PEER-ASSISTED LEARNING STRATEGY: A PANACEA FOR BETTER ACADEMIC PERFORMANCE OF BUSINESS EDUCATION STUDENTS IN SHORTHAND IN COLLEGES OF EDUCATION

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ABSTRACT

This study examined peer-assisted learning strategy as a panacea for better academic performance of business education students in shorthand.   Four research questions were raised; and four hypotheses formulated and tested at 0.05 level of significance. Quasi-experimental research design was adopted for the study. The experiment was carried out on two intact classes of two hundred and ninety (290) and seventy-four (74) students of 200 Level Business Education in two public-owned colleges of education in Ogun State, Nigeria, who were respectively assigned to experimental and control groups purposively for the study. The peer tutors taught the experimental class while the regular Shorthand teacher taught the control group with the conventional method. The instrument of data collection was Shorthand Practical Performance Test (SPPT). Test-retest method of reliability was employed to determine the stability over time for the instrument, which Pearson Product Moment Correlation (PPMC) result yielded 0.85 coefficient. The data collected were analysed using mean and standard deviation to answer the research questions. Null hypotheses were tested using analyses of covariance for both pre-test and post-test scores at 0.05 level of significance. The study revealed that there was a significant effect of treatment (Peer-Assisted Learning Strategy – PALS) on students' academic performance in Shorthand. The study concluded, based on its findings, that PALS enhances the level of academic achievement in Shorthand than the conventional method of instruction, and therefore, recommended among others that PALS should be considered for use by Business Educations lecturers in the teaching and learning of Shorthand.

KEYWORDS: Academic Performance, Business Education, Colleges of Education, Peer-Assisted Learning Strategy, Shorthand.

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INTRODUCTION

Background of the Study
The term peer tutoring is used for various tutoring activities but mostly it is referred to as a process where the students usually study or learn in pairs in order to help each other. Peer tutoring is an instructional strategy that consists of pairing students to learn or practice an academic task. It is a form of collaborative or community action and has probably taken place implicitly or vicariously (Topping, 2005), but on a changing higher education landscape, more formalized and even assessed form of learning, is becoming more and more popular. Peer tutoring usually leads to better understanding of academic concepts but it is more fruitful when students having different ability levels work with each other (Kunsch, Jitendra, & Sood, 2007). Peer tutoring offers encouragement to students to do their best which may help to improve grades and may also increase the self-esteem of students who may not be doing well in academics. Three most common types of peer tutoring that have been identified include: Cross-Age Peer Tutoring (CAPT), Reciprocal Peer Tutoring (RPT) and Peer-Assisted Learning Strategies (PALS). However, of all these types of peer tutoring, this study focuses on PALS.

Peer-Assisted Learning Strategies (PALS) is a structured technique in which students work together in small groups (two, three, four, or five, or class wide, peer tutoring or the whole class) towards a common goal. PALS is a personalized system of instruction which is student-centered rather than teacher-centered. It emphasizes clear goals, active student participation in the learning process, feedback and evaluation, and individual pacing (Kolawole, 2014). Students work together to learn and are responsible for one another's learning as well as their own. In this approach, a student (tutor) trains another learner in skills and subject matter that the tutor has mastered. The tutor provides individualized instructions to other students for skill remediation or supplemental instruction. PALS gives teachers tangible strategies to implement in their classroom, which assist them in meeting the needs of their diverse learners. Students are taught to develop their skills through specific techniques. They are encouraged to review and ask questions during tutoring sessions based on the teacher's instruction. Students generate questions and draw conclusions through reciprocal interaction. The reinforcement they receive while working in groups motivates learning. These sessions create a classroom where student pairs can work on different levels and on different types of problems or at varying reading levels. Teachers, inclusive of Business Education, can meet the individual needs of students while keeping the entire class engaged.

