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Effects of Self-Regulated Learning Strategy on Interest and Academic Achievement in Economics Among In-School Adolescents for Sustainable Development in Abia State

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Abstract

Effects of Self-Regulated Learning on Academic Achievement in Economics among In-School Adolescents for Sustainable Development in Abia State The non-equivalent pretest-post-test control group design is a type of pretest post-test control group design that utilizes a 2 × 2 factorial matrix. The study was guided by the following two research questions and two null hypotheses. A total of 116 participants — eight males and eight females from four intact classes (two hundred Level students) in four co-educational secondary schools within two Education Zones that were randomly selected through a multistage sampling procedure. A total of 427 SS2 in-school adolescents aged 16—19 Form Two students (males = 209; females =218) who performed below average in Economics, as reported by the State Secondary Education Management Board (SSEMB) for the academic session of 2025/2026 were sampled. The self-regulated learning (SRL) strategy was given to one experimental group, while the other group acted as a control with gender being the moderating variable. The Economics Achievement Test (EAT), was constructed by the researcher and subsequently validated for content validity by three experts: a specialist in Economics, Measurement and Evaluation from Michael Okpara University of Agriculture, Umudike. Kuder-Richardson determined the reliability of the EAT (0.79). Of the six weeks of treatment with two sessions per week. Data from routine Economics teachers functioning as research assistants were analyzed using mean, standard deviation and 2 × 2 ANCOVA at the.05 significance level via EAT. Results showed that students in the SRL group exhibited significant improvement in Economics achievement, but only low achieving students. No significant difference found from the mean achievement scores of male and female students who were taught with SRL strategy (both received similar benefits). The study also recommended that teachers be trained to promote self-regulate learning among in-school adolescents and enhance the skill sets needed to implement SRL strategies irrespective of gender for a sustainable development.

Keywords: *Self-regulated learning, academic achievement, Economics, for sustainable development.*

Introduction

Economics is one of the core social science subjects offered at the Senior Secondary School level in Nigeria. The subject equips learners with conceptual, quantitative, and applied knowledge spanning production, distribution, consumption, and rational resource allocation, and is valued both for its examination currency and for the foundation it provides for participation in national economic life. Economics Education is an important tool for achieving sustainable economic development of a nation. For any nation to develop its ability to absorb modern technology and capacity for sustainable growth and development, it must invest heavily in Economics Education. In a progressive society, Economics Education can play a vital role in liberating citizens from vicious cycle of poverty and illiteracy. However, Nigerian economy is facing many crises that could be heard on national news headlines which

include recession, less dependence on oil economy, diversification of economy, low aggregate demand, influx of foreign made goods, awareness on consumption of Nigerian made goods and land border closure (Yusuf, 2022). All these are economics-based issues that affect the daily lives of individuals in the country. To cope with these emerging challenges and improve the standard of living for sustainable development, Economics education has become a matter of great concern nationwide.

Introduction to Economics is: the Senior Secondary level economics is introduced to develop rational thinking in students and option to make the best choices by putting the scarce resources into an optimal use. NERDC (2018) explains that Economics curriculum is designed to furnish graduates with introductory knowledge and skills for analyzing economic problems in the society. Similarly, NERDC (2018) identified that some of the goals are to prepare learners for judicious and efficient management of scarce resources, to foster respect for the dignity of labour and appreciation of economic, cultural and social values and performing specific knowledge aspects needed in Nigeria for solving problems which promote economic demands in developing countries as well as in the world. Furthermore, economics education fosters students' understanding of the principles and forces that affect everyday life, especially as consumers and producers where sustainable development in patterning is pronounced. It also helps students appreciate the relevance of contemporary social issues as well as the interdependence existing between regions and nations. In-NERDC (2018) prescribed approaches such as inquiry, discussion, role-play, simulation; games and drama; field trips; Future wheel; cooperative learning: concept mapping and resource persons to meet these objectives. In-school adolescents, which refers to secondary education ranging from the transitional ages of 12 to 19 y are the target group for AES.

Although research indicates what works in the teaching of Economics, and the national objectives set by the National Council of Educational Research and Training (NCERT) point out certain approaches ideal to support learning, student achievement continues to be worrying. Achievement of students specifically refers to what they are able to accomplish in relation to required levels of academic performance. Britus (2024) described achievement as the hard work of students that can be measured by both quality and quantity of academic productivity, while also pointing out that academic achievement is most visibly captured through standardized test scores, grade point averages, and academic credentials. In this study, students achievement is used to refer to the performance and grades of tests, assignments, and internal and external examinations (this might be according to their interest in Economics.

