

**EFFECTS OF RECIPROCAL TO PEER TUTORING STRATEGY ON ECONOMICS
STUDENTS' ACHIEVEMENT IN SECONDARY SCHOOLS IN GINDIRI, MANGU
LOCAL GOVERNMENT AREA**

BENJAMIN GIK JELMAN

Department of Social Science Education, Faculty of Education University of Jos
jelmanben@gmail.com
+2348030441882

TIMOTHY TERNA IKYURAV

Department of Social Science Education, Faculty of Education, University of Jos
ikyuravterna@yahoo.com
+2348063073595

RENGKAT RICHARD YUSUF

Department of Social Science Education, Faculty of Education University of Jos, Nigeria
rengkatrichardyusuf@gmail.com
+2348060302172

Abstract

This study aimed at analysing the effect of reciprocal to-peer tutoring strategy on economics students' achievement in public secondary schools in Gindiri, Mangu Local Government area of Plateau State. three research objectives and three research questions were raised for the study and tested at a 0.05 level of significance. The study adopted a quasi-experimental design specifically, a pretest-posttest non-equivalent control group design. The population of the study consisted of all the 685 Senior Secondary Year Two economics students in the 22 Secondary schools in the area. The sample consisted of 88 students drawn from two co-educational secondary schools out of the 22 co-educational secondary schools in Gindiri, Mangu L.G.A. One of the schools was randomly assigned to the experimental group while the other was assigned to the control group. The Economics Achievement Test (EAT) was the instrument used to collect data for the study. The EAT of 25 items was trial tested on an intact class of 30 students outside the study area. The reliability coefficient of EAT was established to be 0.72 using Kuder Richardson (KR-20) while the reliability coefficient was established to be 0.78 using Cronbach alpha. The EAT was administered to the students as a pretest and posttest for data collection. Mean and standard deviation were used to answer the research questions while the t-test of independent sample was used to test the null hypotheses at 0.05 level of significance. It was found that the mean score of the experimental group was significantly better than that of the control group. It was concluded that reciprocal to-peer tutoring enhanced the academic achievement of students in the experimental group significantly as compared to the control group; hence, the implication of the study is that reciprocal peer tutoring is effective method of instruction for teaching mathematical economics at the secondary level. The study recommended that the use of reciprocal peer-instructional strategies seems to be appropriate in improving the academic achievement and interest of students in senior secondary schools.

Keywords: Achievement, Economics, reciprocal to peer tutoring, Secondary schools

Introduction

Education has been considered an instrument for all nations' economic, political, social, technological, and scientific development (Gongden, 2015). This may account for the huge investments by governments in the education sector and the various educational policies formulated by governments. Economics is a subject, though being abstract and mathematical in nature, tends to achieve objectives such as; equipping students with the basic principles of economics necessary for useful living, preparing and encouraging students to be prudent and effective in the management of scarce resources, to raise students to respect for the dignity of labour, appreciation of economic, cultural, social values of society and to enable students to acquire knowledge for the practical solution of the economic problems of the society (Adu& Ahmed, 2009).

The term peer tutoring is used for various tutoring activities but mostly refers to the students who usually study or learn in pairs to help each other. Peer-tutoring is described by Okoye (2016) as an instructional strategy in which students in their groups, under the guidance of a teacher, work together through a given instructional assignment with brilliant students as a peer tutor, providing assistance and instruction to others. On their part, Okechukwu, Uyin&Nonye (2019) held that peer-tutoring is an instructional strategy whereby students are taught by their peers who had been trained or given orientation by their class teacher.

The class teacher acts as an advocate, collaborator, facilitator and mentor. He/she organizes, monitors and supervises peer tutoring sessions and helps to manage the problems associated with timing, meeting place, punishments and other technicalities. Parvenu, Syed & Nazir (2013) defined academic achievement as the knowledge attained and skills developed in school subjects. According to Ejesi (2014), academic achievement is the outcome of education – the extent to which a student, teacher or institution has attained their educational goals. Hanushek, Rivkin & Kain (2015) defined achievement as the level of attainment of a person in an examination, that is, how an individual can demonstrate his or her abilities in an examination.

