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Effect of Reflective Teaching on Basic Science Performance of Students in Ogbia Local Government Area, Bayelsa State

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Abstract
This study examines the effect of reflective teaching on the academic performance of students in Basic Science in Ogbia Local Government Area, Bayelsa State. Quasi-experimental research design was adopted for the study. The population of the study comprises all JSS3 students in all public secondary schools in Ogbia Local Government Area of Bayelsa State with a sample size of 240 students which were purposively drawn from ten selected schools. The sample of students learning basic science was randomly assigned to a control group which was taught basic science using the traditional teaching strategy and an experimental group using reflective teaching. The instrument for data collection was the Basic Science Achievement Test (BSAT) The instrument was validated by giving to experts in the field of measurement and evaluation and science education, who ensure the face and content validity, the instrument has a reliability of 0.82 Kuder Richardson 21. A basic science achievement test (BSAT) was administered to both groups before and after treatment (pre-test and post-test). Data collected was analysed using descriptive statistics mean and standard deviation and the hypothesis was tested using a t-test and Analysis of Covariance (ANCOVA). Findings showed that students taught with reflective teaching methods performed slightly better than those taught using traditional methods. It also indicated that male students had a slightly higher improvement in academic performance compared to female students when taught using the reflective teaching method. It was concluded that reflective teaching has a slightly significant influence on the academic performance of students. Based on the conclusion, it was recommended among others that teachers should use a reflective teaching approach in teaching basic science as it improves the interest of students to study science.

Keywords: Reflective, Teaching, Methods, Academic Performance, Education

Introduction

Education is the process of inculcating the basic skills, knowledge, culture, norms and value systems in an individual in order to meet societal need. Education can be either formal or informal Science. It is formal if it is done in a school/academic context while it is informal if it is outside the school setting. Science instruction in secondary schools is an active process that makes use of a variety of teaching resources, including books, an abacus, lab apparatus, charts, specimens, and ICT tools, among others. The goal is to instil in the students the knowledge, abilities, and mindset necessary to effectively use scientific methods. Teaching knowledge and sufficient information about the physical world is the core of science education (Marafa & Akintola, 2020). The study of man and his surroundings is called science. One cannot overstate the role that science plays in the creation and advancement of a nation, since science gives people the knowledge they need to comprehend, value, and improve their surroundings. Science teachers must possess solid theoretical and practical background knowledge in order to teach science in high schools. As a result, scientific instructors play a critical role in facilitating advancements in science education (Marafa & Akintola, 2020). Science education refers to traditional instruction that aims to impart sound knowledge in order to improve the provision of high-quality services that will satisfy human needs for food, healthcare, and a variety of other resources that will improve humankind's quality of life (Khanam, 2018). According to Boris (2019), acquiring relevant scientific

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and technological skills is essential to overcoming the difficulties brought on by the changing demands of contemporary work, which are found in our sectors and the rapidly expanding non-formal sector. He continued by saying that, systems of education and training that effectively meet these needs will, in turn, support efforts to address the rising rate of unemployment and the marginalization of the majority of the population. With the help of these systems, young people's unemployment and poverty will be decreased as they will have access to relevant learning opportunities that will expand their knowledge and skill set and boost productivity. Science and technology, which seem to be the two sides of a coin, are what propel the 21st century. It is important to remember that our society relies on scientific knowledge to address technical problems. Due to the fact that no country, no matter how sophisticated or how growing, can advance beyond its understanding of science and technology. Science has become an essential prerequisite for the growth and development of both individual countries and the global community.