The Chief Examiners Reports of the West African Examinations Council (WAEC) from 2021 to 2024 gives a reflection of the poor interest and academic achievement in Economics. Data from the West African Examinations Council (WAEC) in Abia state showed that only 55%, 47%,48% and 51% of candidates who took the examinations in2015,2016,2017 and 2024 respectively obtained five credits and above. The Chief Examiners Report (2024) further added that many candidates also performed poorly by incorporating graphs in their analysis and using appropriate economic language. These deficiencies compromised their capacity to deliver relevant points and thus contributed to low scores. Students performed particularly low in some areas such as market structure, price control policy, protective tariff, trade unions, public finance, common market and national income. The reports further identified the inability of students to differentiate between monopoly and monopolistic competition and this wrong turn in understanding key economic concepts like a price taker, price maker, price discrimination, protective tariff as well as monopoly power (WAEC, 2021–2024). The low interest and performance in Economics among the candidates, as indicated by these unsatisfactory outcomes of SSCE examinations show that poor interest and academic achievement in Economics continue to remain serious problems of educational concern.

Poor interest and achievement among secondary School students in Economics has led to the organization of several conferences, workshops (Ene, 2022) Therefore, Dagoli (2019) has suggested the Guided Teaching Method as one of the methods used in teaching some new concepts while Umoh (2021) suggested that games be also used in the classroom to teach vocabulary; and Ene (2022); Kurumeh,(2424) recommended the Cloze Instructional Approach. Even though these are good practices; and they have theoretical value as well, there is evidence in the WAEC Chief Examiners Reports (2021 – 2024) reflect that problem still exists. The problem of difficulties in understanding economic concepts and applying graphs to analysis both locally and internationally has motivated the researcher to examine self regulated learning as a determinant for academic achievement among in-school adolescents for sustainable development in Abia State.

Self-Regulated Learning (SRL) is the skill of regulating and enacting his or her learning through goal setting, planning, progress monitoring when required, self-reflection in the way which requires an extra dose of discipline for successful acquisition of knowledge and honing skills (Mickiko & Barbara, 2018). They are a part of a cycle in which students constantly assess and adjust their approaches to learning. That is self-regulated learning

(SRL), which includes cognitive skills such as planning and monitoring, along with motivational and emotional regulation. It can be used in formal education and other learning environments to create independent and efficient learning. Instead of directly modelling SRL strategies, the tutor uses comments and questions as tools to develop appropriate learning strategy (Michiko & Barbara, 2018). The tutor also uses scaffolding to help learners with strategies in order to complete a particular type of activity (Mickiko & Barbara, 2018). For the purpose of this study, Self-regulated Learning among in-school adolescents means independently responding to their own learning processes of Economics — managing, monitoring and controlling their own behaviour with respect to their Economics coursework.

The key components of self-regulated learning are: goal setting, strategic planning, self-monitoring, self-reflection, motivation and self-efficacy (Mickiko & Barbara, 2018). Goal Setting involves defining Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) learning objectives. Strategic planning involves selecting and organizing appropriate learning materials and strategies to achieve those goals (Buttler, 2016).Self-monitoring is concerned with tracking progress and identifying areas of strength and weakness to adjust strategies. Self-reflection has to do with evaluating the learning process and outcomes to understand what worked and what did not; while motivation and self-efficacy focused on having the internal drive and belief in one's ability to succeed in learning (Tosun & Senocak, 2023). Researchers such as Tosun and Senocak (2023) reported that self-regulated learning was effective in increasing the interest of students with weak scientific backgrounds positively toward Economics.

Academic achievement of students may be affected by the gender topic. Gender refers to the social sex, which are roles and characteristics assigned to male and female socially and sexually by society. Otamba (2023) describes gender as a social trait which distinguishes males and females from each other on the basis of their behaviours, activities and interests. According to the study of Ezeudu and Obi (2023) also mentioned that gender is a factor influencing students career choice as well as subject interest. On a more practical level, gender refers to the attributes, expectations and ascribed roles for men and women within a given society. There has been a considerable debate among scholars regarding the relationship between gender, academic success and interest in certain subjects like Economics. According to Raheem (2022), male students had higher performance than female students in Mathematics, Science and Social Science subjects but the reverse was true for Arts except Yoruba. In similar studies, Nnamani and Oyibe (2016) determined that there was a statistically significant main effect of gender on the mean interest and achievement scores of secondary school students in Social Studies. The fact that researchers are not in consensus on the effect of gender on students' achievement is what motivated the researcher to investigate whether self-regulated learning would close the gap between male and female students' achievement in Economics among Enugu State secondary school adolescents for sustainable development in Abia State.