Despite all the efforts of the Federal Government of Nigeria, there still exist some reports of poor academic performance among secondary school students in public examinations in sciences (Gongden, 2015). According to West African Examinations Council (WAEC) Examiners Report for Plateau State in economics (2018-2021), for the past four years the failure rate of students cut across all school type (public and private). In theoretical aspect of economics performance drop from 72 percent in 2020 to 68 percent in 2021 while in practical economics there was decline from 62 percent to 55 percent respectively. In overall in performance in economics in plateau state, 60 percent failure was recorded in practical areas of economics such as graphical illustrations, quantitative expositions. The poor achievement of students in economics at SSCE has been attributed to several factors ranging from the poor attitude of teachers and learners towards the teaching and learning of economics, the broad economics curriculum, poor teaching methods used by economics teachers, inadequate instructional material, mathematical deficiencies in students and teachers amongst several other factors (WAEC Chief Examiner, 2021). In the past, several attempts have been made at solving these problems but such efforts have focused more on ways of improving the popular conventional methods of teaching economics. Little or no attention has been given to the use of innovative teaching methods such as the use of reciprocal-to-peer instructional strategy in economics.

Statement of the Problem

The guiding concept of the Economics curriculum is the need to equip graduates of the senior secondary school with the basic knowledge and skills that will enable them to appreciate the nature of economic problems in any society. This study is an eye-opener to the unsatisfactory performance of Economics students in external examinations, according to West African Examinations Council (WAEC) Examiners Report on students' performance in economics in Plateau State in both public

and private schools (2018-2021). From 2018-2021 the failure rate of students cut across all school type (public and private). In theoretical aspect of economics performance dropped from 70 percent in 2020 to 68 percent in 2021 while in practical economics, there was decline from 62 percent to 55 percent respectively. In overall in performance in economics in plateau state, 60 percent failure was recorded in practical areas of economics such as graphical illustrations, quantitative expositions. Hence, it was of interest to see if peer tutoring could be adopted as an alternative teaching and learning approach to the conventional method to aid students' understanding of economics as well as help learners fulfil untapped hidden potentials this is why the study examine the effects of reciprocal to-peer tutoring strategies on economics students' academic achievement in Gindiri, Mangu LGA, Plateau State.

Aim and Objectives of the Study

The aim of this study is to examine the effects of reciprocal to peer-tutoring instructional strategies on Economics students' academic achievement in secondary schools in Gindiri, Mangu LGA, Plateau State. The specific objectives are to:

- 1 Find out the pretest mean achievement scores of students taught economics using reciprocal to peer tutoring strategy and those taught directly by teachers in economics achievement test.
- 2 Find out the posttest mean achievement scores of students taught economics using reciprocal peer tutoring strategy and those taught directly by teachers.
- 3 Examine the extent to which male and female students differ in their mean achievement scores in economics using a reciprocal peer tutoring strategy.

Research Questions

The following research questions were raised to guide the study:

1. What are the pretest mean achievement scores of students taught economics using reciprocal peer tutoring strategy and those taught directly by teachers in economics achievement test (EAT)?
2. What are the posttest mean achievement scores of students taught economics using reciprocal peer tutoring strategy and those taught directly by teachers?
3. To what extent do male and female students differ in their mean achievement scores in an EAT when taught using RPT?

Hypotheses

1. There is no significant difference between the pretest mean achievement scores of students taught economics using peer-to-peer tutoring strategy and those taught directly by teachers
2. There is no significant difference between the posttest mean achievement scores of students taught mathematical economics using reciprocal-to-peer tutoring strategy and those taught directly by teachers
3. There is no significant difference between the posttest mean achievement scores of male and female students taught mathematical economics using reciprocal peer tutoring strategy

Literature Review

Reciprocal peer instruction or tutoring can be defined as a method in which students are actively involved in the education process by discussing within a peer group and helping each other within the group (Crouch & Mazur, 2001; Nicol & Boyle, 2003). Reciprocal to-peer instruction is fast, fun, and supportive. Hartman (2010) conducted an evaluation study and reported that peer tutoring increased students' motivation to learn. This result is supported by Whitman (2012) & Annis (2013) who argue that peer tutoring can be the most intellectually rewarding experience of a student's career. They found peer tutoring helped students perform better on higher-order conceptual

understanding scales than students who read the material simply for study purposes.

