SELF- EFFICACY AS CORRELATES OF UPPER BASIC STUDENT'S ACHIEVEMENT AND ATTITUDE IN BASIC SCIENCE AND TECHNOLOGY IN AKWA IBOM STATE

BY

PROF. ABIGAL M. OSUAFOR (F.STAN)
DEPARTMENT OF SCIENCE EDUCATION
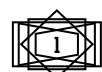**NNAMDI AZIKIWE UNIVERSITY, AWKA**
ANAMBRA STATE-NIGERIA

AND

DAVIS DAVID SAMBO
DEPARTMENT OF INTEGRATED SCIENCE
COLLEGE OF EDUCATION AFAHA NSIT
AKWA IBOM STATE-NIGERIA

ABSTRACT

The purpose of this study is to determine self-efficacy as correlates of upper basic school student academic achievement and attitude in basic science and technology in Akwa Ibom state. In other to carry out the study two research questions and hypothesis were formulated. The correlation survey design was used in this study. The area that was covered in this study is Akwa Ibom State. The population of this study comprised of 20,655 Upper Basic 3 Basic Science students in 237 public secondary schools in the 31 local government area of Akwa Ibom State in 2022/2023 academic session. The sample size for this study was 1800 Upper Basic 3 Basic Science and Technology students from 45 public secondary schools in Akwa Ibom State. Three types of sampling methods namely - purposive, proportionate and simple random samplings were used. Purposive sampling was used to select nine Local Government Areas from the state. Proportionate random sampling was used to draw 5 schools from each Local Government Area giving 45 schools from the state. This is because the populations of schools in the selected areas were not similar. Simple random sampling technique of 40 students per school was further used to select the students who participated in the Study. Two instruments were used to collect data for this Study. They are Self-Efficacy Scale Questionnaire (SESQ) and Students' Attitude Scale Questionnaire (SASQ). The self-efficacy questionnaire as well as the attitude scale questionnaire consisted of 25 statements each which sort information on student's self-efficacy and attitude. A four-point rating Scale of SA - strongly agree, A – agree, D - disagree, SD - strongly disagree was used in designing the questionnaire. To ensure the validity, the instruments were given to three experts and two professional teachers. The three experts were from faculty of Education. While the two professional teachers were Basic Science and Technology teachers not below the Rank of Principal II in the Area of the study. To determine the reliability of the instruments, SESQ and SASQ were administered once to eighty Upper Basic three school students who were not part of the study. The scores obtained were subjected to reliability computation using Cronbach's Alpha Technique. SESQ has a reliability coefficient of .78, and reliability of SASQ was established at .77, thus the instruments were adjudged to be suitable for the study. The instruments were administered on the students by the researcher with the help of Nine (9) research assistants who were briefed by the researcher to facilitate easy administration of the instruments. These nine research assistants were used to cover the entire local government areas that formed the sample. Pearson Product Moment Correlation Coefficient as well as regression statistics was used to analyze the data generated from the study. All research questions were answered using P- value and / or significant value while regression statistics was used to answer the hypotheses generated in the study. The result reveals that, there is a low negative significant relationship between self-efficacy and upper basic students' academic achievement and attitude in basic science and technology in Akwa Ibom State. Based on the finding of this study it is recommended among others that greater classroom activities that encourages students interaction with peers and teachers should be enshrine in the school timetable to improved their self-efficacy.

KEYWORDS: Self-efficacy, upper basic student, attitude, basic science and technology, achievement and Akwa Ibom State.

Shared Seasoned International Journal of Topical Issues
VOL.9 NO.1, MAY 2023, New York City.   ISSN: 2630-7290

PROF. ABIGAL M. OSUAFOR & DAVIS DAVID SAMBO

INTRODUCTION

The world today is driven by science and technology, with the economic prosperity of society being determined by the amount of scientific knowledge and the applications of such knowledge in sustainable living. In view of this fact, Nigeria, through its national policy in education, presents science to its population at all levels of education. Basic science and technology are taught to students at the basic levels (basic one to upper basic three, covering nine years), while separate disciplines of sciences such as physics, chemistry, biology, etc. are taught to students at the senior secondary school and tertiary level of education.

