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## **Effect of Context-Based Learning Strategy on Academic Performance in Chemistry Concepts among Secondary School Students in Taraba State, Nigeria**

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### **Abstract**

*This study examines the effect of context-based learning strategy (CBL) on academic performance in Chemistry Concepts among Secondary school students' in Taraba State, Nigeria. A quasi-experimental design involving pretest-posttest control and experimental groups was employed. A total of 174 students participated, with 52 in the experimental group taught using the CBL and 122 in the control group taught using conventional methods. Respondents were selected using multi-stage sampling technique. Data were collected using Chemistry Performance Test (CPT) as instruments of data collection. Instruments were subjected to content, face validity and was tested after a pilot study using Kuder Richardson formula 20, KR<sub>2</sub> reliability test which yielded a coefficient of 0.85. Analysis of Covariance (ANCOVA) were used to test the hypotheses. Findings from ANCOVA revealed that students taught with the CBL performed significantly better  $F(1, 171) = 44.163, p < .001, \eta^2 = .205$ . The experimental group mean gain was 42.28 compared to the control group mean gain is 22.05 in favor of experimental group. findings strongly support the effectiveness of context-based learning strategy in improving academic performance in chemistry This finding recommend that chemistry concepts should be taught using context based learning strategy which allows active participation of the students.*

**Keywords:** Context-Based Learning, Academic Performance in Chemistry, ANCOVA, Senior Secondary School.

### **Introduction**

Education is essential for the development of individuals, society, country and the world at large. It is regarded as the bedrock of every nation's development. In the whole world and particularly in Nigeria, education has been considered the corner stone for development. It forms the basis for literacy, skills acquisition, technological advancement and ability to harness human and material resources towards the achievement of societal goal (Federal Republic of Nigeria FRN, 2014). Therefore, one of the ways to measure the level of education and development index of a country is the level of science and technology education present in such country. Science education is very important for the development and progress of any nation and hence the need for every nation to take its advancement very serious. Science deals with the sharing of scientific knowledge with individuals through the instrumentality of education. Learning science in the 21<sup>st</sup> century aims at training students to be able to understand concepts, develop process skills and develop thinking abilities to be able to transfer knowledge (Aidoo, Boateng, Kissi & Ofori, 2016). The field of science education includes works in science content, science process and some teaching pedagogy. Science education cultivates in students' curiosity about the world and enhances scientific thinking through the inquiry process. Students are trained to recognize the nature of science and develop scientific knowledge and



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science process skills. There is the need for innovative teaching strategies that make the learning of chemistry student-centered, meaningful and more stimulating to promote lifelong learning.

Chemistry is a central science subject that explains the composition, properties, and transformations of matter and serves as a foundation for scientific and technological development. At the post-basic school level in Nigeria, chemistry is a compulsory requirement for students aspiring to pursue careers in medicine engineering, pharmacy, environmental science and other science related disciplines. Beyond career preparation, chemistry contributes significantly to national development through its application in health care, food production, energy generation, industrial manufacturing and environmental management. In the Nigeria context, and particularly in Taraba state, chemistry education is expected to equip students with scientific literacy, problem-solving skills to apply scientific knowledge to everyday life. However, despite its importance, students interest and academic performance in chemistry at the post-basic school level remain a major concern. The issues of students' academic performance in chemistry reliance on traditional teaching strategies, therefore raises concern about their effectiveness in improving both students interest and performance in chemistry. Evidence from external examination such as the West African Examination Council (WAEC) report on the percentage grade at credit-pass in chemistry as follows: 2018 (19.8%), 2019 (43.71%), 2020 (32.60%), 2021 (11.68%), 2022 (16.25%), and 2023 (10.50%) in Taraba state as shown in appendix 1, indicate fluctuation and generally unsatisfactory level of credit pass in chemistry over the years. Many students struggle to understand fundamental concept, apply chemical principles to problems-solving situation and perform satisfactorily in practicals. Commonly identified weakness include; poor conceptual understanding, inability to interpret examination question correctly weak problem-solving ability (WAEC, 2020; Oloyede, Adeoye, & Aikpokpodion, 2019). These challenges are often results from overcrowded classrooms, limited access to functional laboratories, shortages of qualified chemistry teachers and reliance on rote learning methods (Olatoye, 2017). Consequently, many students fail to achieve the minimum credit level require for further studies in science-related field. (WAEC,2021; Okeke & Nzewi, 2018)