Eke 2018 in Oke and Olufunke (2019) assert that a sufficient degree of Science education is a prerequisite for any country hoping to advance scientifically and technologically. Basic science, the foundation of all scientific fields, has been recognized as a keystone for the transformation of any nation's economy. The necessity to investigate the possibilities of providing teachers with professional teaching skills that will enable them to carry out their multiple responsibilities credibly is undoubtedly the biggest problem facing the educational system (Boris, 2019). Given that the purpose of teaching is learning (Boris, 2019). Instilling knowledge, values, and skills in a student is known as teaching. Effective teaching can be understood as a methodical reason and knowledge, skills, attitude, and values in accordance with particular professional standards. Good education depends on good teachers. (Adediwura & Bada, 2007 in Oke & Olufunke). Every country has long desired to raise the standard of science instruction and learning for its people in order to equip them with the scientific literacy needed to meet the demands of the rapidly advancing fields of science and technology in this 21st century. Teachers must reflect on their instruction from the beginning of the planning process to the end of the classroom session in order to meet the intended learning objectives. In any context, including teaching and learning, methodology is essential. The teaching strategy used can either help or hurt students' ability to learn. It may sharpen mental faculties that underpin social power or it may suppress initiative and curiosity, making survival and self-reliance challenging (Ameh & Dantani, 2012). Being a teacher involves more than just speaking in front of students. The best educators have a vast array of teaching strategies at their disposal and carefully consider how they convey a subject. Teachers who use reflective teaching are more focused on and critical of themselves. It involves changing the teachers' and student's interactions with their professional ideals and behaviours. Reflective teaching is examining your actions in the classroom, considering your motivations, and evaluating the effectiveness of your methods. Strengths and weaknesses are recognized through a process of self-observation and self-evaluation, after which changes are made to reorganize for improved performance. It is a method of professional growth that starts in the educational setting. It involves critically analyzing the ideas and practical principles that guide daily behaviour by looking at practice both reflexively and comparatively (Bolton, 2010).

The new wave of technological innovation that has impacted every aspect of life has had a big impact on education as well. The recent dramatic changes in the education sector have had an impact on teaching methods, strategies, and as well as approaches. To reach the highest level of teaching, also known as the reflective level. The reflective level is the highest level in teaching, where teachers must frequently examine, reflect, monitor, and enhance the teaching-learning process. Its goal is to give students top-notch learning opportunities that support the development and full use of their cognitive capacities (Deepali, 2023). Reflection in Teaching is the process by which a teacher considers their lessons in order to assess their strategies and methods. It is a metacognitive technique that helps educators evaluate their own experiences, choices, and behaviours in light of their methods for teaching and learning. As educators, we get a better understanding of our work the more we reflect. Reflective teaching involves teachers closely examining facts or truth to gain a deeper understanding of the assumptions and inferences of actions and activities in their own lives. Everyone agrees that the core values and goals of education are inquiry and expectations of critical thinking. Reflective inquiry should be seen as an overarching idea and methodology in order for it to have any usefulness in a school setting given its multidisciplinary nature and progressive stages. In the end, two main concepts form the core of scientific reflective inquiry: reflective investigation as the foundation of scientific endeavour and reflective inquiry as a method for teaching students in the sciences and other science-related topics. An inquiry-based classroom is more than just a collection of separate students brought together for cost-benefit. Instead, it is an inquiry-based community (Abubarkar, 2021). Reflective teaching, according to Gatumu (2006) in Olufunke (2019), involves consciously examining our methods of teaching and learning. It is oriented more toward analyzing how we teach and

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learn. This type of teaching approach needs to be seen in terms of what the teacher can do to ensure that, both his teaching and his students' learning are productive. Thus, to preserve and grow his teaching career, a teacher must allow reflective teaching to integrate theory and practice (Ige & Olayode, 2012).

Effective teaching is knowing what to do is another aspect of reflective teaching. In this sense, action research might be professionally substituted with reflective teaching (Abubarkar, 2021). It is a way for an individual to manage their continuing career by methodically resolving issues (Gatumu, 2006). According to Pollard (2006) in Oke and Olufunke reflective teaching is a recurring process that a teacher uses to analyze how they conduct themselves in the classroom. Reflective education uses recalled experiences critically to help teachers form the known to the unknown. The purpose of reflective teaching is to allow the teacher to evaluate their teaching to help their students learn as much as possible. According to Ige and Olayode (2012), reflective teaching is a sign of a caring educator who can analyze the assumptions, values, and beliefs that underpin their methods of instruction.

Types of Reflective Teaching

Reflection-for-Action, according to Deepali (2023), is a method of using reflective thinking to advance the efficiency of your teaching and learning procedures. This type of proactive reflection is known as "closing the gap" reflection. It means adjusting in light of your reflections, which might happen in two different periods: "Reflection-in-Action" refers to the reflection that occurs in the classroom while a teacher is imparting knowledge. A "Reflection-on-Action" is a type of post-class indication that occurs following instruction.