It is a generally accepted fact that the Basic Science and Technology levels are sensitive, precious, and crucial for laying the foundation for the overall development of the child in the sciences. Any endeavour to guide children to the top of their potential must not neglect this very important starting point: the basic science and technology levels of education. There is ample research evidence by Sink &Spencer (2005) and NAS in Njoku Martha Ijok (2013) that successful adult intellectual development has its roots in the early years of basic science and technology education.

The basic science and technology level of education could be regarded as the foundation on which the senior secondary and, in fact, the tertiary levels of education depend. Any impression left with students at this level of education may have a far-reaching impact on their perception and choice of future careers. This goes to emphasise the fact that the acquisition of further knowledge and skills in science and technology would depend to some extent on the foundation laid at the basic science and technology education level.

In spite of the emphasis on the teaching and learning of science in Nigeria, with particular reference to basic science and technology, by stakeholders over the past years, it has been observed that there has been a general declining trend in students' interest, achievement, and enrolment in science and technology subjects at all levels of education (Jack, 2013; Usendia, 2017).

After two decades of the introduction of basic science and technology into our school system, its emphasis has yet to be felt by both the nation and individuals. The basic science and technology curriculum is a product of a review of the national policy in education based on the introduction of universal basic education in 1999 into our school system. There has always been a repeated student failure in the subject year in and year out, as reported by the ministry of education's Akwa Ibom State Examination Division. Only a few students often have credit passes and above, while more students fail within the range of passes and failures (Sambo 2023).

By all standards in the academic environment, the benchmarks of pass acceptable for all subjects in institutions in Nigeria are credit and above. If this is put into consideration from the BECE result, it could be deduced that Basic Science and Technology students' result from Akwa Ibom State was below expectations. This dreadful poor academic achievement of students in basic science and technology is a matter of serious concern because of the role science and technology play in any nation (Sambo 2023).

Aside from the expected academic achievement in basic science, the society expects that students exposed to basic science and technology should have a change of attitude (positive) towards critical issues relating to science and technology within the society.

Attitude is a learned disposition or tendency on the part of individual to respond positively or negatively to a situation or another person. Evans and Julius (2015) opine that attitudes influence

how well students adjust and how they behave. Allport in Cervone and Pervin (2015) asserted that a person will generally perform better in any task to which he is favourably disposed. Therefore, if a student is not favourably disposed to a subject in this case Basic Science and Technology, her attitude towards everything about the subject will be negative. It follows therefore, that if an individual has a negative attitude towards a subject, the individual will have low level of confidence to study and achieve better in the subject. In order to study therefore, the individual needs to have a strong will and determination that he will succeed in it because a positive attitude towards a subject will build the required confidence for success in the individual.

Olasheinde and Olatoye (2014) recognised attitude as a major factor in subject choice. This recognition reveals the apt problem of student choice of science and technology-related subjects at the senior secondary and tertiary levels in Nigeria. Manaza (2019), in his research, reported that students' enrollment in science is low, which shows the level of acceptance and willingness of students to study science. Nigeria is underdeveloped despite the abundant natural resources within the nation, indicating the level of acceptability and utilisation of science and technological knowledge and skills after many decades of independence. This shows that the citizenry's attitude towards science and technology is faulty. Attitude largely determines what students learn and their willingness to learn.

In recent times, the problem of students underachievement and their attitude towards a given school subject have been of serious concern across the globe. Several studies carried out to uncover poor academic achievement in the sciences focused on teacher teaching methodology in the area of new teaching methods that could enhance students' achievement. In a similar manner, research on self-efficacy and poor academic achievement and attitude in literature only concentrated on sciences such as chemistry, physics, and biology, neglecting basic science and technology at the elementary school level, which in essence is the foundation. Having a clear understanding of what hinders students' achievement scores and negative attitudes in basic science and technology in relation to self-efficacy will help in addressing the perceived problems.

