



Relationship Between Self-Concept and Students Academic Performance in Electrical Installation and Maintenance Works in Technical Colleges in Edo State

Oviawe, Jane Itohan, & Ogbebor, Samuel Osamede *

Department of Vocational and Technical Education, Faculty of Education, Ambrose Alli University Ekpoma 310103, Edo, NIGERIA

*Corresponding author email: janeoviaw@aauekpoma.edu.ng

Received 15 April 2024; Accepted 10 July 2024; Available online 16 July 2024

Abstract: This study investigated the relationship between self-concept and students' academic performance in electrical installation and maintenance works in technical colleges in Edo State. A correlational survey research design was adopted for the study. One research question and one null hypothesis guided the study, the hypothesis was formulated and tested at .05 level of significance. Two research instruments were used which include standardized electrical installation and maintenance works students' academic achievement test, and self-concept questionnaire. Standardized electrical installation and maintenance works achievement test was adopted from the National Technical Certificate Examination past questions. Cronbach Alpha was used to determine the reliability coefficients of self-concept questionnaire which yielded the reliability coefficient values of 0.87 obtained. The population of the study consisted of 127 electrical installation and maintenance works students from the 05 (five) technical colleges in Edo State. There was no sampling technique, due to the manageable sizes of the total population, 117 returned instruments were used for data analysis. The Statistical Package for Social Science (SPSS) version 23.0 were used as the statistical package for data analyses. The statistical tool used to perform the data analyses were inferential statistic. Such as Pearson Product Moment Correlation Co-efficient (PPMCC). PPMCC statistic was performed to answer research question and linear regression to test hypothesis at 0.05 level of significance. Results revealed a high positive correlation and relationship between self-concept and students' academic performance in electrical installation and maintenance works in technical colleges in Edo State. Based on this finding, it was recommended among others that teachers should ensure that students develop a good self-perception by providing motivation books in school library and promoting motivational speech both in school assembly and home, employ the services of school counsellor to counsel the students on the benefits of improve self-concepts among others.

Keywords: Academic performance, Electrical installation and maintenance works, Self-concept

1. Introduction

The main goal of technical colleges, which are skill-based establishments, is to impart on its students "all-around knowledge and skills to make them relevant and contribute to society." Technical colleges are the primary vocational institutions in Nigeria and their purpose is to train students in the practical skills, knowledge, and attitudes required by craftsmen and technicians at the sub-professional level (Osuyi, Osaigbovo, & Abusomwan, 2021). From this angle, the development of the skills required for suitable functioning and flexibility could be seen as the aim of technical education as it is offered at technical colleges. Technical colleges thus offer a range of trades. The Federal Republic of Nigeria (FRN, 2013) states in its education policy document that technical colleges offer the following trades: mechanical and electrical engineering trades, building trades, beauty culture trades, computer craft practices, woodworking trades, printing trades, textile trades, hospitality trades, and printing trades.

Nonetheless, technical colleges offer a wide range of specializations in the list of electrical engineering trades listed in their education policy documents. According to the National Board for Technical Education (NBTE), careers in electrical engineering include, but are not limited to, instrument mechanics, radio, television, and electronics work, electrical installation and maintenance, and appliance maintenance and repairs (NBTE, 2012). In light of this, electrical

installation and maintenance work is essential in equipping students with the knowledge and abilities needed to operate modern or cutting-edge electrical technical equipment. According to Ogwa (2015), the trade of electrical installation and maintenance works aims to give technical college students the education and skills they need to take advantage of job openings in reputable companies, create jobs, or become financially independent. A person can operate in an electrically linked institution or employment by acquiring valuable and marketable skills, knowledge, and values from the electrical installation trade, according to Onoh & Onyebuanyi (2017).

As per Ogwa (2015), the trade of electrical installation and maintenance works aims to equip technical college students with the requisite training and skills to secure jobs in reputable organizations, create jobs, or achieve economic independence. In addition, the electrical installation trade equips a person with marketable and practical knowledge, abilities, and values that allow him to operate in an electrically linked institution or employment (Onoh & Onyebuanyi, 2017). In this study, the terms "academic achievement" and "performance outcomes" are interchangeable. Academic achievement refers to the degree to which an individual has fulfilled particular objectives that were the main focus of activities in educational settings, such as schools, colleges, and universities. Most educational systems set forth cognitive objectives that are either general (like critical thinking) or include learning and comprehension in a particular intellectual field (like numeracy, reading, science, or history). As a result, academic achievement ought to be viewed as a complex concept including several learning domains. Consequently, a person's ability to pursue further education is determined by their academic performance, which also affects their post-educational job depending on the degree they receive. In addition to its personal significance, academic success is of utmost importance for the wealth of a nation and its prosperity.