Business education provides one of the best opportunities for formal employment and self-employment in Nigeria as well as in other parts of the world. Business education as an educational programme is offered at all levels of our tertiary institutions and one of its core subjects is Shorthand. Shorthand is one of the practical skills of business education programme that prepares students for entry and advancement in the job market within business space and to handle their business affairs as entrepreneurs. Shorthand is a skill-based subject. It is the art of representing spoken sounds by written signs, and at varying speeds. The art of writing shorthand is more than just mere mechanical movement of the hand while responding to

variety of sounds through the ear, a reflex action which is achieved after sufficient practice.   Proficiency in shorthand skills could be used in business offices, courtrooms, government offices, plenary sessions in the houses of parliament, committee meetings, classrooms and other places where it is desirable to have a record of the spoken words. The advent of new technologies has not consigned shorthand into the dustbin. The demand for proficient shorthand writers has remained unabated. This is because the proficient shorthand writer is a utility player in offices.

Regrettably, Business Education graduates produced from tertiary institutions in Nigeria seem not to be having the desired proficiency in shorthand that will help them perform well in the world of work.   Students generally dread shorthand and this has accounted for poor performance of students in the subject. Many reasons have been attributed to this poor performance of students in shorthand. Some of the reasons advanced by researchers include teachers' qualification, English Language deficiency, lack of interest of students in shorthand because of the many principles involved in the teaching and learning, the teaching method adopted by the teachers, teachers' attitude towards the students, and lack of indigenous textbooks, among others. Thus, it is established that the teaching method adopted by shorthand teachers has great influence on the academic performance of student involved (Owolabani, 2018).

The conventional method which is used for teaching of shorthand, a combination of lecture, demonstration and discussion methods, leans heavily on lecture method. Observations have shown that students taught with methods based on the behavioural theories, such as lecture method, do not sufficiently retain their learning and apply it to new situations. The lecture method employed by educators seems inadequate for equipping students studying shorthand with the skills, knowledge and attitude needed in the subject. A closer look at students' performance in shorthand in business education courses in some colleges of education in Nigeria are low in relation to what they ought to be. Common observations on results obtained from Business Education Departments in public colleges of education in Ogun State over the past four (2016-2020 years showed seemingly low performances in Shorthand.   Incidentally, Adeola (2011) attributed the perennial low performance of students in shorthand to inadequate knowledge of the subject matter by teachers and poor instructional techniques.

Studies have identified the teaching problem principally on the teachers' strategy of teaching as the major factor contributing to poor academic performance (Oke & Olakotan, 2019). The teaching method adopted by shorthand teachers has great influence on the academic performance of the students. The conventional method of teaching adopted by shorthand teachers is an old method of imparting knowledge to students. The lecture method is a teaching method which involves one way channel of communication. The teacher makes an oral presentation of information to which students' role may be relatively passive. The students are not put into the learning situation from where they may make contributions in the learning process to the extent that they would critically think about the solution or solve a problem. In addition, lecture method enables the teacher to supply information to learners. It does not usually allow ample opportunity for the students to participate in the lesson than to receive information being passed across by their teacher. It

hinges on the fact that the teacher is an embodiment of knowledge and it is the responsibility of the teacher to pass on or disseminate the knowledge to the learners who are supposedly ignorant and blank. Lecture method, according to Oke and Olakotan (2019) does not foster critical thinking, creative thinking and problem solving. Even though it allows great deal of information to be passed to the learner, it does not stimulate students' innovative, inquiry and scientific attitudes. It merely encourages students to memorize facts which are easily forgotten and could lead to poor interest, retention and low academic achievement, especially in shorthand.

The explosion of population and knowledge has raised the serious question of both quantity and quality in education. Educationists are of the opinion that educational problems relating to the quantity and quality could be tackled by applying students' centered strategy to instruction (Shodehinde, 2013). Research findings at various times (Lemo & Olakotan, 2016) have put forward the need for adopting teaching/learning strategies which would bring about interaction among the students and improvement on students' relationship with one another in the classroom situation. Several teaching strategies have been documented as being efficacious for teaching and learning, increasing achievement not only in general education, but more so in vocational and technical education. While many teachers are aware that different teaching strategies exist, some of them opt to utilize the lecture method in implementing the curriculum in colleges of education, hoping that they would cover the instructional content. This situation is in contrast with modern teaching which requires less talk on the part of the teacher and more activities on the part of the students. Interestingly, Steinhoff (2007) advocated that peer tutoring can greatly enhance the learning experience of both the student tutors and learners.