Self-efficacy refers to an individual's belief in his or her capacity to execute behaviours necessary to produce specific performance attainments. It reflects confidence in the ability to exert control over one's own motivation, behaviour, and social environment. Pajares and Shunk (2011) Akanazu (2021) noted that these cognitive self-evaluations influence all manner of human experience, including the goals for which people strive, the amount of energy expended towards goal achievement, and the likelihood of attaining particular levels of behavioural performance. Self-efficacy is believed to influence the courses of action people choose to pursue and how much effort they put forth in given endeavours. It will determine how long they will persevere in the face of obstacles and failures, as well as their resilience to adversity. How much stress and depression they experience in coping with environmental demands, whether their thought patterns are self-hindering or self-aiding, and the level of accomplishments they realise (Saihi and Maiyo 2015).

Cherng and Liu (2017) reported in their research that students with high self-efficacy perform academically better than students with low self-efficacy in any given school subject. A similar study was conducted in Shiraz, Iran, and Singapore by Kamalimoghaddam, Tarmizi, Ayub, and Jaafar (2016), Wang, and Neihart (2015), respectively, and they reported a significant relationship between students' self-efficacy and their academic achievement in mathematics. In addition, Caprara, Vecchione, Alessandri, Gerbino, and Barbarnaelli (2011) conducted research on the contribution of self-efficacy beliefs to academic achievement among Italian students. This study reported that self-efficacy at the age of 13 contributed positively to junior high school

Shared Seasoned International Journal of Topical Issues
VOL.9 NO.1, MAY 2023, New York City.   ISSN: 2630-7290

PROF. ABIGAL M. OSUAFOR & DAVIS DAVID SAMBO

academic achievement in general science. In Malaysia, a study on self-efficacy and achievement conducted by Adnan and Ghazali (2011) revealed that students' self-efficacy was significantly associated with learning achievement in physics

Also in Nigeria, a similar study was carried out to determine the relationship between self-efficacy and students' academic achievement in chemistry at a north-central high school. The result, however, showed no significant relationship between self-efficacy and students' academic achievement. Baanu, Oyelekan, and Olorundare (2018) reported that even online research also reported a strong relationship between self-efficacy and students' achievement. For instance, a study by Bushra and Lubna (2014) on predictors of academic achievement in online peer learning amongst undergraduate students in public universities also reported that there was a significant relationship between academic self-efficacy, peer involvement, social influence, peer feedback, and cooperation with academic achievement amongst the respondents. These reported studies revealed that internationally, self-efficacy positively correlates with students' academic achievement, although few studies differ with the major findings.

Most studies done in Nigeria in this area of science education concentrated on the relationship existing between self-efficacy and one or two variables, such as self-concept and peer influence (Kan and Akbas, 2016). The previous studies did not show the relative contribution of self-efficacy to students' academic achievement and attitudes towards basic science and technology. To the best of the researcher's knowledge, little or no study has been found in Nigeria that sought the extent of correlations of self-efficacy on upper basic school student academic achievement and attitude at the basic science and technology education level, hence the need to carry out the present study.

Statement of the Problem

Basic science is a subject taught to pupils and students at the lower, middle, and upper basic education levels in Nigeria. The subject helps pupils and students develop the basic science skills, knowledge, and competence required for problem solving in their environment. Students in Akwa Ibom State seem to have a serious problem with their achievement in basic science and technology in school, which invariably is a cause for concern. This problem of poor achievement by students in Basic Science and Technology in the Upper Basic Schools in Akwa Ibom State calls for a concerted effort to unravel the situation surrounding their failures in the subject. Many students end up passing or failing their Basic Science and Technology certificate examination. This dreadful achievement of students in basic science and technology over the years is a cause of serious concern to the Akwa Ibom State populace when considering the importance of science and technology to society. Also noted is students' negative attitude towards sciences at senior and tertiary education levels. This indicated that the level of acceptability of the foundation science was negative. Many students prefer art subjects to the sciences at these levels. This poor or negative attitude has not allowed the country to produce a good number of scientifically and technologically literate citizens that could harness the abundant natural resources towards our development.