Academic performance is the result that shows how well a person has performed in relation to particular objectives that were the main focus of activities in learning environments, particularly in schools. Academic performance is used to gauge a student's achievement in educational institutions or how well they meet the standards set by the institution or testing organizations (Eze, Obidile, & Okotubu, 2020). The academic performance of students to extent explains the self-concept of the students. A person's self-concept is initially nebulous and flexible but becomes much more specific and detailed as they age, (Pastorino & Doyle-Portiho, 2018). The three components of it are physical, social, and intellectual. The material aspects of self-concept include factors like a person's appearance, height, weight, and gender; it also includes the clothes they wear and the kind of home they live in. Social self-concept describes how people relate to others, whereas academic self-concept describes how someone feels about their ability or competency in the classroom. The development of an intellectual self-concept starts between the ages of three and five years old because early educators, caregivers, and parents have an influence on the children/students. This is because of the influence of parents, other caregivers, and early educators. Between the ages of 10 and 11, children begin to assess their academic abilities by comparing their performance on a task or activity to that of their peers. Because of internal comparison and student perspective, they are able to evaluate their academic position in contrast to their peers.

A student's evaluative self-perception, or academic self-concept, is shaped by their experiences and interpretations of the school environment (Marsh & Craven, 2017). Wigfield and Karpathian (2021) described academic self-concept as an individual's awareness and comprehension of themselves in academic circumstances, as well as their perception of their abilities and potential to enhance their academic performance. Academic self-concept is a student's assessment of their ability to succeed academically in comparison to other pupils (Sewasew & Schroeders, 2019). Academic self-concept is defined by the authors as an individual's perception of their aptitude and degree of competence in respect to their aptitude in academic environments. In this study, "self-concept" refers to an individual's perception of his or her aptitude and competence in relation to a specific academic subject. This has significant implications for a student's academic accomplishment and advancement if it is utilized as a predictor of academic success.

Research has shown that over time, students' academic performance in electrical installation and maintenance tasks has declined. According to the chief examiner's report of the National Business and Technical Examination Board from 2015 to 2021, the examination of student outcomes in NABTEB showed that the annual percentage of credit passes is lower than the percentage of failures. The years (2015, 2016, 2017, 2018, 2019, 2020, and 2021) show an awful trend. In addition, this report emphasized how poorly students performed overall in electrical installation and maintenance tasks, with the highest mean score being recorded at 41.5%, 37.8%, 42.5%, 45.8%, 40.7%, 28.7%, and 43.56%, successively. The preparation of students for further study in technology-related sectors is one of the goals of electrical installation and maintenance work at technical colleges, and this condition may not always result in the criteria for its actualization. The fundamental reasons for the persistent success or failure of different technical colleges are specific factors. It is possible to examine sub-par performance in electrical installation and maintenance from both a societal and personal perspective. Underperformance of students at technical colleges has been a well addressed subject in education. Researchers found that low teaching methods and instructional strategies (Oviawe, Ezejie, & Uwameiye, 2015), students' lack of confidence in the subject (Abkpa & Iji 2011), and unfavorable learning environments (Olunloye, 2010) are just a few of the factors that contribute to students' poor performance in science and technology areas. Comparably, only students whose personality traits and educational experience align well with the topic matter tend to gain uniquely from the distinct and standardized teaching resources that are made available to all learners. Nigerians are less positive about technical and vocational disciplines than they are about arts subjects, (Oviawe, 2017). Nonetheless, a wealth of research indicates that certain learner personality traits, like interest, may affect students' learning outcomes independent of the instructional

approach employed (Keter, Barchok, & Ngene 2014). Consequently, it is necessary to investigate academic achievement in electrical installation and maintenance from several angles and determine how it links to one's self-concept. Prior research has one variable or a combination of two variables did not yield a definitive result on the impact of these variables on academic attainment. However, several research findings indicate that these characteristics have a noteworthy impact on students' academic achievement. Studies have also found no significant relationship between these factors and students' academic achievement. It is necessary to investigate the relationship between students' academic achievement in electrical installation and maintenance work and their self-concept. Therefore, the goal of the study was to find out how students' academic achievement in electrical installation and maintenance work at Edo State's technical colleges correlated with their self-concept.