Peer tutoring has a very positive impact on the learning of students. In this type of tutoring the students are usually less hesitant to ask questions from their tutors. They don't feel as uncomfortable with a peer as they might feel with a teacher. This helps learners that they feel the tutor is on the same level and if he can do it, they can also do it. So peer tutoring is very beneficial for learning purposes. Nowadays the importance of peer learning is increasing and it has become part of many courses in a wide range of contexts and disciplines in many countries of the world. (Boud cited in Najabat 2015). AbdulRaheem, Yusuf & Odutayo (2017) this study examined the effect of peer tutoring and the moderating effect of gender on the academic performance of economics students in Ilorin-South Local Government of Kwara State, Nigeria. Peer tutoring has generated a great deal of scholarly interest in the field of education. It is viewed as an essential instructional strategy for inclusive education because it constitutes one of the strongholds of cooperative learning. According to Freeman (2014), "students in classes with the traditional methods have 1.5 times higher chances of failing than students in active teaching method"

According to Akay (2011), in the model of peer instruction, students learn and teach themselves while their friends in a similar social group help them to learn. For this reason, it is thought that the information learned can leave more permanent marks on the students and give students the power to comment. Peer instruction can be defined as a method in which students are actively involved in the education process by discussing within a peer group and helping each other within the group (Crouch & Mazur, 2001; Nicol & Boyle, 2003). Peer instruction is fast, fun, and supportive. Therefore, it has a positive effect on the success of students. Students reach information by doing and living. Since knowledge and skills are students' work, they also positively affect permanence. Peer tutoring plays an important role in improving the academic achievement of secondary school students in economics, from the literature review most of the study were carried out in other locations. Some of the study methodology are deficient in applying the relevant instrument for data collection and analysis. Hence, this study intends to fill the gap of location and instruments used for data analysis. This research intended to fill the gaps found from reviewed literatures. From literatures reviewed in this study, none of the study was carried out in the study area. So the need to fill this gap. There some gaps found in the reviewed studies that vary with the present study that the researcher intends to fill, such gaps include research design used, population of the study, sampling technique used and method of data analysis.

Methodology

The design of this study was a quasi-experimental pre-test-posttest non-equivalent control group design. The reason for the adoption of this design is hinged on the fact that intact classes will be assigned to experimental and control groups respectively. The choice of this design was based on the fact that the study was to find out the effect of peer-group tutoring method on students' academic performance which requires having an experimental group which were exposed to treatment and a control group which received placebo treatment. A sample of 88 Senior Secondary School SSII students was drawn from a population of the 685 Senior Secondary School Two (SSII) students in a co-educational public secondary school in Gindiri, Mangu LGA that offered Economics. This consisted of 45 students for the control group and 43 students for the experimental group.

A purposive sampling technique was used to select two equivalent co-educational secondary schools that are distantly located from one another within the Gindiri, Mangu local government area of Plateau State which are considered intact class settings. The instrument for data collection was developed by the Researcher and titled: the Economics Achievement Test (EAT) which was drawn from content areas of mathematical economics (measures of central tendency). The EAT is a 25-item multiple-choice test developed by the researcher. The 25-item multiple choice tests were based on mathematical economics which were the concepts taught to the students in this study. The instrument was validated by two lecturers, one in the Department of Social Science Education, and the other in

educational Foundations, all at the University Jos. The reliability coefficient of the instrument using Kuder Richardson Formular (KR-20) yielded a reliability index of 0.72. KR-20 was used because the items vary in their strength of difficulty.

The students in the experimental group (reciprocal peer tutoring) were not taught but were given the instructional packages (developed by the researcher) one by one to read and study individually at home, in the class or during the lesson period. The teacher guided them individually to attain mastery. Those in the control groups were taught by the researcher using the conventional method. There was no grouping of students like tutors and tutees for the learning process. No problem-solving technique was used; this group was only limited to the old or traditional method of study. Here, it was also observed that students were facing problems in their concept clarity as well as content knowledge. Mean and standard deviation were used to answer the research questions while the null hypotheses were tested using the t-test.