Various stakeholders have made effort to address the challenges facing chemistry education in Nigeria and Taraba state in particular. Government agencies and educational authorities have introduced curriculum reforms aimed at improving science teaching and learning, teachers professional development programs, workshops and seminars have been organized to enhance teacher pedogical skills. Examination bodies such as WAEC have also provided chief examiner report to guide teachers and students on common areas of weakness and strategy for improvement. Non-governmental organization and donor agencies have supported science education through provision of textbooks and teachers training initiatives. Schools and teachers, on their part have adopted strategies such as extra lesson, revision classes and the uses of past examination questions to improve student's performance. Despite these efforts made by stakeholders, the problem of low interest and poor academic performance in chemistry persist suggesting that the strategies employed so far may not significantly address the root causes of the problems. Failure to address the issues poor academic performance in chemistry has serious implication for student's school's society at large, for students, it limits access to science-based careers and higher education opportunities, thereby reducing their future prospects. For education system, the goal of science education and contribute to a shortage of skilled manpower in science and technology field. At the societal level it hinders scientific innovation, industrial developments and economic growth. These may also widen educational inequalities, particularly for students in rural & under-resourced area of Taraba state



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who are already disadvantage. Therefore, there is an urgent need for effective instructional strategies that can simultaneously enhance students interest and improve their academic performance in chemistry, context-based learning strategy as the way forward.

Context-based learning has positive views regarding its impact on chemistry learning, considering that the 21st century demands students to master many fields, one of which is 21st century skills which include critical thinking skills, problem solving, creative thinking, communication, and collaboration. (Redhana, 2019). Many research results explain that context-based learning can assist students in improving the quality of chemistry learning. (Baydere, 2021; Pursitasari *et al.*, 2020). Furthermore, the conditions of a supportive learning environment and the use of appropriate learning strategies or models in context-based chemistry learning can help teachers or researchers to improve learning effectiveness. Context-based learning strategy involve teaching chemistry concept using real-life context drawn from student's everyday experience, local environment, culture and societal issues (King, 2019). By linking abstract chemical concept to familiar situation such as food processing, agriculture, health, water purification and environmental challenges. Context-based learning makes chemistry learning more meaningful, relevant and engaging for learners (Gilert, 2016). Context-based learning has the potentials to bridge the gap between classroom instruction and real-world application (Holbrook & Rannikmae, 2018). Through active participation, discussion, problem-solving etc. students are more likely to develop positive interest deeper conceptual understanding and improve academic performance in chemistry. Some studies emphasize the use of context as a powerful tool for constructing and understanding concepts (De Putter, Taconis, & Jochem, 2016). Onasanya and Omosewa (2020) argued that, no matter how well trained or qualified a teacher is, if the teacher lacks a good teaching method, he/she will fail to put his ideas into practice. However, it has been observed that the use of conventional modes of teaching chemistry is still prevalent in our secondary schools.

Conventional methods of teaching: refers to universally common method of teaching use by teachers, Conventional method portrays the instructor as a facilitator of learning activities, a source of information, and a subject matter expert. The instructor would be responsible for all classroom instruction and ensures that all course ideas are comprehended by the pupils (Adanikin & Omojemite, 2021). The conventional method of teaching chemistry does not meet the requirement of the 21st century of teaching and learning as it does not promote deep and meaningful learning among students. Though this method guarantees the completion of task on time, it encourages learners to memorize and regurgitate content of learning experiences instead of digesting and assimilating them. Hence, this method does not allow students to be actively involved in the learning process. Nnamani and Oyiba,(2016), noted that classroom instruction should among other things create the desired and equal opportunity for understanding in students' gender.

### **Statement of the problem**

Despite the central role of chemistry in scientific advancement, technological development, and career preparation in science-related field, academic performance in chemistry at the post-basic level in Taraba state, remain persistently low. Evidence from external examination such as the West African Examination Council (WAEC) report on the percentage grade at credit-pass in chemistry as follows: 2018 (19.8%), 2019 (43.71%),2020 (32.60%), 2021 (11.68%), 2022 (16.25%), and 2023 (10.50%) in Taraba state as shown in appendix 1, indicate fluctuation and generally unsatisfactory level of credit pass in chemistry, suggesting persistent difficulties in students conceptual



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understanding and problem solving abilities. These challenges are closely associated with student's negative attitude towards the subject, often arising from the abstract nature of chemistry concept.