2. Theoretical Frameworks

The theoretical framework of the study described is firmly rooted in attribution theory, a psychological framework that seeks to understand how individuals make sense of events and behaviors by attributing causes to them, whether internal or external. This theory is applied to analyze how students perceive and interpret their academic performance and self-concept. Attribution theory suggests that individuals tend to attribute the causes of events or behaviors to either internal factors (personal characteristics or choices) or external factors (circumstances or environmental influences). This framework is particularly useful in understanding how students interpret their successes and failures academically. For instance, a student who performs well on a test may attribute their success to internal factors such as intelligence or hard work, while a student who performs poorly may attribute their failure to external factors like a difficult teacher or unfair test questions. Moreover, the theory also encompasses the fundamental attribution error, where individuals tend to attribute others' behavior to internal factors while attributing their own behavior to external factors. The application of attribution theory to students' academic self-concept and performance helps shed light on how students perceive their abilities, their efforts, and the circumstances surrounding their academic achievements or setbacks. This understanding can significantly impact students' motivation, self-esteem, and willingness to persevere in the face of challenges. Moreover, the study explores the concept of attributional style, which refers to how students interpret and explain events, particularly their own successes or failures. This attributional style can significantly influence academic performance, with students who attribute success to internal factors being more likely to continue succeeding in the future. Additionally, the study touches upon self-handicapping, where individuals make excuses for poor performance to protect their self-esteem. This behavior is a manifestation of attribution theory, as individuals attribute their failures to external factors to preserve their self-concept. Overall, attribution theory provides a comprehensive framework for understanding how students interpret and respond to academic challenges, shaping their self-concept and ultimately influencing their academic performance.

3. Literature Review

Self-concept is a complicated psychological construct that psychologists and educators must comprehend since it influences an individual's behavior, especially at school. Jaiswal and Choudhuri (2017), opined that self-concept is a set of personality traits based on self-awareness or experience. It comprises mental, intellectual grasp and devotion to one's knowledge and comprehension. Task completion, failure, success, and vocal performance, all affect an individual's judgment of their capacity to complete a task (Amalu & Okon, 2018). Academic self-concept refers to a person's confidence in their intellectual abilities. Academic success is a cause-and-effect relationship, which means academic success is related to academic self-concept. Anyanwu and Emesi (2020) carried out a Study on Relationship among Secondary School Students Academic Self-concept, Self-esteem, and Academic Achievement in Mathematics in Anambra State. The study examined the relationship among students' academic self-concept, self-esteem, and academic achievement in mathematics in Anambra State. The findings showed that students' academic self-concept recorded a very low positive relationship with academic achievement in mathematics. Students' high self-esteem recorded a medium positive relationship with students' academic self-concept. Findings of the study revealed that these variables do not statistically predict academic achievement of the students. Tahir, Batool, Gul, and Ishfaq (2023). carried out a study on relationship between self-concept and academic achievement: An evidence of female students. This study's goal was to look into the effects of several aspects of self-concept on academic achievement among university students between the ages of 18 and 19. The Self-Description Questionnaire-III was used to gauge self-perception, while college records supplied percentage achievement scores. The study discovered a considerable positive association between academic self-concept and academic accomplishment, with some contribution from physical self-concept as well. The findings also demonstrated a substantial positive relationship between social self-concept and academic achievement, and regression analysis supported these conclusions. The study found that social self-concept is more essential than other factors. Anierobi (2019) carried out a study to determine the relationship among gender, academic self-concept and academic achievement of secondary school students. A correlational design was utilized in this study which was carried out in Awka Urban. A purposive sample of 80 SS2 students formed the participants for the study. It was found that gender was not a significant factor in measuring students' academic self-concept. It also revealed that gender has no significant relation with students' academic achievement, while academic self-concept and academic achievement has a strong and