Results

Research Question One

What are the pretest mean achievement scores of students taught mathematical economics using peer-to-peer tutoring strategy and those taught directly by teachers in economics achievement test (EAT)? The pretest and posttest data obtained were analyzed using mean and standard deviation statistics in Table 1.

Table 1

Pretest mean achievement scores of students in control and experimental classes

	N	Mean	SD	MeanDiff
Pretest Control	43	5.41	1.99	0.19
Pretest expt	45	5.60	1.89	

Data in Table 1 shows that the pretest mean scores of students taught directly by chemistry teachers (the control) was 5.41 while that of the students taught using RPT (experimental) was 5.60. The mean difference was 0.19 which is negligible. The mean and standard deviation for the pretest control is 5.41 ± 1.99 while the mean and standard deviation for the pretest experimental group is 5.60 ± 1.89 .

Research Question Two

What are the posttest mean achievement scores of students taught in economics using peer-to-peer tutoring strategy and those taught directly by teachers? The post-test data obtained were analyzed using mean and standard deviation statistics shown in Table 2

Table 2

Posttest mean achievement scores of students in control and experimental classes

	N	Mean	SD	meanDiff
Pretest Control	43	14.80	3.86	2.24
Pretest expt	45	17.04	3.43	

Data in Table 2 shows the result of the analysis of the posttest mean achievement scores of students in the control class and those taught economics using RPT. The posttest mean achievement score of students taught directly by teachers was found to be 14.80 while that of the experimental class was 17.04. The mean and standard deviation for the posttest control is 14.80 ± 3.86 while the mean and standard deviation for the posttest experimental group is 17.04 ± 3.43 . The mean difference was 2.24.

Research Question Three

To what extent do male and female students differ in their mean achievement scores in an EAT when taught using RPT? The data obtained were analyzed using mean and standard deviation statistics as shown in Table 3.

Table 3
Posttest mean achievement scores of male and female students in the experimental classes

	N	Mean	SD	MeanDiff
Posttest Male Expt	24	17.25	3.56	0.45
Posttest Female Expt	21	16.80	3.34	

Data in Table 3 indicates that the mean difference between the male and female students in the experimental group is 0.45. The standard deviation for the male experimental group is 17.25 ± 3.56 while the mean and standard deviation for the posttest experimental group is 16.80 ± 3.34 .

Hypothesis One

There is no significant difference between the pretest mean achievement scores of students taught economics using peer-to-peer tutoring strategy and those taught directly by teachers.

Table 4
T-test result of Pretest mean achievement scores of students in control and experimental classes

	N	Mean	SD	DF	t	Pvalue	Decision
Pretest Control	43	5.41	1.99	84	-0.49	0.65	Not significant
Pretest Expt.	45	5.60	1.89				

Data in Table 4 shows that the pretest mean score of students taught directly by economics teachers (the control) was 5.41 while that of the students taught using PPT (experimental) was 5.60. The mean and standard deviation for the pretest control is 5.41 ± 1.99 while the mean and standard deviation for the pretest experimental group is 5.60 ± 1.89 . The p-value is 0.65 (>0.05). The null hypothesis failed to be accepted. Therefore, there is no significant difference between the pretest mean achievement scores of students taught chemical kinetics using PPT and those taught directly by teachers.

Hypothesis Two

There is no significant difference between the posttest mean achievement scores of students taught mathematical economics using reciprocal-to-peer tutoring strategy and those taught directly by teachers

Table 5**T-test result of Posttest mean achievement scores of students in control and experimental classes**

	N	Mean	SD	DF	t	Pvalue	Decision
Posttest Control	43	14.80	3.86	87	-4.21	0.00	significant
Posttest Expt.	45	17.04	3.43				

Data in Table 5 shows the result of the analysis of the posttest mean achievement scores of students in the control class and those taught chemical kinetics using RPT. The posttest mean achievement score of students taught directly by teachers was found to be 14.80 while that of the experimental class was 17.04. The mean and standard deviation for the posttest control is 14.80 ± 3.86 while the mean and standard deviation for the posttest experimental group is 17.04 ± 3.43 . The p-value is 0.00 (< 0.05). The null hypothesis was rejected. Therefore, there is a significant difference between the posttest mean achievement scores of students taught economics using PPT and those taught directly by teachers.