Purpose of the Study

The purpose of this study was to investigate the effects of self-regulated learning on academic achievement in Economics among in-school adolescents for sustainable development in Abia State. Specifically, the study sought to:

1. Determine the difference in mean scores of in-school adolescents' academic achievement in Economics exposed to self-regulatory learning and control at post-test for sustainable development.
2. Find out the gender difference in the mean scores of in-school adolescents' academic achievement in Economics exposed to self-regulated learning and control at post-test for sustainable development.

Research Questions

The study was guided by the following research questions:

1. To what extent do differences exist in the mean scores of in-school adolescents' academic achievement in Economics exposed to self-regulated learning and control at post-test for sustainable development?
2. To what extent does gender difference exist in the mean scores of in-school adolescents' academic achievement in Economics exposed to self-regulated learning and control at post-test for sustainable development?

Hypotheses

The following hypotheses were formulated to guide the study and were tested at 0.05 level of significance.

HO_1: There is no significant difference in mean scores of in-school adolescents' academic achievement in Economics exposed to self-regulated learning and control at post-test for sustainable development.

HO_2: There is no significant gender difference in the mean scores of in-school adolescents' academic achievement in Economics exposed to self-regulated learning and control at post-test for sustainable development.

Methodology

This study used a 2 × 2 matrix factorial design (non-equivalent pretest-posttest control group design). The study was guided by two research questions and two null hypotheses. The sample consisted of 8 males and 8 females drawn from four intact classes in four co-educational secondary schools selected via a multistage sampling technique from two Education Zones in Abia State. The subjects were 1,114 in-school adolescents drawn from a senior secondary school class II (SS2) population of males (n=487), females (n=627) diagnosed as weak students with low interest and achievement levels in Economics during the academic session running from September 2025–June 2026, confirmed by assessments of their teachers from the State Secondary Education Management Board (2025). The study used one treatment experimental group effects (the treatment is Self-Regulated Learning (SRL) strategy) and one control group effect by the gender dependent as a moderator variable. Assigned schools to each of the treatment and control conditions The researcher designed Economics Achievement Test (EAT) which was verified by three experts in Economics, Psychology and Measurement and Evaluation from Michael Okpara University of Agriculture, Umudike. To assess the dependability of EAT, the reliability coefficient value was determined by Kuder-Richardson (KR 20), equal to 0.79. The intervention was 6 weeks long, with 2 per week sessions. Responses to the EAT administered by normal Economics instructors who acted as "research assistants" were analyzed employing mean scores, standard deviation, and 2 × 2 Analysis of Covariance (ANCOVA) at the level.05 statistical tests.

Results

The results from the data analysis are presented in the tables below:

Research Question 1

To what extent do differences exist in the mean scores of in-school adolescents' academic achievement in Economics exposed to self-regulated learning and control at post-test for sustainable development?

Table 1: Pretest-Posttest Mean Economics Achievement Scores and Standard Deviation of In-School Adolescents in Economics Exposed to Self-Regulated Learning Strategy and Control at Post-Test

Groups	Source	Pre-Test	Post Test	Mean gain	Mean gain diff.
Experimental group (SRL)	Mean N Std. Deviation	44.00 8 26.00	76.00 8 36.00	32.00	 28.00
Control group (LTM)	Mean N Std. Deviation	40.00 8 27.00	44.00 8 35.00	4.00	

Table 1 contains data on the Economics achievement mean scores at post-test for sustainable development of in-school adolescents in both experimental and comparison groups who were exposed to either the self-regulated learning strategy or traditional lecture method. The findings showed that students in the experimental group had a mean pretest score of 44.00 (SD = 26.00) on the Economics Achievement Test, which increased to a post-test mean score of 76.00 (SD = 36.00), from which it was derived a pre-test-post-test (mean gain):32.00. On the other hand, control group which taught by lecture method had mean score of pretests 40.00 and standard deviation 27.00 and post-test mean score 44.00 with standard deviation 35.00 and gained mean score was 4.00 (Mild). Therefore, an experimental group that used self-regulated learning strategy had a higher mean gain than the control group with a mean gain difference of 28.00. The standard deviations across groups ranged from 26.00 to 36.00, suggesting the subjects' scores were fairly evenly distributed around their respective means, further substantiating the reliability of the reported mean scores.