There is no substantive research focused on self-efficacy as a correlate of student achievement in upper basic schools in the area of the study. The focus on self-efficacy and poor academic achievement in literature only concentrated on sciences (chemistry, physics, and biology), neglecting basic science and technology in upper basic school, which in essence is the foundation science. Hence, they need to carry out the present study.

Shared Seasoned International Journal of Topical Issues
VOL.9 NO.1, MAY 2023, New York City.   ISSN: 2630-7290

PROF. ABIGAL M. OSUAFOR & DAVIS DAVID SAMBO

Purpose of the Study

The purpose of the study is to investigate self-efficacy as correlates of upper basic student's achievement and attitude in basic science and technology in Akwa Ibom state.

Specifically, the study will determine the:

1.   Relationship between Self-efficacy scores of Upper Basic School students and their achievement scores in Basic Science and Technology in Akwa Ibom State.

2.   Relationship between self-efficacy scores of Upper Basic school students and their attitude scores in Basic Science and Technology in Akwa Ibom State.

Research Questions

The following research questions guided the study:

1.   What is the relationship between self-efficacy scores of Upper Basic school students and their Basic Science and Technology achievement scores in Akwa Ibom State?

2.   What is the relationship between self-efficacy scores of Upper Basic school students and their Basic Science and Technology attitude scores in Akwa Ibom State?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance.

1.   There is no significant relationship between Self-efficacy and academic achievement scores in Basic Science and Technology among Upper Basic school students in Akwa Ibom State.

2.   There is no significant relationship between Self-efficacy and attitude scores of Upper Basic school students in Basic Science and Technology in Akwa Ibom State.

METHOD

The correlation survey design was used in this study. The correlation survey study according to Nworgu (2015) seeks to establish what relationship exists between two or more variables. The area that was covered in this study is Akwa Ibom State. The population of this study comprised of 20,655 Upper Basic 3 Basic Science students in 237 public secondary schools in the 31 local government area of Akwa Ibom State in 2022/2023 academic session.

The sample size for this study was 1800 Upper Basic 3 Basic Science and Technology students from 45 public secondary schools in Akwa Ibom State. Three types of sampling methods namely - purposive, proportionate and simple random samplings were used. Purposive sampling was used to select nine Local Government Areas from the state. Proportionate random sampling was used to draw 5 schools from each Local Government Area giving 45 schools from the state. This is because the populations of schools in the selected areas were not similar. Simple random sampling technique of 40 students per school was further used to select the students who participated in the Study. Two instruments were used to collect data for this Study. They are Self-Efficacy Scale Questionnaire (SESQ) and Students' Attitude Scale Questionnaire (SASQ). Self-efficacy questionnaire as well as the attitude scale questionnaire consisted of 25 statements each which sort information on student's self-efficacy and attitude. A four-point rating Scale of SA - strongly agree, A – agree, D - disagree, SD - strongly disagree was used in designing the questionnaire.

To ensure the validity, the instruments were given to three experts and two professional teachers. The three experts were from faculty of Education. While the two professional teachers were Basic Science and Technology teachers not below the Rank of Principal II in the Area of the study. The validators were requested to peruse the items in terms of clarity, proper wording of items, appropriateness and adequacy of the items in addressing the purpose of the study. The validators were requested to modify, delete any item they deemed not applicable to the study. They made corrections and all corrections, criticisms and suggestions were effected which helped in producing the final copy of the questionnaires.

To determine the reliability of the instruments, SESQ and SASQ were administered once to eighty Upper Basic three school students who were not part of the study. The scores obtained were subjected to reliability computation using Cronbach's Alpha Technique. SESQ has a reliability coefficient of .78, and reliability of SASQ was established at .77, thus the instruments were adjudged to be suitable for the study. The researcher first visited the selected schools and discussed with the principals to get permission to carry out the research. The instruments were administered on the students by the researcher with the help of Nine (9) research assistants who were briefed by the researcher to facilitate easy administration of the instruments. These nine research assistants were used to cover the entire local government areas that formed the sample. Three research assistant covered fifteen schools each and three weeks was used in administering the instruments.