Hypothesis Three

There is no significant difference between the posttest mean achievement scores of male and female students taught mathematical economics using reciprocal peer tutoring strategy.

Table 6**T-test result of post-test mean achievement scores of male and female students in the experimental classes**

		N	Mean	SD	DF	T	Pvalue	Decision
Posttest	Male	24	17.25	3.56	43	-0.747	0.464	Not significant
Expt								
Posttest	female	21	16.80	3.34				
Expt.								

Data in Table 6 indicates the standard deviation for the male experimental group is 17.25 ± 3.56 while the mean and standard deviation for the posttest experimental group is 16.80 ± 3.34 . The p-value is 0.464. There is no significant difference ($P > 0.05$) between the posttest mean achievement scores of male and female students in the experimental group.

Discussion of Findings

Research question one which sought to find out What are the pretest mean achievement scores of students taught economics using reciprocal peer tutoring strategy and those taught directly by teachers in economics achievement test (EAT). The study revealed that there is a significant difference between the posttest mean achievement scores of students taught mathematical economics using Reciprocal Peer Tutoring (RPT) and those taught directly by teachers. The students taught using RPT outperformed those in the control class – showing the effectiveness of RPT. The effectiveness of RPT in teaching and learning has been established by several researchers such as Yusuf, and Odutayo (2017). They all reported a significant improvement in the achievement of students in mathematics and economics respectively in classes where students were exposed to RPT. The students exposed to the peer tutoring strategy performed better than students exposed to conventional teaching. There is a significant difference between the achievements of students

exposed to reciprocal peer tutoring and those exposed to conventional teaching and the students exposed to peer tutoring had significantly higher achievement than those in conventional teaching. Miravet, Ciges, and García (2014) found that the academic benefit of RPT is different for the two groups of students, and the extent of effect depends on the degree of feedback and support given.

Research question two which sought to find the posttest mean achievement scores of students taught economics using reciprocal peer tutoring strategy and those taught directly by teachers. The study revealed that peer tutoring in enhancing academic achievement declines with increasing school levels. It was also reported that peer tutoring has stronger effects on social and psychological effects than academic gains (Bowman-Perrott, Greenwood, & Tapia, 2014). Despite all the inconsistent variations as to the degree of effectiveness of peer tutoring, researchers in the area acknowledged that it has more positive effects on all students at all levels of education in bolstering students' academic achievement, and psychological, and social learning. Therefore, the use of reciprocal to-peer tutoring instructional strategy has a significant effect on students' achievement in economics and it is an effective technique for increasing students' academic achievement and retention of mathematical economics.

Research question three which sought to find out the extent do male and female students differ in their mean achievement scores in an EAT when taught using RPT. The study revealed that there is no significant difference between the posttest mean achievement scores of male and female students taught using reciprocal peer tutoring strategy. The same result was obtained for the retention test. This finding agrees with that of Abdulraheem, Yusuf, and Odutayo (2017) who established that peer tutoring had no gender bias concerning improving students' academic performance in economics. Tella (2013), after finding it more effective than explicating teaching independent of gender differences, recommended the use of peer tutoring as an interchangeable classroom methodology. Reciprocal to Peer tutoring did not favour males over females or vice-versa, and improvement in the performance of students exposed to reciprocal to peer tutoring cannot be traced to gender.

Conclusion

Based on the findings of the study, the following conclusions were made. This study has established that the reciprocal peer tutoring strategy enhanced the achievement of students in economics more than the conventional teaching strategy. It is an effective instructional strategy that can be used to improve both male and female students' achievement and retention in economics at the senior secondary school level in Nigerian schools. Reciprocal peer tutoring may be incorporated along with other teaching methodologies for the subject of economics and it may be given due consideration in all teacher education practices in the country. The implication of the study is that reciprocal peer tutoring help to enhance the achievement of students in economics.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. The use of reciprocal peer-instructional strategies seems to be appropriate in improving the academic achievement and interest of students in senior secondary schools. It should, therefore, be incorporated into the mainstream of pedagogy in the teaching of Economics and other social science subject at senior secondary schools by government and education stakeholders.
2. Government should encourage teachers to use the strategy in addition to other student-centered strategies in the classroom.
3. Workshops, seminars and conferences on the use of reciprocal peer tutoring and other innovative strategies should be organized by government and other educational stakeholders for economics teachers.