positive correlation. Amadi (2021), examined the connection between students' academic success in chemistry at River State University and their study habits and self-concept. This research included the result that students' academic achievement and their self-concept were positively correlated. The study conducted in elementary school on academic achievement, self-concept, personality, and emotional intelligence reveal, when broken down by gender and cultural group, indicate that students' academic achievement and their sense of self-worth are positively correlated. Ajmal and Rafique (2018), investigated the relationship between academic achievement and academic self-concept in distance learners and found that academic self-concept and academic achievement are positively correlated, with low academic self-concept student's typically scoring lower on academic achievement tests. Sewasew and Schroeders' (2019) study on the developmental interplay of academic self-concept and achievement within and across domains among primary school students, demonstrate that academic self-concept is a predictor of students' academic achievement. By looking at the relationship between self-concept and students' academic performance in electrical installation and maintenance works in technical colleges in Edo State, there was a substantial gap in the literature that this study has filled.

Therefore, the purpose of the study is to investigate the relationship between self-concept, and students' academic performance in electrical installation and maintenance works in technical college in Edo State. Specifically, the study examined the relationship between self-concept and students' academic performance in electrical installation and maintenance works. The following research question guided the study: What is the relationship between self-concept and students' academic performance in electrical installation and maintenance works in technical college in Edo State? HO: There is no significant relationship between self-concept and students' academic performance in electrical installation and maintenance works in technical college in Edo State.

4. Methods

A correlational survey research design was used to achieve the specific purpose of the study. The research investigates the relationship between self – concept and students' academic performance in electrical installation and maintenance works in technical college in Edo State. This type of design involves collecting data to determine whether and to what degree, a relationship exists between two or more quantifiable variables (Edokpolor, 2019). The population of the study consisted of 127 electrical installation and maintenance works students from the five (5) technical colleges in Edo State. Voc 11 students were used for the study because Voc 111 students were preparing for external examinations and Voc 1 was still an introduction class. There was no sampling technique, due to the manageable size of the total population, therefore the total population of students in electrical installation and maintenance works were used for the study. The instruments used for the study were standardized electrical installation and maintenance works performance test (EIMWPT), and self-concept questionnaire (SCQ). Standardized electrical installation and maintenance works performance test (EIMWPT), was adopted from National Technical Certificate Examination past questions, based on the topics that the students have been taught. Forty (40) objectives questions for (EIMWPT) were drawn from NABTE past questions.

The SCQ was designed to find out the level of students' self-concept. 25 questions were adopted from Ericson (2011). The original of Ericson had 130 items; some questions were merged or removed for the present study. These questions were administered to VOC11 Students of electrical installation and maintenance works in the five (5) technical colleges in Edo State. It was divided into section A, B, and C. Section A deals with the personal data of the respondents, section B deals with objectives questions on electrical installation and maintenance works performance test (EIMWPT), and section C deals with self-concept questionnaire (SCQ). In section B, the respondents supplied the correct answer provided from option A to E in the electrical installation and maintenance works performance test (EIMWPT), 2 marks each for every correct option and 0 marks for every wrong option. A total score of 70-80 were regarded as Strong Agreed (SA), 46-68 as Agreed (A), 30-44 Disagreed (D) and 0-28 Strongly Disagreed (SD). In section C, Respondents were provided with response option in a four-point scale from which they were required to choose only one option. Strongly Agree (SA) 4 points, Agree(A) 3 points, Disagree (D) 2 points, Strongly Disagree (SD) 1 point, the bench mark for these section were 2.50.

The instrument on (EIMWAT) was a standardize instruments and as such does not need any validation, however the instrument for (SCQ) was validated by three research experts, two in Vocational and Technical Education Department of Ambrose Alli University, (AAU) Ekpoma and one from Measurement and Evaluation Department, University of Benin (UNIBEN), both from Edo state. The corrections were incorporated in the final questionnaire. To measure the internal consistency of the instruments, the split half reliability technique was employed. The technique was carried out by administering copies of the instruments to a group of thirty (30) respondents (VOC 11 students 'electrical installation and maintenance works) from Technical Colleges in Asaba, Delta State which is not included in the target sample. In carrying out the split-half reliability techniques, copies of the instruments were distributed to thirty (30) respondents on the pilot study. The data retrieved from them were collated and the items split into two equal halves of odd and even numbers. The Pearson Product Moment Correlation Coefficient was used in establishing the relationship between both responses and it yielded a coefficient of 0.87. This reliability coefficient is adjudged as high. Pearson Product Moment Correlation coefficient (PPMCC) was used to answer the research question and simple linear regression was used to test the hypothesis at 0.05 level of significance. The null hypothesis is rejected if the P-value is less than 0.05 and vice versa..