Each instrument took the respondent's about 40 minutes for its completion; all the instruments were administered and retrieved same day by the research assistant. Also Basic Science and Technology achievement records of the participants were obtained from school's terminal examination records. This was used as a measure of students' academic achievement.

Pearson Product Moment Correlation Coefficient as well as regression statistics was used to analyze the data generated from the study. All research questions were answered using P- value and / or significant value while regression statistics was used to answer the hypotheses generated in the study. All hypotheses were tested at 0.05 significant levels.

RESULT AND DISCUSSION

Research Question 1: What is the relationship between self-efficacy scores of Upper Basic School Students and their Basic Science and Technology achievement scores in Akwa Ibom State?

Table 1: Pearson Correlation Coefficient (r) of Self-Efficacy Scores of Upper Basic School Students and their Basic Science and Technology Achievement Scores in Akwa-Ibom State

Variable	N	Basic Science and Technology Achievement Scores (r)	Decision
Self-efficacy scores	1800	-.163	Low Negative Relationship

Table 1 shows the relationship existing between self-efficacy and the basic science and technology achievement scores of upper basic school students in Akwa-Ibom State. There was a low negative relationship between self-efficacy and their basic science and technology achievement scores, r = -.163. This value -.163 shows that the relationship between self-efficacy scores and Basic Science and Technology scores is poor and very low meaning that Basic science and technology students in Akwa Ibom State have a negligible self-efficacy.

Research Question 2: What is the relationship between self-efficacy scores of Upper Basic School students and their Basic Science and Technology attitude scores in Akwa Ibom State?

Table 2: Pearson Correlation Coefficient (r) of Self-Efficacy Scores of Upper Basic School Students and their Basic Science and Technology Attitude Scores in Akwa-Ibom State.

Variable	*N*	Basic Science and Technology Achievement Scores (*r*)	Decision
Self-efficacy scores	1800	-.166	Very Low Negative Relationship

Table 2 shows the relationship existing between self-efficacy scores of upper basic school students and their basic science and technology attitude scores in Akwa-Ibom State. There was a very low negative relationship between self-efficacy scores of upper basic school students and their basic science and technology attitude scores of school in Akwa-Ibom State, r = -.166. The strength of the relationship is negative while the value -.166 is low indicating that students poor self-efficacy have a negative effect on their attitude in Basic Science and Technology in Akwa Ibom State.

RESEARCH HYPOTHESES

Hypothesis One: There is no significant relationship between Self-efficacy and academic achievement scores in Basic science and Technology among Upper Basic school students in Akwa Ibom State.

Table 3: Test of Significant Relationship between Self-efficacy and academic achievement scores in Basic Science and Technology among Upper Basic school students in Akwa Ibom State

Variable	*N*	Academic Achievement Scores (r)	α-level	t(r)-cal	p-val	Decision
Self-efficacy	1800	-0.163	0.05	-7.018	0.001	Significant relationship

Table 3 shows that there is a statistical significant relationship between self-efficacy and students' academic achievement in Basic Science and Technology among upper basic school students. The p-value = .001 is less than the 0.05 level of significance. Therefore, the null hypothesis that there is no significant relationship between self-efficacy and academic achievement scores in Basic science and Technology among Upper Basic School students in Akwa-Ibom State is rejected.

Hypothesis Two: There is no significant relationship between Self-efficacy and attitude scores of Upper Basic School students in Basic Science and Technology in Akwa Ibom State.