References

- Abdulraheem, Y., Yusuf, H. T., & Odutayo, A. O. (2017). Effect of Peer Tutoring on students' academic performance in economics in Ilorin South, Nigeria. *Journal of Peer Learning*, 10, 95-102
- Adu, E.O & Ahmed, A.O (2009). *General economics*. Ibadan; Johnson Commercial Press.
- Annis, L. F. (2013). The processes and effects of peer tutoring. *Human Learning Journal*, 10(1), 39-47.
- Akay, G. Ü. L. E. R. (2011). *The effect of peer instruction method on the 8th grade students' mathematics achievement in transformation geometry and attitudes towards mathematics* (Unpublished master thesis, METU, Ankara).
- Bowman-Perrott, L. J., Burke, M. D., Zhang, N., & Zaini S. (2014). Direct and collateral effects of peer tutoring on social and behavioural outcomes: a meta-analysis of single-case research. *School Psychology Review Journal*, 43(3), 260-285.
- Campit, J. B., and Cayabyab, J. (2015). The effect of peer tutoring on achievement of students indiscrete structures. *Asia Pacific Journal of Multidisciplinary Research*, 3(5), 8 – 12.
- Crouch, C. H., & Mazur, E. (2001). Peer instruction: Ten years of experience and results. *American Journal of Physics*, 69(9), 970-977.
- Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences*, 11(23), 410-415.
- Gongden, (2015). *Comparative effects of two metacognitive instructional strategies on gender problem-solving abilities in selected chemistry concepts*. Unpublished Ph.D Thesis, A.T.B.U Bauchi, Nigeria.
- Okoye, P.O. (2016). Influence of gender and cognitive styles on students' achievement in biology. *International Journal of Science and Technology*, 5(1), 59-65.
- Okechukwu, Uyin & Nonye (2019). Effect of peer tutoring on the achievement of students in business studies in public junior secondary schools in Gassol education zone of Taraba State. *Middle-East Journal of Scientific Research*, 27 (3), 188-196.
- Parvenu, A., Syed, N., Syed, K. N. & Nazir, S.K. (2013). Comparative study of the academic achievement of the 10th class boys and girls studying in different high schools of District Pulwama of (J & K). *Journal of Education Research and Behavioural Science*, 2(2), 20-27.
- Tella, A. (2013). The Effect of Peer Tutoring and Explicit Instructional Strategies on Primary School Pupils Learning Outcomes in Mathematics. *Bulgarian Journal of Science and Education Policy*, 7(1), 5-25
- Hanushek, E. A., Rivkin, S. G. & Kain (2015). Teachers, schools, and academic Achievement. *Journal of Econometrica*, 73(2), 417-458.
- Jibrin, A. G. & Zayum, S. D. (2012). Effects of Peer Tutoring Instructional Method on the Academic Achievement in Biology among Secondary School Students in Zaria Metropolis, Nigeria. *Journal of Research in Education and Society*, 3(2), 14 – 18
- Miravet, Ciges, and García (2014) An experience of reciprocal peer tutoring at the university. *Procedia - Social and Behavioral Sciences*, 11(6), 280-289.
- Najabat A, Muhammad A, & Jaffar, A. (2015). Impact of Peer Tutoring on Learning of Students. *Journal for Studies in Management and Planning*, 1(2), 61-66
- Nicol, D. J., & Boyle, J. T. (2003). Peer instruction versus class-wide discussion in large classes: A comparison of two interaction methods in the wired classroom. *Studies in higher education*, 28(4), 457-473.
- Hartman, G. (2010). Peer learning and support in audio-teleconference in continuing education for nurses. *Distance learning Education journal*, 11(2), 308-319.
- WAEC Chief Examiner, (2021). *Chief Examiner's reports for May/June WASSCE*. Lagos: Retrieved on 23th August, 2023 from [http:// www: waecnigeria.org. history.htm](http://www.waecnigeria.org.history.htm)
- Whitman, N. A. (2012). *Peer teaching: To teach is to learn twice*. Washington, DC; ERIC Clearinghouse on Higher Education.