The research question was further subjected to inferential statistics in hypothesis one

Hypothesis 1: There is no significant difference in mean scores of in-school adolescents' academic achievement in Economics exposed to self-regulated learning and control at post-test for sustainable development.

Table 2: Summary of the 2-Way Analysis of Covariance of Participants on Mean Economics Achievement Scores of In-School Adolescents in Economics Exposed to Self-Regulated Learning Strategy and Control at Post-Test

Source	Type III sum of squares	Df	Mean square	F	Sig
Corrected model	1250.211[a]	2	625.106	9.729	.000
Intercept	936.737	1	936.737	14.579	.000

Pre-Achiev. Treatment	34.659 634.952	1 1	34.659 634.952	.539 9.882	.174 .000
Error Total Corrected Total	771.039 12027.598 12026.250	12 16 15	64.253		

a R squared =812 (Adjusted R square = .807)

The data in Table 2 indicated that self-regulated learning strategy as a factor in the study had a significant effect on the Economics achievement of the participants for sustainable development. This is because the calculated F-value of 9.882 in respect as the treatment as main effect has a probability value of 0.000 and therefore significant at 0.05 level of significance. This implies that exposing in-school adolescents to self-regulated learning strategy during Economics instructions significantly increased their Economics achievement. Therefore, the null hypothesis of no significant difference in mean scores of in-school adolescents' academic achievement in Economics exposed to self-regulated learning and control at post-test was rejected. Thus, there was significant difference in mean scores of in-school adolescents' academic achievement in Economics exposed to self-regulated learning and control at post-test. Consequently, self-regulated strategy was significantly effective in improving the in-school adolescents' academic achievement in Economics for sustainable development.

Research Question 2: To what extent does gender difference exist in the mean scores of in-school adolescents' academic achievement in Economics exposed to self-regulated learning and control at post-test for sustainable development?

Table 3: Pretest/Post-Test Mean Scores and Standard Deviation of the Difference between Economics Achievement Scores of Male and Female In-School Adolescents Based on Exposure to Self-Regulated Learning Strategy

Gender of subjects	Source	Pre-test	Post-test	Mean gain score	Mean gain diff.
Males	Mean N SD	44.00 5 26.00	76.00 5 36.00	32.00	 4.00
Females	Mean N SD	44. 3 26.00	72.00 5 35.00	28.00	

Based on the data in table 3, it was found that male had a pre-test mean score of 44.00 (standard deviation = 26.00) on Economics achievement and a post-test mean score of 76.00 (standard deviation =36.00), moderate with pretest-post-test mean gain of30.00 The pretest mean score of female participants was 44.00 (S = 26.00) and post-test mean score was 72.00 (SD = 35.00), with pretest-post-test mean gain of such learners equal to 28.00 Hence, the male exposed participants recorded a relatively better change in mean gain 4.004 in Economics achievement as compared to their female experimental participants (Table 3). The standard deviations ranged from 26.00 to 36.00, indicating a fair proximity of subjects' scores to their mean values.

The research question was further subjected to inferential statistics in hypothesis two.

Hypothesis 2: There is no significant gender difference in the mean scores of in-school adolescents' academic achievement in Economics exposed to self-regulated learning strategy and control at post-test for sustainable development.

Table 4: Summary of the 2-Way Analysis of Covariance of the Difference between Economics Achievement Scores of Male and Female In-School Adolescents Based on Exposure to Self-Regulated Learning Strategy

Source	Type III sum of squares	Df	Mean square	F	Sig
Corrected model Intercept Pre-Achiev.	1250.211[a] 936.737 14.659	2 1 1	625.106 936.737 14.659	36.496 54.690 .856	.000 .000 .174
Treatment	634.952	1	634.952	37.053	.000

Gender	18.849	1	18.849	1.100	.064
Treatment*Gender	24.916	1	24.916	1.455	.192
Error	85.639	5	17.128		
Total	2965.963	8			
Corrected Total	2964.250	7			

a R squared =812 (Adjusted R square = .807)

As shown in Table 4, the element of gender in the study did not have a significant effect on the Economics accomplishment scores of the participants. This is because the computed F-value of 1.100 in regard of the treatment as main effect has probability value of 0.064 and hence not significant at 0.05 level of significance. Thus, the null hypothesis of no significant difference in the mean scores of in-school adolescents' academic achievement in Economics exposed to self-regulated learning approach and control at post-test for sustainable growth was retained. Therefore, the mean Economics success scores of male and female in-school teenagers were not substantially different based on exposure to self-regulated learning technique.