Table 4: Test of Significant Relationship between Self-Efficacy and Attitude Scores of Upper Basic School Students in Basic Science and Technology in Akwa-Ibom State

Variable	*N*	Academic Achievement Scores (r)	α-level	t(r)-cal	p-val	Decision
Self-efficacy	1800	-0.166	0.05	-7.146	.001	Significant relationship

Shared Seasoned International Journal of Topical Issues
VOL.9 NO.1, MAY 2023, New York City.   ISSN: 2630-7290

PROF. ABIGAL M. OSUAFOR & DAVIS DAVID SAMBO

Table 4 shows that there is a statistical significant relationship between self-efficacy and students' attitude towards Basic Science and Technology. The p-value = 0.001 is less than the 0.05 level of significance. Therefore, the null hypothesis that there is no significant relationship between self-efficacy and students' attitude towards Basic science and Technology is rejected.

DISCUSSION OF FINDINGS

Self-efficacy as a correlate of Upper Basic Science academic achievement

The finding of the study in table 2 revealed a low negative relationship between student's self-efficacy and their achievement in Upper Basic Science in Secondary Schools in Akwa Ibom State. This means that students who develop a positive self-efficacy or confidence towards a particular school subject will tend to perform creditably well in the subject. As observed by Bandura (2017) self-efficacy possess a lot of challenge to students at the cognitive level. According to Bandura, the nature of belief students hold about their abilities in relationship to a given task influences the way they perceive their prospective future academic result. Students who belief in their abilities visualize successful positive outcomes while those who do not trust their capacities are likely to suffer from cognitive negativity (A state where they become somewhat skeptic about their capacity to succeed in the face of challenging learning situations). Students with low self-efficacy, on the other hand, believe they cannot be successful and thus are less likely to make a concerted and extended efforts and may consider challenging tasks as threats that are to be avoided. Thus, students with low self-efficacy have low aspirations which may result in low academic achievement.

The hypotheses of this study which stated that there was no significant relationship between self-efficacy and students' academic achievement in Upper Basic Science proved otherwise, which indicated that there is a relationship between self-efficacy and achievement as revealed from data analysis of table 8. The finding of this study may not be unconnected with the reason why students ignore Science subjects to art subject immediately they leave their junior secondary level which incidentally is the Upper Basic levels. More students are drawn to art subject at the senior secondary school level ignoring the Sciences indicating a shaky or a faulty foundation laid by them which may be as the result of their lack of confidence or self-efficacy in the Upper Basic science subject

This result is in agreement with Christensen et al (2012) who found that self-efficacy beliefs are positively related to and influence achievement in Basic Science. Researchers have reported that mathematics self-efficacy is a good predictor of mathematics interest and choice of mathematics related courses (Odiri, 2015). In another study, Onyeizgbu (2011) reported that high self-efficacy seemed to influence academic persistence necessary to maintain high academic achievement. These findings have suggested that learners who posses' high self-efficacy achieves better in their academic endeavor (Serpil, 2017).

Study byYaman (2015) reported that academic achievement is un-predictive of self-efficacy. This means that one cannot use knowledge of students' self-efficacy to predict what their achievement in chemistry would likely be. The finding is very interesting and revealing because Basic Science and Technology at this level of education are presented to students as a unified whole. Students at this level do not break the knowledge acquired into discreet separate disciplines. A child may have flare for one concept and lacks for another which are embedded in Basic Science, this may in turn affect their self-confidence and subsequently their scores in the subject. If this finding is anything to go by, then students must be encouraged to developed high self-efficacy to enhance their achievement in Basic Science and Technology.

Shared Seasoned International Journal of Topical Issues
VOL.9 NO.1, MAY 2023, New York City.   ISSN: 2630-7290

PROF. ABIGAL M. OSUAFOR & DAVIS DAVID SAMBO

Self-efficacy as a correlate of Upper Basic Science students' attitude

The result in table 4 reveals a negative and inconsequential relationship between self-efficacy and students' attitude toward Upper Basic Science and Technology. This result further confirms the fact that students' belief system or confidence towards a subject invariably affects their attitude towards the same subject.