5. Findings

5.1. Research Question One

What is the relationship between self-concept and students' academic performance in electrical installation and maintenance works?

Table 1: Correlations between self-concept and students' academic achievement in electrical installation and maintenance works

S/N	Variables	M	SD	N	Pearson <i>r</i>	<i>p</i> -value	Remark
1.	Self-Concept	3.93	.327	117	0.885	0.000	High Correlation
2.	Performance	3.73	.505				

Note. $p < 0.05$.

Table 1 revealed that there was a high and positive correlation ($r = 0.885$) between self-concept and students' achievement in electrical installation and maintenance works. This positive correlation ($r = 0.885$) indicated that there is a direct relationship between self-concept and students' performance in electrical installation and maintenance works. To this end, as students' self-concept improves, the student academic performance in electrical installation and maintenance works also improves.

5.2. Research Hypothesis

There is no significant relationship between self-concept and students' academic performance in electrical installation and maintenance works.

Table 2: Linear regression on the relationship between self-concept and students' academic performance in electrical installation and maintenance works

Self – concept → students' academic performance						
R/ β	R ²	Adj.R ²	F	T	P <	Decision
.817	.668	.665	211.117	14.530	.001	Sig

.Note Sig – Significant, Adj.- adjusted

Data presented in Table 2 revealed that the correlation ($r = .817$) between self-concept and students' academic achievement in electrical installation and maintenance works is high and positive. These results depicted that increase in self-concept will lead to improved students' academic performance in electrical installation and maintenance works. For the test of the hypothesis, the table revealed that the role of self-concept on students' academic performance in electrical installation and maintenance works is significant ($F = 211.117$, $t = 14.530$, $\beta = .817$, $P < .001$). The hypothesis that there is no significant relationship between self-concept and students' academic performance in electrical installation and maintenance works was therefore rejected.

6. Discussions

Table 1 demonstrated a strong, favorable, and statistically significant correlation between the students' academic achievement in electrical installation and maintenance tasks and their self-concept. This indicates that students' academic success in electrical installation and maintenance tasks grows in tandem with their growth in self-concept. Many academics agree that children with good self-concepts are far more likely than those with negative ones to develop positive attitudes toward learning and education. Meanwhile, pupils with negative self-concepts are the reverse. This is consistent with the research done by Amadi (2021), who examined the connection between students' academic success in chemistry at River State University and their study habits and self-concept. This research included the result that students' academic achievement and their self-concept were positively correlated. The results of this study are consistent with a study conducted in elementary school by on academic achievement, self-concept, personality, and emotional intelligence (Herrera, Al-Lal, & Mohamed, 2020). His findings, when broken down by gender and cultural group, indicate that students' academic achievement and their sense of self-worth are positively correlated. The results of this study are also consistent with those of Ajmal and Rafique (2018), who investigated the relationship between academic achievement and academic self-concept in distance learners and found that academic self-concept and academic achievement are positively correlated, with low academic self-concept students typically scoring lower on academic achievement tests. Sewasew and Schroeders' (2019) study on the developmental interplay of academic self-concept and achievement within and across domains among primary school students supports the findings of this research by demonstrating that academic self-concept is a predictor of students' academic achievement. Similarly, domain specificity for math and reading revealed

that students' self-concept is a predictor of their academic achievement. Study conducted show how self-concept predicts academic achievement across levels of the achievement distribution (Susperreguy, Davis-Kean, Duckworht, & Chen, 2018). Once more, the results of this study are consistent with those of who investigated the relationships between students' academic performance and their self-concepts as well as their self-esteem and self-concepts among minority and majority elementary school students in North America (Cvencek, Fryberg, Covarrubias, & Meltzoff, 2018). Additionally, this study's findings concur with those of who conducted a systematic review and meta-analysis of 50 years of research on the topic of effective universal school-based social and emotional learning programs for enhancing academic achievement (Corcoran, Cheung, Kim, & Xie, 2018). It was discovered that academic achievement and academic self-concept are positively correlated.