- **Reflection-in-Action**
- Reflection-in-action is the process of thinking through what you're doing and adapting as you go. You can use deliberate thought while carrying out duties, allowing you to successfully negotiate complex and erratic conditions or demands.
- **Reflection-on-Action**
- Reflection-on-action is the process of thinking about your activities, modifying them after they are completed, and evaluating the outcomes and ramifications. It entails your capacity to interact with explicit knowledge following task completion, allowing you to draw lessons from past experiences and develop tactics for improving performance going forward.

The benefit of reflective thinking

1) **Improved Classroom Administration:** Through reflective teaching, you can evaluate your classroom management methods critically and determine how they affect students' behaviour, well-being, and ability to overcome obstacles.
2) **Enhanced Development on the Professional Front:** It further promotes professional development and learning by encouraging teachers to do SWOT analyses, seek input from peers, attend workshops or conferences, and experiment with new teaching methods. Additionally, it helps educators stay current with new developments in the field of education continuously broadens their knowledge and enhances their approach to teaching.
3) **Improved rapport between teachers and students:** To create a positive and supportive learning environment where students feel appreciated, respected, and inspired to participate in their education, reflective teaching encourages teachers to consider their communication style, listening techniques, and responsiveness to students' needs actively engage in the learning process.
4) **Fostering Communities of Collaborative Learning:** Professional learning groups and teamwork are valued highly in reflective teaching. It motivates educators and students to converse with one another, share ideas, and experiences, and gain insight from one another's viewpoints.
5) **Enhanced Flexibility:** Teachers who use reflective teaching are more adaptable and receptive to the various demands of their students. It forces the instructor to constantly evaluate the distinct individual traits and varied needs of each of his or her students, allowing the teacher to intervene in the teaching process and make the required modifications to satisfy the different needs of each student. It helps educators become more adept at adjusting and changing their strategies, tactics, and tools to improve student performance and maximize learning objectives.

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The Reflective Practitioner: How Professionals Think in Action (1983) by *Donald Schön*
Schön's theory emphasizes the importance of specialists (including educators) reflecting on their experiences to improve their practice. Reflective thinking, according to Schön, involves a continuous cycle of reflection-on-action (thinking about what has been done after the fact) and reflection-in-action (thinking about what is happening at the moment).

Key elements of Schön's theory that would be pertinent to research include:

- **Reflection-on-action:** Looking back on experiences and actions to understand what occurred and why.
- **Reflection-in-action:** Thinking on one's feet during action, adjusting and adapting based on ongoing reflection.
- **Artistic or technical rationality:** Schön distinguishes between these two types of rationality in problem-solving and decision-making, with reflective practice often involving a blend of both.
- **Double-loop learning:** This involves reflecting not only on actions and outcomes but also on underlying assumptions and values that shape decision-making.

Boris (2019) examined the impacts of reflective teaching on the academic performance of secondary school pupils in Chemistry in Ondo State, Nigeria. The quasi-experimental pretest-posttest control group approach was used in this investigation. Two groups (the experimental group and the control group) were randomly allocated to the subjects. Sixty Senior Secondary School 1 Chemistry teachers and every Senior Secondary 1 (SS1) Chemistry student enrolled in each of the selected schools made up the sample. The experimental and control groups each had two hundred and ten pupils allocated to them. The Chemistry Achievement Test (CAT) was the tool utilized to gather data. The instrument's reliability coefficient was 0.82. The subjects received the Instrument both before and after the treatment. To determine whether the null hypotheses were accepted or rejected at the 0.05 level of significance, the generated data were subjected to a t-test, analysis of variance, and analysis of covariance analyses. Findings revealed that using a reflective teaching approach improved students' academic performance. It was suggested, in light of the results, that teachers of chemistry receive training, become familiar with, and consistently apply reflective teaching techniques.

Kabwe (2023) investigated how Grade 9 students' academic performance in science was affected by the Reflective Teaching Method in a few junior secondary schools in Zambia's Mufulira district. The study used a sample size of two lecture groups of first-year students in a quasi-experimental, or pre-test post-test control group design. The study included 50 Grade 9 students in the experimental group and 50 students in the control group. Students in grade 9 in the experimental group received instruction using the Reflective Teaching Method, while students in the control group received instruction via the Traditional Teaching Method. The impact of the Reflective Teaching Method on Grade 9 students' confidence in their ability to understand science concepts was evaluated using the Science Achievement Test (SAT) and a 5-point Likert Scale confidence questionnaire. The academic achievement of the two groups was compared using an independent samples t-test with a 95% confidence level. Descriptive statistics (mean) were used to examine science concepts' level of confidence. The results showed that the Grade 9 learners' academic performance benefited from the Reflective Teaching Method (df = 48, P - $value$ =.000, t = 8.422, α = 0.05). The study also showed that the Reflective Teaching Approach helped both male and female children acquire science topics at the same level, which supported the finding that the method is gender-neutral and has a good impact. With a confidence mean of 7.67 (SD = 2.45) and 6.19 (SD = 4.05), respectively, the confidence results showed that Grade 9 learners' trust in their ability to understand science ideas was boosted higher in the experimental group compared to the control group. Based on the result, it was suggested that science teachers apply the Reflective Teaching Method to science subjects that students and teachers feel are challenging.