The low negative relationship of self-efficacy and attitude in Basic Science and Technology is an indication that attitude is a unified booster of students confidence in any given situation. Although the relationship is low, the statistical analysis of the hypothesis (table 10) showed a significant relationship meaning that self –efficacy influences students attitude in Basic Science and Technology. Komarraju and Nadler (2013) noted that students with high levels of academic self-efficacy had increased level of positive attitude. Additionally, students with high levels of academic self-efficacy welcomed challenges and showed a desire to learn, which have also been linked to attitude.   Stankov, Lee, Luo, and Hogan (2012) found that self-efficacy was a better predictor of student's attitude than other factors. Consequently, low academic self-efficacy can lead to negative student's attitude (Komarraju and Nadler, 2013; Stankov et al., 2012). Internationally, Lee, Luo, and Hogan (2012) also reported a positive correlation between self-efficacy and attitude towards mathematics in Taiwan.

Turner, Chandler in Kan and Akabs (2016), reported that attitude, academic achievement and academic self-efficacy are positively correlated and have reciprocal effects on each other. Self-efficacious students tend to achieve more in academics (domain-specific measures), and vice versa. This may be the reasons students' attitude in Basic Science and Technology is negative resulting in their drift and unenthusiastic attitude towards offering science at the senior secondary schools and tertiary level of our educational system. It is clear that students tend to move towards the subject they have greater confident and belief in. In the reverse, they move away from subjects they think is not appealing resulting in negativity or negative attitude towards such subject matter. In line with the finding of this study the result disagrees with Zühal and Gülçin (2016) who studied the Relationship between Attitude and Perceived Self Efficacy of Pre-service English Teachers on Computer-Assisted Instruction in Turkey and reported a positive relationship at a medium level between the attitude and perceived self-efficacy of the participants on computer assisted instruction. Also, Arup and Aditi (2016) investigated the Relationship between attitude and Self Efficacy in Mathematics among Higher Secondary Students of West Bengal, India and reported too, a higher positive correlation between mathematics student's self-efficacy and their attitude. This indicates that a healthy attitude towards Basic Science and Technology can nurture self-efficacy among students.

Conclusion

Based on the findings of this study, it is concluded that self-efficacy have low, negative and significant correlation with student's academic achievement and attitude in Basic Science and Technology in Upper Basic schools in Akwa Ibom state. These means that, Basic Science and Technology students in Akwa Ibom state lacks self-confidence and belief in themselves and hence their poor achievement in the subject. This in turn affect their attitude leading to drift from science at the end of their upper basic schools' levels in the state.

Shared Seasoned International Journal of Topical Issues
VOL.9 NO.1, MAY 2023, New York City.   ISSN: 2630-7290

PROF. ABIGAL M. OSUAFOR & DAVIS DAVID SAMBO

Recommendations

Based on the finding of this study the following recommendations are made:

1. There is a serious need to encourage students to develop a high sense of self-efficacy in Basic science and technology. This should be through student engagement in classroom situations both academic and non-academic interactions that foster their self-confidence.

2. To ensure that student self-efficacy is improve greater classroom activities that encourages students interaction with peers and teachers should be enshrine in the school timetable.

3. Some of the topic in Basic science and Technology should be taught using dramatic approach, this will enable all the student in the classroom working in group to participate effectively in arguing out topics while the act as the facilitator.

Shared Seasoned International Journal of Topical Issues
VOL.9 NO.1, MAY 2023, New York City.   ISSN: 2630-7290

PROF. ABIGAL M. OSUAFOR & DAVIS DAVID SAMBO

10

REFERENCES

Adeyemo, B. J. and Torubeli, N. (2012). Self-efficacy, self-concept and peer influence as correlates of academic achievement among secondary school students in transition. *Pakistan Journal of Science Education*, 5(1) 10-16

Adnan, Y. and Ggazali, T. (2011). Self-Efficacy Relationship on Science Achievement amongst National Secondary School Students. *Creative Education* 10(11):2509-2527.