Ideally, chemistry instruction at the post-basic school level should be learner-centered, engaging and closely connected to student's real-life experiences. Students should demonstrate strong interest, active participation, sound conceptual understanding and improve academic performance, achieving at-least credit level passes required for further studies in science related discipline. The persistence of poor academic performance in chemistry in Taraba state can be attributed to several factors including the abstract presentation of chemistry concepts, dominance of teacher centered instructional method, shortages of qualified chemistry teachers and student's inability to relate classroom content to their everyday environment. These factors collectively contribute to negative attitude towards chemistry and weak academic performance. There is a need to adopt instructional strategies that connect classroom learning with students lived experiences. Context-based learning strategy, offers viable solution to these problems bridging the gaps between classroom instruction and real-life application. By teaching chemistry concept through familiar context drawn from student's environment, culture, and daily activities. However, due to limited empirical evidence on the effectiveness of this strategy among post-basic school students in Taraba state. This gap necessitates the present study, which seeks to investigate the effect of context-based learning strategy on academic performance in chemistry with a view to improving chemistry teaching and learning in Taraba state, Nigeria.

### **Purpose of the Study**

The purpose of the study was to investigate the effects of context-based learning on academic performance of post-basic school's students in chemistry in Taraba state, Nigeria. The specific objectives are to determine the:

1. Effects of context-based learning strategy on post-basic school students' academic performance in chemistry.
2. Effects of gender on the academic performance of secondary schools students when taught chemistry using a context-based learning approach.

### **Research questions**

The study was guided by the following research questions;

1. What are the mean gains in academic performance scores of students when taught chemistry using context-based learning and those taught using conventional method?
2. What are the pre-test and post-test academic performance scores of male and female Secondary school students when taught chemistry using a context-based learning strategy?

### **Hypotheses**

The following null hypotheses were formulated and tested at 0.05 level of significance:

**H<sub>01</sub>** There is no significant difference in the academic performance of students taught chemistry using context-based learning and those taught using conventional method.

**H<sub>02</sub>** There is no significant difference in the academic performance score of male and female students when taught chemistry using context-based learning.

### **Literature Review**

The theoretical framework of context-based learning in chemistry is anchored on Lev Vygotsky's theory of social constructivism, (1978) which state that learning is a socially mediated process, where individuals construct knowledge through interactions with others and their cultural environment.



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## Methodology

The Quasi-experimental research design of pretest-posttest, non-equivalent, control group, was adopted for the study. The quasi-experimental research design was adopted for the study because it allows the researcher to examine the effect of an instructional intervention in a classroom setting where random assignment of participants to group is not feasible, it also enable the comparison of an experimental group and a control group while still maintaining the normal school structure. The researcher gathers participants in a group that cannot or should not be distributed, such as intact classes. Common characteristic of quasi-experimental design is that it tries to categorize the effect of a variable (independent variable) on another variable (dependent variable) in which an intervention is introduced to one group and the other is treated as control group.

### Population, Sample and Sampling

The total number population of 14,495 S.S II students offering chemistry in the state for the 2023/2024 academic session which comprised 8,395 male and 6,100 female students from public post basic school in the sixteen (16) local government areas of the state. Multi-stage sampling technique were employed for the study where Jalingo Educational Zone was selected out of the ten educational zones in the state using simple random sampling. Targeted population of the study was 3,259 S.SII students offering chemistry in Jalingo education zone. The reason for choosing SS2 chemistry students is because of their relative stability compared to SS3, which is an exam class, and SS1 being an introductory class, some school authorities do not allow such classes to be used for research purpose. The Sample size of 174 SS2 students was drawn from secondary schools offering chemistry in Jalingo Education Zone was used for the study. The sample was obtained using hat and draw simple random sampling technique and intact sampling technique also. The hat and draw method of simple random sampling technique involves putting names in a hat and drawing a certain number of names out. Relating the techniques in the study, names of secondary schools each in the local government areas were inscribed, put into a hat, reshuffled and one school picked only. The procedure was repeated to select one school each from the secondary schools in the local government areas that constitute Jalingo education zone. Subsequently, intact class sampling technique applied to select the experimental groups and the control group.