Abubarkar (2021) examined the impact of the reflective inquiry teaching approach on students' academic performance in home installation modules in technical institutions in Yobe State, Nigeria. The study used a quasi-experimental research design. The control and experimental groups underwent pre-and post-testing. To provide an 88-person sample, two classes were chosen from each of the four technical colleges. Data for the study were generated using the Electrical Installation and Maintenance Work Trade Achievement Test (EIMWTAT). Three specialists from the Modibbo Adama University of Technology, Yola's Department of Electrical Technology Education validated the tool. Using Cronbach's Alpha to assess the instrument's reliability, a reliability coefficient of 0.91 was found. Mean statistics were used to answer the research questions, while the null hypotheses were tested using a t-test at a 0.5 level of

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significance to examine the null hypotheses. The findings showed that, in comparison to the demonstration teaching method, the reflective inquiry teaching approach increases students' academic progress. The fact that both male and female students did well in the household installation further demonstrated the gender neutrality of the reflective inquiry teaching approach. The study resolved that when students are taught domestic installation using the reflective enquiry technique, they achieve better than when taught using the conventional method.

Statement of the Problem

The performance of students in basic science is persistently poor and has been an issue of interest to educational stakeholders to create room for the exploration of instructional tools that motivate and arouse the interest of learners towards science subjects and at the same time help to achieve the objectives of science education. Therefore, this study is to examine the effect of reflective teaching on the academic performance of students in Basic Science in Ogbia Local Government Area, Bayelsa State.

Objective of the study

The purpose of the study is to examine the effect of reflective teaching on the academic performance of students in Basic Science in Ogbia Local Government Area, Bayelsa State. The specific objectives are as follows;

1. Determine the effect of reflective teaching on students' academic performance in Basic Science in Ogbia L.G.A, Bayelsa State.
2. Examine the effect of reflective teaching on gender in Basic Science in Ogbia L.G.A, Bayelsa State.

Research Questions

1. What is the mean difference in the academic performance of students taught with reflective teaching and those taught using the traditional method?
2. What is the mean difference in the academic performance of male and female students taught using the reflective teaching method?

Hypotheses

1. There is no significant difference in the academic performance of students taught using the reflective teaching method and those taught using the traditional teaching strategy.
2. There is no significant difference in the academic performance of male and female students taught using the reflective teaching method.

Methodology

The research adopted the quasi-experimental research design because it will allow the researchers to establish cause-and-effect relationships between variables and also enable the manipulation of one or more independent variables (reflective teaching approaches) to measure their effect on a dependent variable (students' academic performance in basic science). The population comprises all the 37 public secondary schools in Ogbia Local Government Area, Bayelsa State with a total of 7694 basic science students in JSS3. A sample size of 240 students was purposively drawn from ten selected schools. The sample of students learning basic science were randomly assigned to the control group which was taught basic science using the conventional teaching strategy and an experimental group using reflective teaching. The instrument for data collection was the Basic Science Achievement Test (BSAT) The instrument was validated by giving to experts in the field of measurement and evaluation and science education, who ensured the face and content validity, The instrument has a reliability of 0.82 Kuder Richardson 21 A Basic Science Achievement Test (BSAT) was administered to both groups before and after treatment (pre-test and post-test). The researchers were only able to retrieve 204 scripts they responded to and worked with that number in the analysis. Data gathered were analyzed using mean and standard deviation and the hypothesis was tested using a t-test.

Results

Research Question 1: What is the mean difference in the academic performance of students taught Basic Science with reflective teaching and those taught using the traditional method?