7. Conclusions and Recommendations

The association between students' academic performance in electrical installation and maintenance at Edo State's Technical Colleges and their self-concept has been demonstrated by the study. In technical institutions in Edo State, it was shown that students' academic achievement in electrical installation and maintenance tasks had a strong and favorable correlation with their self-concept. This extant research has some obvious limitations. However, the research has provided empirical evidence regarding the relationship between self-concept and students' academic performance in electrical installation and maintenance works in technical colleges in Edo State. First, because the data were collected through a non-experimental means (i.e., a cross-sectional survey or by employing a correlational survey research design), causal inference could not be made in the study. The author, therefore, recommend that longitudinal and experimental study be conducted so as to improve and provide better results. Second, because the sample size of participants was drawn from technical colleges in Edo State in Nigeria, caution should be exercise in generalizing results. Therefore, future research should aim at determining the inclusion of more proportionally representative samples (for example, Delta State, Ondo State, Enugu State and other States in Nigeria) to allow a more equal and balanced results from all technical colleges in Nigeria. Third, because the research participants are homogenous, which were electrical installation and maintenance works students only, caution should also be exercise in generalizing results to students in other trade of study. As such, these categories of students were use in the study because they are currently offering a trade designed to equip them with the knowledge and skills needed to engage in entrepreneurial and educational careers right after graduation. Therefore, there is the need for further studies that include other categories of students (or participants) from other vocationally oriented educational disciplines.

The following recommendations are made on the basis of the findings of the study:

1. In order to create confidence in students and their ability to overcome academic problems and reach their desired academic goals, students should work to cultivate and develop positive beliefs about themselves and their self-worth.
2. In order for students to develop improved self-concept, school management, teachers and parents should equip the library with motivational books for the students to read.
3. In order for students to develop improved self-concept, motivational speech should be encouraged on the assembly ground in school and also be given to students by parents at home at regular interval.

References

- Abkpa, B.O. & Iji, C. O. (2011). Effect of master learning approach on senior secondary school students' achievement in Geometry. *Journal of Science Teachers Association of Nigeria*, 45(1), 207-223.
- Ajmal, M. & Rafique, M. (2018). Relationship between academic self-concept and academic achievement of distance learners. *Pakista. Journal of Distance and Online Learning*, 4(2), 225-244.
- Amadi, J. N. (2021). Relationship between self-concept, study habit and students' academic achievement in chemistry. *Rivers State University Journal of Education (RSUJOE)*, 24(2), 140-146
- Amalu, M.N. & Okon A.E. (2018). Psychological Factors and Perception towards Examination Malpractice among Secondary School Students in Cross River State, Nigeria. *Journal of Educational Realities (JERA)*. 6(1)
- Anierobi, E. I. (2019). The relationship among gender, academic self-concept and academic achievements of secondary school students in Awka Urban. *The Educational Psychologist Journal*, 13(1), 34-45.
- Anyanwu, A. N. & Emesi, K. E. (2020). Self-esteem and academic achievements in mathematics in Anambra State. *UNIZIK Journal of Educational Research and Policy Studies*, 1(1), 127-193.
- Corcoran, R. P., Cheung, A. C. K., Kim, E., & Xie, C. (2018). Effective universal school-based social and emotional learning programs for improving academic achievement: a systematic review and meta-analysis of 50 years of research. *Educ. Res. Rev.* 25, 56–72. doi: 10.1016/j.edurev.2017.12.001