### Instrumentation, Validation and Reliability

Chemistry performance test (CPT) was the instrument used in this study. The Chemistry Performance Test (CPT) consists of 40 items adapted from past question papers of West Africa Examination Council (WAEC) 2014-2024 chemistry paper two (II) objectives questions. relevant to the topics under study. The chemistry performance test items (CPT) adapted from WAEC past question papers of different years, which is considered to be standardized and was subjected to face and content validation by one expert from Chemistry Department Modibbo Adama University, Yola. The 40 items of Chemistry Performance Test (CPT) was given a pilot test by administering it to 50 students (30 males and 20 females) SS II chemistry students of Government Day Secondary School Lankaviri, Lau local government area, Taraba State, which is outside the study sample schools but it has similar characteristics with sample schools for the study Kuder Richardson formula 20 was also used Since the items on the questionnaire are uniformly scaled. The results yielded co-efficient of reliability values of 0.85 for CPT. This reliability coefficient shows that the instruments are reliable.



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### Data Analysis

The data collected for the study were subjected to analysis at two different statistical levels: descriptive and inferential statistics. At the descriptive level, the descriptive statistics of mean and standard deviation were used in order to respond to the research questions. At the inferential level, the Analysis of Covariance (ANCOVA) was used to test the hypotheses and the Covariate pre-test. All hypotheses were tested at  $\alpha=0.05$  level of significance. The inferential statistics permit decision making whether or not to reject null hypotheses after being tested. ANCOVA is appropriate in taking care of initial group differences statistically to compare in experimental research, effectiveness of pedagogical instructions where intact classes may differ in intelligence as it is similar to the current study.

### Presentation of Results

**Research Question One:** What are the pretest and posttest mean academic performance score of students when taught chemistry using context-based learning and those taught using conventional method?

**Table 1: Comparison of Pre-test and Post-test Mean academic performance Scores of students when taught chemistry using context-based learning strategy and those taught using conventional method.**

Group	n	Pretest		Posttest		Mean gain
		Mean	S.D	Mean	S.D	
Experimental Group	52	29.20	9.07	71.48	9.89	42.28
Control Group	122	33.21	10.45	55.26	18.94	22.05
Mean difference				16.22		

Table 1 illustrates the academic performance of students in both the experimental and control groups before and after the instructional period. The experimental group displayed a mean difference of 16.22, along with a mean gain of 42.28, favoring the experimental group. A significant difference was observed between the average academic performance scores of students who were taught chemistry through context-based learning strategy and those who were instructed using the traditional method. This difference favors the experimental group. Consequently, the null hypothesis, which asserts that there is no significant difference between the average academic performance scores of students taught chemistry via context-based learning and those taught through the conventional method, is rejected.

**Research Question Two:** What are the pre-test and post-test mean academic performance scores of male and female Secondary school students when taught chemistry using a context-based learning strategy?

**Table 2: Gender-Based Comparison of Pre-test and Post-test Mean academic performance scores of post-basic school Students in the Experimental Group**

	n	Pretest		Posttest		Mean Gain
		Mean	S.D	Mean	S.D	
Male	27	28.63	9.40	70.56	9.50	41.93
Female	25	29.87	8.82	72.57	10.44	42.7
Mean Difference				2.01		

Table 2. presents the gender-based comparison of students in the experimental group. Male students had a posttest mean difference of 2.01 (SD = 9.50). Female students a posttest mean gain of 42.7 (SD = 10.44). While both male and female students showed notable academic improvement using



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context-based learning, female student’s notable academic improvement using context-based learning, female students had a slightly higher mean gain of 42.7, in favor of the female students.

**Results of hypotheses testing**

**Ho1:** There is no significant difference on the academic performance of students taught chemistry using context-based learning and those taught using conventional method.

**Table 3: Summary of ANCOVA of Difference in the Mean Academic Performance of Students in the Experimental and Control Groups**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	13813.812 <sup>a</sup>	2	6906.906	26.564	.000	.237
Intercept	36131.181	1	36131.181	138.963	.000	.448
Pre-interest	4437.160	1	4437.160	17.066	.000	.091
Teaching methods	11482.544	1	11482.544	44.163	.000	.205
Error	44461.062	171	260.006			
Total	682996.000	174				
Corrected Total	58274.874	173				

a. R Squared = .237 (Adjusted R Squared = .228)

Table 3 shows the results of an ANCOVA to test the difference in the mean academic performance of students in the experimental and control groups. The teaching method had a statistically significant effect on students’ academic performance  $F(1, 171) = 44.163, p < 0.05, \text{partial } \eta^2 = 0.205$ . The null hypothesis is rejected; this indicates that the context-based learning approach significantly improved students’ academic performance compared to the conventional method. The partial eta squared value (0.205) represents a moderate effect size, showing that 20.5% of the variance in academic performance is explained by the teaching method., and it can be concluded that the context-based learning approach was more effective in enhancing students' academic performance than the conventional method.