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Table 1: Mean Achievement Scores and Standard Deviations of students in the experimental and control groups in both Pre-test and Post-test taught with reflective teaching and those taught using the traditional method

Groups	Number	Pre-test		Post-test		Mean Gain
		Mean ($\bar{x}$)	Standard Deviation (s)	Mean ($\bar{x}$)	Standard Deviation (s)	
Experimental	113	30.44	4.67	33.87	5.20	3.43
Control	91	30.21	4.32	32.28	5.09	2.07
Mean Diff.	**204**					**1.36**

The table compares the mean achievement scores and standard deviations of students in experimental and control groups before and after teaching using reflective teaching and traditional methods. The experimental group, with 113 students, showed a mean pre-test score of 30.44 and a post-test score of 33.87, resulting in a mean gain of 3.43. The control group, with 91 students, had a mean pre-test score of 30.21 and a post-test score of 32.28, with a mean gain of 2.07. The standard deviations for the pre-test and post-test in the experimental group were 4.67 and 5.20, respectively, while for the control group, they were 4.32 and 5.09. The mean difference in post-test scores between the experimental and control groups is 1.36. This indicates that students taught with reflective teaching methods performed slightly better than those taught using traditional methods.

Research Question 2: What is the mean difference in the academic performance of male and female students taught basic science using the reflective teaching method?

Table 2: Mean achievement scores and standard deviations of male and female students taught using a reflective teaching method

Gender	Number	Pre-test		Post-test		Mean Gain
		Mean ($\bar{x}$)	Standard Deviation (s)	Mean ($\bar{x}$)	Standard Deviation (s)	
Male	51	31.06	4.42	34.58	5.42	3.52
Female	62	30.44	4.11	33.44	4.67	3.00
Mean Diff.						**.52**

The table compares the mean achievement scores and standard deviations of male and female students taught using the reflective teaching method. The male group, with 51 students, had a mean pre-test score of 31.06 and a post-test score of 34.58, resulting in a mean gain of 3.52. The female group, with 62 students, had a mean pre-test score of 30.44 and a post-test score of 33.44, resulting in a mean gain of 3.00. The standard deviations for the pre-test and post-test for males were 4.42 and 5.42, respectively, while for females, they were 4.11 and 4.67. The mean difference in post-test scores between male and female students is 0.52. This indicates that male students had a slightly higher improvement in academic performance compared to female students when taught using the reflective teaching method.

Hypotheses

H01: There is no significant difference in the academic performance of students taught using the reflective teaching method and those taught using the traditional teaching method.

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Table 3: Analysis of Covariance on the mean achievement scores of students taught using the reflective teaching method and those taught using the traditional teaching strategy

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Decision
Corrected Model	462.36	2	231.18	4.56	.000	Rejected
Intercept	321.43	1	321.43	31.06	.000	
Pretest	432.39	1	432.39			
Group	532.46	1	532.46	13.56	.000	
Error	246.56	202	.811	8.54	.030	
Total	1995.20	204				
Corrected Total	1871.45	201				

The table presents an Analysis of Covariance (ANCOVA) on the mean achievement scores of students taught using the reflective teaching method and the traditional teaching strategy. The corrected model, with a Type III Sum of Squares of 462.36 and an F-value of 4.56, shows a significance level of .000, leading to the rejection of the null hypothesis. The group factor, representing the teaching method, has a sum of squares of 532.46 and an F-value of 13.56, also with a significance level of .000, indicating a significant difference between the groups. The pretest factor contributes significantly with a sum of squares of 432.39 and an F-value of 31.06. The error term has a sum of squares of 246.56 and a mean square of .811. With a total sum of squares of 1995.20, the analysis suggests that the reflective teaching method significantly impacts student academic performance compared to the traditional teaching strategy.

H02. There is no significant difference in the academic performance of male and female students taught using the reflective teaching method.

Table 4: Analysis of Covariance on the mean achievement scores of male and female students taught using the reflective teaching method

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Decision
Corrected Model	196.98	2	98.49	5.11	.00	Rejected
Intercept	111.01	1	111.01	3.48	.00	
Pretest	304.42	1	304.42			
Gender	113.36	1	113.36	10.54	.00	
Error	652.78	111	11.26	8.11	.01	
Total	1378.55	113				
Corrected Total	1091.56	112				

Table 4 presents an Analysis of Covariance (ANCOVA) on the mean achievement scores of male and female students taught using the reflective teaching method. The corrected model, with a Type III Sum of Squares of 196.98 and an F-value of 5.11, shows a significance level of .00, leading to the rejection of the null hypothesis. The gender factor has a sum of squares of 113.36 and an F-value of 10.54, with a significance level of .00, indicating a significant difference between male and female students. The pretest factor contributes significantly with a sum of squares of 304.42 and an F-value of 3.48. The error term has a sum of squares of 652.78 and a mean square of 11.26. With a total sum of squares of 1378.55, the analysis suggests that there is a significant difference in the academic performance of male and female students when taught using the reflective teaching method.