- Cvencek, D., Fryberg, S. A., Covarrubias, R., & Meltzoff, A. N. (2018). Self-concepts, self-esteem, and academic achievement of minority and majority North American elementary school children. *Child Dev.* 89, 1099–1109. doi: 10.1111/cdev.12802
- Edokpolor, J. E. (2019). Gender differential effect of business education students' human capital on sustainable economic development. *Journal of Educational Research and Practice*, 9 (1), 40-54.
- Ericson, D., B. (2011). Development of multidimensional self-concept scale (MSCS) for Fihpino college students at Aterio de Davao University Davao city. Unpublished Ph.D. Dissertation, University Davao.
- Eze, T. I., Obidile, J. I. & Okotubu, J. O. (2020). Effect of gender on students' academic achievement and retention in Auto-Mechanic Technology in Technical Colleges in Delta State. Nigeria. *London Journal of Research in Humanities and Social Sciences*, 20(1), 25-32.
- Federal Republic of Nigeria (FRN). (2013). National Policy on Education. Abuja: NERDC Press.
- Herrera, L., Al-Lal, M. & Mohamed, L. (2020) Academic Achievement, Self-Concept, Personality and Emotional Intelligence in Primary Education. Analysis by Gender and Cultural Group. *Front. Psychol.* 10:3075. doi: 10.3389/fpsyg.2019.03075
- Jaiswal, S. K., & Choudhuri, R. (2017). A review of the relationship between parental involvement and students' academic performance. *Int. J. Indian Psychol.* 4, 110–123. doi: 10.25215/0403.052
- Keter, K. J., Barchok, H.K. & Ngene, J.K. (2014). Effects of cooperative master approach on students' motivation to learn chemistry by gender. *Journal of Education and Practice*, 5(8), 91-97.
- Marsh, H. W., & Craven, R. J. (2017). Self- concept: Its multifaceted, hierarchical structure. *Journal of Educational Psychologist*, 20, 107-125.
- National Board for Technical Education (2022). Examiners report on academic achievement in vocational and technical education, Benin: National Business and Technical Education Board.
- National Board for Technical Education (NBTE). (2012). Curriculum for Technical colleges (Revised). Kaduna: NBTR Press.
- Ogwa, C. E. (2015). Teachers and students 'perception of instructional supervision on capacity building in electrical installation. *Journal of Education and Practice*, 6 (29), 182-187.
- Ogwa, C. E., & Nnachi, C.M. (2016). Poverty reduction through electrical installation trade skills acquisition among technical college students in Nigeria. *Journal of Educational Policy and Entrepreneurial Research (JEPER)*, 3(7),305-312.
- Olunloe, O. (2010). Mass failure in Mathematics: A National disaster. *Tribune* of 07/02/2010 retrieved from <http://www.ribune.com.nig> on 05/08/2016.
- Onoh, B. C. E. C., & Onyebuanyi, P. N. (2017).Electrical installation and maintenance skill needs of technical college graduates for job creation and self-reliance in Enugu State. *Journal of Science and Computer Education (JOSCED)*, 3(3), 223-233.
- Osuyi, S.O., Osaigbovo, L. & Abussomwan, S.O (2021). Effect of utilization of workshop facilities on students academic achievement and retention in electrical installation and maintenance works in technical colleges in Edo State. *Multidisciplinary Journal of Vocational Education & Research*, 4 (1), 111-122.
- Oviawe, J. I., Ezeji, S. C. O.A., & Uwameiye, R. (2015). Comparative effectiveness of three methods on the academic performance of students in building technology in Nigeria polytechnics. *European Scientific Journal*, 11(12), 274-285.
- Pastorino, E. E. & Doyle-Patillo, S. M. (2018). *What is Psychology Essentials?* Belmont: C.A Wadsworth.
- Sewasew, D., and Schroeders, U. (2019). The developmental interplay of academic self-concept and achievement within and across domains among primary school students. *Contemp. Educ. Psychol.* 58, 204–212. doi: 10.1016/j.cedpsych.2019.03.009
- Susperreguy, M. I., Davis-Kean, P. E., Duckworht, K. & Chen, M. (2018). Self-concept predicts academic achievement across levels of the achievement distribution: domain specificity for math and reading. *Child Dev.* 89, 2196–2214. doi: 10.1111/cdev.12924
- Tahir, T., Batool, S., Gul, R., & Ishfaq, U. (2023). Relationship between self-concept and academic achievement: An evidence of female students. *Russian Law Journal*, 11(5s). <https://doi.org/10.52783/rlj.v11i5s.888>

Wigfied, A. & Karpathian, M. (2021). Grade retention and academic self-concept: A multilevel analysis of the effects of school retention composition. *British Educational Research Journal (BERJ)*, 47(5), 1340-1360]