**Ho2:** There is no significant difference on the academic performance score of male and female students when taught chemistry using context-based learning strategy.

**Table 4: Summary of ANCOVA of Difference in the Mean Academic Performance of Male and Female Students in the Experimental group.**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	169.698 <sup>a</sup>	2	84.849	.862	.429	.035
Intercept	18941.329	1	18941.329	192.494	.000	.804
Pre-test	119.537	1	119.537	1.215	.276	.025
Gender	39.852	1	39.852	.405	.528	.009
Error	4624.782	47	98.400			
Total	260264.000	50				
Corrected Total	4794.480	49				

a. R Squared = .035 (Adjusted R Squared = -.006)

Table 4 provides the results of the ANCOVA for gender differences in the academic performance of students in the experimental group. The effect of gender on academic performance was not statistically significant  $F(1, 49) = 0.405, p > 0.05, \text{partial } \eta^2 = 0.009$ . There is no significance difference when taught using the context-based learning approach. The partial eta squared value (0.009) suggests a very small effect size, with gender accounting for less than 1% of the variance in academic performance. Therefore, the null hypothesis is retained, confirming that gender does not significantly influence students' academic performance when exposed to context-based learning.

**Discussion**



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Findings arrived at in this study are discussed in this section. The study examined the effects of context-based learning strategy on academic performance of post-basic school students in chemistry in Taraba state, Nigeria. The sample comprised male and female students therefore gender was incorporated as a moderator variable. Discussion of findings was tailored along the variables in the study as guided by the results of research questions and hypotheses.

Finding number one revealed that Students taught chemistry concept using context based learning strategy performed academically better than their counterparts exposed to conventional method. This is so because, context based learning engages, informs and allows for practice within each lesson. This finding is also in agreement with the findings of Githae (2015), Musa (2015) Tariq and saeed (2020), Samuel, obikizie and Maxwell (2020), Bacay and Herrera (2020), Magwilang (2016) who in their separate studies all reported that Context Based method enhanced students' academic achievement. However, Ugama (2016), Nwanekezi and Cheta (2018) reported on contrary to this finding that practical learning fosters students' achievement in basic science than context based learning approach. The finding number two on the effect of gender on academic performance revealed that male and female students in the experimental group improved significantly, the difference in academic performance between genders was not statistically significant  $F(1,49) = 0.405, p > .05, \eta^2 = 0.009$ . This finding aligns with which shows only a marginal difference in mean gain favoring females. This finding agrees with the result of Ngozi (2020), who found that context-based learning had more effects on students ISPS in chemistry, Oladejo et al. (2023) also found that there was a statistically significant main effect of treatment on students' performance.

### Conclusion

The study has established that the findings strongly support the effectiveness of context-based learning in improving both academic performance in chemistry among post-basic school students in Taraba state, Nigeria. Significantly, these benefits do not vary by gender, encouraging the approach's broad applicability and inclusivity. The results indicated that students taught chemistry concept such as water solubility, hardness of water, periodic table and periodicity of element using context-based learning approach performed better than those taught using conventional method. These finding suggest that context-based learning approach are equally effective across different gender. therefore, incorporating context-based learning approach into the curriculum can bridge educational gaps.

### Recommendation:

1. Teachers should be encouraged to use Context based learning strategy in teaching in order to improve students' academic performance irrespective of gender because Context based learning is a gender friendly teaching technique with regards to academic performance.
2. In-service training programs, seminars, work-shops and symposia should be organized by the state and federal governments to train chemistry teachers in the use of context-based strategies in teaching chemistry.