Discussion of Findings

The results of this study provide valuable insights into the effects of the self-regulated learning on academic achievement in Economics among in-school adolescents.

Self-regulated learning strategy and achievement in Economics.

The conclusion of this study revealed that self-regulated learning technique was significantly effective in boosting the Economics accomplishment of the in-school teenagers in Economics for sustainable development. The outcomes of this study are in consonance with several previous studies such as Agashi (2024) and Ndem and Ubanna (2023) among others. Agashi, P. (2024). Effects of self-regulated learning strategies and concept attainment approaches on achievement and retention of pre-NCE students for Geometry. The researcher concluded that accomplishment was better when self-regulated learning and concept attainment method (CAM) were used than the standard technique. The results of the study support the results of the study of Ndem and Ubanna (2023) who studied the effect of self-regulated learning strategies on students' retention in Physics. The finding unveiled the facilitation of the retention of Physics concepts by self-controlled learning technique. Shihusa and Keraro (2019) investigated the influence of the use of self-regulated learning strategies on students' motivation to learn Biology and found that students who were taught using self-regulated learning strategies had higher levels of motivation compared to those who were taught using traditional teaching methods. The consistent findings of the present study with earlier studies imply that self-regulated learning strategy was effective in improving the Economics achievement of in-school adolescents in Economics for sustainable development, particularly when the participants were actively involved in the teaching-learning process.

Gender and self-regulated learning on achievement in Economics

The findings of this study revealed that there was no significant difference in the mean Economics accomplishment scores of male and female in-school teenagers about exposure to self-regulated learning technique. It means that the therapy of sustainable development was effective for both male and female participants exposed to self-regulated learning technique in the same way and equally. The conclusions of this study are in agreement with the findings of the study by Adigun (2023) on effect of gender on students' interest and academic performance in computer studies in secondary schools in new Bussa, Borgu Local Government of Niger State. The results of the study showed that although the male students had slightly higher interest and better performance than the female students, it was not significant. The findings of this study also concurred with the findings of the study conducted by Daniel (2022) on gender differences on Nigerian junior secondary school students' interest and achievement in Basic Science utilising cooperative learning instructional technique. The results indicated that there was no significant difference between male and female students in their interest and academic achievement at post-test and delayed post-test levels correspondingly. However, the result of this study differs from the study conducted by Raheem (2022) on the influence of gender on secondary schools' students' interest and academic performance in Southwest, Nigeria. The study found that interest and performance of male and female students are better in English language. boys performed better than females in Mathematics, Science and Social Science but girls also performed better than boys in Art except in Yoruba. In the current study, no significant difference was obtained as the participants were subjected to self-regulated learning approach without gender discrimination.

Conclusion

In conclusion, the results of this study highlight the importance of self-direction-informed instructional design, particularly the self-regulated learning strategy in improving the academic achievement in Economics of in-school adolescents for sustainable development in Abia State. The SRL strategy not only enhanced learners' affective engagement with Economics but also produced significantly superior academic achievement outcomes compared with conventional instruction. The study provides robust quasi-experimental evidence that the SRL strategy significantly enhances the academic achievement of both male and female in-school adolescents in Economics among in-school adolescents for sustainable development in Abia State and supports its systematic integration into senior secondary Economics instructional practice in Nigeria.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Economics teachers in public secondary schools in Abia State should adopt the SRL strategy as a standard approach to lesson delivery, structuring instructional sessions around explicit forethought, performance, and self-reflection phases in each Economics lesson.
2. The Abia State Ministry of Education and NERDC should incorporate Zimmerman's SRL principles and SRL instructional training into pre-service and in-service professional development programmes for Economics teachers.
3. Curriculum developers should integrate self-regulated learning guidelines explicitly into the Senior Secondary Economics curriculum and accompanying teachers' guides.
4. School counsellors/psychologists should collaborate with Economics teachers to design guidance sessions that reinforce metacognitive awareness, goal-setting habits, and self-evaluative skills among in-school adolescents from the Junior Secondary level.

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