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Discussion

The findings of this study revealed that reflective teaching enhances the performance of students in basic science. The result in Table 3 shows that there is a significant difference in the academic performance of students taught using reflective teaching methods and those taught using traditional teaching. The reflective method improves classroom management thereby helping student behavior, well-being and ability to overcome obstacles. Reflective teaching creates a supportive and positive learning environment where students feel appreciated, respected and inspired to participate in classwork. The findings of this study agree with what Oke and Olufunke (2019) said, that when students reflect on their experiences it improves their practice in the classroom. The results of the study agree with Boris (2019) that using a reflective teaching approach improved student's academic performance in chemistry. In the same vein, the finding corroborates with the findings of Kabwe (2023), that reflective teaching increases student confidence in their ability to understand science concepts. In addition, there is a significant academic performance of males and females when taught basic science using the reflective teaching method. The result of this disagrees with the findings of Kabwe (2023) that the reflective teaching method helped both male and female children understand science concepts at the same level, implying gender neutrality of the reflective teaching method. The finding of the study also disagrees with Abubarkar (2021) that both male and female students did well in the household installation further demonstrating the gender neutrality of the reflective inquiry teaching approach.

Conclusion

From the result, it is concluded that reflective teaching has a slightly significant influence on the academic performance of students. Also, it indicated that male students perform slightly better than female students taught using reflective teaching.

Recommendations

Based on the finding the following recommendations are made;

1. Teachers should use a reflective teaching approach in teaching basic science as it improves the interest of students in studying science
2. The government should periodically arrange seminars and workshops to train/educate teachers on the impact reflective teaching will have on their professional development and students' performance.

References

Adediwura, A. A., & Bada, T. (2007). Perception of teachers' knowledge, attitude and teacher skills as predictor of academic performances in Nigerian secondary schools. *Educational Research and Review*. 2(7), 165 – 171.

Ameh, P.O., & Dantani, Y.S. (2012): Effects of lecture and demonstration methods on the academic achievement of students in Chemistry in Nassarawa/Local Government Area of Kwara State: *International Journal of Modern Social Sciences*. 1(1): 29 – 37.

Bolton, G. (2010): *Reflective Practice*. writing and professional development (3rd edition). California: SAAGE Publications.

Deepali, S. (2023). Reflective teaching: master the art of self-reflection. https://www.suraasa.com/blog/reflective-teaching?var=as1

Eke, G.E. (2008). Regulatory Mechanism for Sound Chemicals Management. A paper presented at the 1st Mandatory Training workshop of ICON in Lagos, Nigeria.

Gatumu, J.C. (2006). Reflective teaching published under the conditions of the Creative Commons Kenya. http://en.wikipedia.org/wiki/ creative.

Kabwe, C.P. (2023). The effect of reflective teaching method on grade 9 learners' academic performance in science: a case of ten selected junior secondary schools in Mufulira District-Zambia. *GSJ: 11*(5)15-19.

Khanam, R. (2018). The importance of chemistry education, Switzerland. *Journal of Organic & Inorganic Chemistry; Zurich,*4 23-30.

Marafa, M., & Akintola, D. A. (2020). Challenges associated with science teachers' utilization of information and communication technology in Nigerian senior schools. *Al-hikmah journal of educational management and counselling.* 2 (1) 261-266

Oke J. A. & Olufunke O. B. (2019). Effects of reflective teaching strategy on attitude of chemistry students in senior secondary schools in Ondo State, Nigeria. *IJRAR- International Journal of Research and Analytical Reviews*. 7 (1)14-17.

Cite this article as:
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Olufunke, B. O. (2019). Effects of reflective teaching on secondary school students' academic achievement in Chemistry in Ondo State, Nigeria. *IJRAR- International Journal of Research and Analytical Reviews*. 6(3)20-28

Cite this article as:
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