### References

- Adanikin, A. F., & Omojemite, M. D. (2021). Effect of peer tutoring and conventional method of teaching on junior secondary school social studies students. *Archives of Educational Studies*, 1(1), 81–86.
- Aidoo, B., Boateng, S. K., Kissi, P. S., & Ofori, I. (2016). Effect of problem-based learning on students' achievement in chemistry. *Journal of Education and Practice*, 7(33), 103–108.
- Achor, E. E., Jack, G. U., & Uzomah, T. (2024). Use of Context-Based Learning Strategy and Secondary Students' Academic Achievement in Physics. International Centre for Science,



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- Humanities & Education Research (ICSHER) Journal, 5(4), 15–29.  
<https://doi.org/10.2139/ssrn.4888835>
- Akpan, E.U.U. (2021). Critical and emerging issues in science, technology and mathematics education in Nigeria. [Paper presentation]. A way into a future association for research in music education conference, Nigeria.
- Bacay, M. M., & Herrera, A. S. (2020). Context-based learning in teaching senior high school: Basis for science instructional material development in Inarawan, Naujan. *Asia Pacific Journal of Education, Arts and Sciences*, 7(1). <https://www.apjeas.apjmr.com>
- De Putter-Smits, L. G. A., Taconis, R., & Jochems, W. M. G. (2016). Measuring context-based learning environments in Dutch science classrooms. In R. Taconis, P. den Brok, & A. Pilot (Eds.), *Teachers creating context-based learning environments in science* (pp. 103–124). Sense Publishers.
- Githae, K. L. (2015). Effect of practical learning teaching on secondary school students' achievement and motivation to learn Biology Kenya. *International journal of information and education technology*, 6(4), 44-47
- Jamb Brochure. (2016). *Guideline for admissions to first degree, national diploma (ND), national innovation diploma (NID), and Nigeria certificate in education (NCE)*. National Headquarters, Bwari, Abuja, Nigeria.
- King, D., & Henderson, S. (2018). Context-based learning in the middle years: Achieving resonance between the real-world field and environmental science concepts. *International Journal of Science Education*, 40(10), 1221–1238.
- Majid, A. N., & Rohaeti, E. (2018). The Effect of Context-Based Chemistry Learning on Student Achievement and Attitude. *American Journal of Educational Research*, 6(6), 836- 839.
- Musa, K. (2015). Impact of Context Based instruction and laboratory facilities on interest and academic performance in Biology among senior secondary school students, Zaria Nigeria. *Journal on Excellence in College Teaching*, 5(4), 8-10.
- Ngozi, P. O. (2020). Enhancing science process skills acquisition in chemistry among secondary school students through context-based learning. *Science Education International*, 32(4), 323–330.
- Nnamani, S. C., & Oyiba, O. A. (2016). Gender and academic achievement of secondary school students in social studies in Abakaliki. *British Journal of Education*, 8(8), 72–83.
- Nwanekezi, B.H. & Cheta, N.K. (2018). Comparative study on practical and Context Based learning on Physics students' performance in Zaria. *Journal of Department of Education A.B.U Zaria, Nigeria*, 3, .32-35.
- Oladejo, A. I., Nwaboku, N. C., Okebukola, P. A., & Ademola, I. A. (2023). Gender difference in students' performance in chemistry – can computer simulation bridge the gap? *Research in Science & Technological Education*, 41(3), 1031–1050.
- Onasanya, S. & Omosewa, Y. (2020). *Educational Philosophy Science Teaching and Learning (3rd ed)*. Macmillan
- Pursitasari, I. D., Suhardi, E., Putra, A. P., & Rachman, I. (2020). Enhancement of student's critical thinking skill through science context-based inquiry learning. *Jurnal Pendidikan IPA Indonesia*, 9(1), 97–105.
- Redhana, I. W. (2019). Mengembangkan keterampilan abad ke-21 dalam pembelajaran kimia. *Jurnal Inovasi Pendidikan Kimia*, 13(1).
- Samuel, N. N. C., & Obikizie, M. C. (2020). Effect of contextual teaching–learning approach on students' achievement in chemistry in secondary schools. *International Journal of Innovative Research & Development*, 9(12), 97. <https://doi.org/10.24940/ijird/2020/v9/i12/DEC20028>.
- Tariq, S., & Saeed, M. (2020). Effect of context-based teaching on grade VIII students' academic achievement and intrinsic motivation in science. *Pakistan Journal of Educational Research and Evaluation*, 9(1), 1–23.



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Ugama, Y .L. (2016). Effects of practical learning on students' achievement in basic science in Ebonyi State. *International journal of pharmacy and chemistry* 3(2), 4-8.