Ajai, J. T., Shiaki, B. O. and Bulus, T. C. (2020). Study Habits and Academic Achievement: A Case Study of Secondary School Science Students in the Jalingo Metropolis, Taraba State, Nigeria. *American Journal of Educational Research*, 8, (5) 282-285

Akanazu, E. C. (2021). *Self-efficacy, attribution styles and test anxiety as predictors of chemistry achievement of senior secondary school students in Imo State*. Unpublished PhD dissertation, department of science education, Nnamdi Azikiwe University, Awka.

Arora, R. (2016). Academic achievement of adolescents in relation to study habits. *International Journal of Indian Psychology*. 3(9) 48–54.

Arup, K. and Aditi, G. (2016). The Relationship between Attitude and Self-Efficacy in Mathematics among Higher Secondary Students. *Journal of Humanities and Social Science* 21(4) 25-31.

Baanu, T. F., Oyelekan, O. S., & Olorundare, A. S. (2018). Self-Efficacy and Chemistry Students' Academic Achievement in Senior Secondary Schools in North-Central, Nigeria. *MOJES: Malaysian Online Journal of Educational Sciences*, 4, 43-52.

Bakare, C. G. M (1977) *Study habit inventory manual, psychological educational research production*. Ibandan: University of Ibandan press.

Bandura, A (1977) *Self –efficacy. Towards 9 unifying theory of behavior change*. Psychological Educational research production, University of Ibandan.

Bandura, A. (2011). Social cognitive theory. In P. A. M. van Lange, A. W. Kruglanski, and E. T. Higgins (eds.). Handbook of Social Psychological Theories. Beverly Hills. *Sage Publications*. (pp) 349-373.

Bandura, A. (2017). Social cognitive theory. In S. Rogelberg (ed.), The Sage encyclopedia of industrial/organizational psychology. *Beverly Hills: Sage Publications Second edition*.1451-1454.

Bandura, A. (2018). Toward a psychology of human agency: Pathways and reflections. *Perspectives on Psychological Science*. 13(2) 130-136.

Bandura, A. and Schunk, D.H. (2011). Cultivating competence, self-efficacy and intrinsic interest through proximal self-motivation. *Journal of Personality and Social Psychology*, 1. 586-598.

Barling, J. and Beattie, R. (2012). Self-efficacy beliefs and sales performance. *Journal of Organizational Behavioural Management*. 5(1), 41-51.

Bushra, A. and Lubna, G. (2014). Self-efficacy and academic performance of the students of Gujrat University. *Pakistan Academic Research International Journal*. 23(2) 15-25.

Caprara, V., Vecchione, M., Alessandri, M., Gerbino, M., and Barbarnaelli, J (2011). The contribution of personality traits and self-efficacy beliefs to academic achievement: A longitudinal study. *British Journal of Educational Psychology*, 81(1):78-96.

Cervone D. and Pervin, L. A. (2015). *Personality: Theory and Research*, 13th Edition. Chicago: Wiley Publishing Company.

Cherng, H. Y. S., Liv, J. I. (2017). Promoting literacy and numeracy among middle school students: exploring the mediating role of self-efficacy and gender differences. *British Journal of Educational Psychology*, 97(8), 365 - 3678.

Fasakin, P.J. (2012). *Effects of Everyday Phenomena on Students' Achievement, Attitude and Practical Skills in Physics*. Unpublished masters Thesis, Department of Teacher Education, University of Ibadan, Ibadan, Nigeria.

Kan, A. and Akbas, A. (2016). Affective factors that influence chemistry achievement and the power of these factors to predict chemistry achievement. *Journal of Turkish Science Education*, 3(1) 76-85.

Njoku, M. I. (2013). The scientific literacy levels of senior secondary school students in rivers state. *Journal of science teachers association of Nigeria*, 48(1) 96-103.

Sambo, D. D. (2023). *Study habit and self-efficacy as correlates of upper basic students achievement and attitude in basic science and technology*. Unpublished Ph.D dissertation, department of science education, Nnamdi Azikiwe university, Awka.

Sink, C.A. & Spencer, L.R. (2005). My class inventory –short form as an accountability tool for elementary school councilors to measure classroom climate. *International journal of educational research and development*. 3(1)21-27.