Santa Monica, CA

Dawson, C. (2000). Upper primary boys' and girls' interests in science: have they changed since 1980?, *International Journal of Science Education*, 22 (6), 557-570.

Deci E. L (1992) The relation of interest to the motivation of behavior : A self-determination theory perspective. In *The role of interest in learning and development*. Lawrence Erlbaum Associates.

Dewey, J. (1913). *Interest and effort in Education*. In John Dewey: The middle works. Carbondale & Edwardsville: Southern Illinois University Press.

Dewey, J. (1933). *How we think*. Boston: D.C heath and company

Federal Republic of Nigeria (2014). *Nation policy on education*. Lagos

Harp, S. F. & Mayer, R. E. (1997). The role of interest in learning from scientific text and illustrations: on the distinction between emotional interest and cognitive interest. *Journal of Educational Psychology*, 89 (1). 92-102.

Gable, K. (1986). Instrument development in affective domain. Boston Kluwer Nijhoft.

Haussler, P., & Hoffmann, L. (2002). An intervention study to enhance girls' interest, self-concept, and achievement in physics class. *Journal of research in science teaching*. 39 (9), 870-888.

Hidi, S., Harackiewicz, J. M. (2000). Motivating the Academically Unmotivated: A critical Issue for the 21st Centry. *Review of Educational Research*, 70 (2), 171-179.

Hidi. S. (1990). Interest and its implication as a mental resource for learning. *Review of Educational Research*, 60(4). 549-571.

Hidi S.(2001). Interest, Reading, and learning: Theoretical and Practical considerations. *Educational Psychology Review*, 13 (3), 191-209.

Joseph, E.A. (2019). Influence of teachers background,training and attitude on basic science students' interest and academic achievement in Rivers State. Unpublished thesis submitted to Delta State University Abraka, Delta State.

Joseph, E.A; & Ikechukwu, S.(2014) Joseph, E A. & Ikechukwu, S. (2014). Teacher qualification, teaching experience and subject specialization. Are they determinants of students' academic achievement? *International Journal of Science and Technoledge*, 2(9),136-140

Kaledoye, J.D. (2011). *Effect of teachers' academic qualification on students' performance* at the secondary level retrieved from http://www.Academic.edu..

Kamal, A.A. & Gbadamosis, M.R (2014). Relationship between teachers' attitude and students achievement in Senior secondary Schools Chemistry. A case study of Hebu- and Odogbolu LGA of Ogun State. *Journal of Educational Research, 3* (3) 35-43

Lee, O., & Brophy, J. (1996). Motivational patterns observed in sixth-grade science classrooms. *Journal of Research in Science Teaching*, 33(3), 303-318.

Mcclnerney, D.M, Dowson, M. Young, A.S & Nelson B.F (2005). *Self esteem academic interest and academic performance the influence of significant others.* University of Western Sydney, Australia.

Myrers, D.G. (2002) Social Psychology (7th ed.) New York: McGraw Hill

Mitchell, M. (1993). Situational Interest: Its multifaceted structure in the secondary school mathematics classroom. *Journal of Educational Psychology, 85, 424–436.*

Njugunna, B. (2005). A report of educational standard of Nganza province. Students can excel in mathematics.

OECD. (2006). Evolution of Student interest in Science and Technology Studies Policy Report Paris. OECD.

Okoye, S.N. (2011). *Theory and Practice of Curriculum Development.* Delta State University Printing press.

Osborne, J.S, & Collins S. (2003). Attitude towards Science: a review of literature and its implications. *International Science Education,* 25 (9), 1049-1079.

Osborne, J. (2003). Attitudes towards science: a review of the literature and its implications. *International Journal of Science Education*, 25 (9), 1049-1079

Prawar, R. S. & Anderson, A. L(1994). The effective Experiences of Chilren During Mathematics. In *Journal of Mathematical Behavior* 13, 201-222

Palmer, D. (2004). Situational interest and the attitude towards science of primary teacher education students. *International Journal of Science Education*, 26, 7, 895-908.

Renninger, K. A & Wade, S. E. (2001). Engaging Students in Reading: Implications for Research and Practice, *Educational Psychology Review*, 13(3), 187-190.

Rice, J.K. (2003). Teacher quality: understanding the effectiveness of teacher attributes. The economic policy institute retrieved November, 2, 2016 from /http://www.epinet.org/content.cfm?id=1500.

Rivkin, S.G., Hanushek, E.A., & Kain, J.F. (2005). Teacher's schools and academic achievement. *Econmictrica, 73*(2), 417-458.

Schiefele, U., Krapp, A., & Winteler, A. (1992). Interest as a predictor of academic achievement: A meta-analysis of research. In K. A. Renninger, S. Hidi & A. Krapp (Eds.), *The role of interest in learning and development.* (pp. 183-212). Hillsdale, NJ: Lawrence Erlbaum Associates.

Stipek, D (1996). Motivation and Instruction. In D. C. Berliner & R.C. Calfee (Eds.) *Handbook of educational psychology* (pp.85-116). New York: Macmillan

Tobias, S. (1994). Interest, Prior Knowledge and learning. *Review of Educational Research*, 64 (1),

Turner, E.A., Chandler, M., & Heffer, R.W. (2009). The influence of parenting styles, achievement

motivation and self-efficacy on academic performance in college students. *Journal of College Student Development*, 50 (3), 337-346.

Wobodo, N. G.(2010). Evaluation of the causes of poor academic achievement of students in integrated science in Ikwerre L. G. A. of Rivers State. Unpublished project, University of Education, Port Harcourt