Academic performance, according to Fakorede (2010), refers to knowledge and skills attained by a student in school subjects, designated by a score obtained in a test. Accordingly, a test is an instrument administered to an individual to elicit certain desired and expected responses, as demanded in the instrument, performance of which the individual is assigned a score representing the individual's achievement. Fakorede noted that academic performance is always denoted by a score, which represents the amount of learning acquired, knowledge gained or skills and competencies developed in the school subject. The aggregate of the final computation will show the level of competence a student has attained which can be used to measure the student's ability whether it is high or low. A student whose academic achievement is high or impressive in a particular subject (in this case Shorthand) is rightly assumed to be of high level ability. Performance of students in the context of this study could be defined as the learning outcomes of students in terms of the level of skills, knowledge and ideas necessary for gainful employment in a particular occupation.

College of education refers to one of the three major types of tertiary institutions (in Nigeria) which runs business education programme that leads to the award of Nigeria Certificate in Education (NCE) after a minimum of three years and a maximum of five years as contained in the NCE Minimum Standard stipulated by National Commission for Colleges of Education (2012). Colleges of education prepare

individuals for career in teaching, employment in industries, civil service and business establishments as well as self-employment.

Owing to the foregoing, the researcher decided to seek for innovative method of teaching and learning shorthand which would eventually assist in stimulating the interest of business education teachers and students, reduce the stress of teaching and learning shorthand and also improve the academic performance of students. In a bid to search for effective strategy through which students would be able to convey the goals of social interaction among peers, Peer-Assisted Learning Strategies (PALS) comes to mind. It becomes imperative to examine the effect of peer-assisted learning strategy on business education students' academic performance in shorthand in colleges of education.

Statement of the Problem
It is a matter of common observation that Shorthand has always been the major problem to majority of business education students, of which the students of colleges of education are no exception. Most students perform brilliantly in other subjects in the business education curriculum but fail shorthand.   More so, it has been noted that most students of Business Education deviate from the Course in later levels by way of inter-faculty or inter-departmental transfer. Some, while in Year Three (300 Level) may decide to move to either Distributive/Marketing Option or Accounting Option, while a selected few remain in Office Technology and Management Education option.   Onamade (2006) observed that the rate of relative poor performance of students in Shorthand examinations over a five-year period of 2001-2005 at the colleges of education in the south western Nigeria was a concern. The lamentation of Onamade of the relatively poor performance of students in Shorthand examinations and its appalling effect of low enrolment of students in the subject seems not to have improved still.

 For example, a closer look at the present situation of students' performance in Shorthand in some colleges of education in Nigeria is low in relation to what they need to be. Business Education Departments in colleges of education in Ogun are no exceptions from the poor students' performance in Shorthand. These poor results could probably have been due to the inappropriateness of behavioural learning theories (conventional teaching method) adopted by the teachers, which were adjudged to dominate the modes of passing instruction in most educational institutions. The seeming inadequacy of the teaching method could be considered to be partly responsible for the business education students' poor academic performance in shorthand.

Findings on peer tutoring strategy on students' achievement revealed high problem-solving skills, creative thinking skills, team work, and independent decision-making skills among students (Dagnew & Dagnew, 2020). However, in spite of research findings on the effectiveness of peer tutoring strategy in other subject areas, there seem to be no studies related to shorthand. Hence it becomes necessary to provide information and evidence on the effectiveness of peer-assisted learning strategy on business education students' academic performance in shorthand in Colleges of Education.

Purpose of the Study

The main purpose of this study was to determine the effect of peer-assisted learning strategy on business education students' academic performance in shorthand in colleges of education. Specifically, the study sought to:

1.   assess the difference in the pre-test mean gain scores of business education students taught Shorthand with peer-assisted learning strategy and those taught with conventional method;

2.   assess the difference in the post-test mean gain scores of business education students taught Shorthand with peer-assisted learning strategy and those taught with conventional method;

3.   determine the difference between the pre-test and post-test mean gain scores of business education students taught Shorthand with peer-assisted learning strategy (experimental group);

4.   determine the difference between the pre-test and post-test mean gain scores of business education students taught Shorthand with conventional method (control group);

Research Questions

The following research questions guided the study:

1.   What is the difference in the pre-test mean gain scores of business education students taught Shorthand with peer-assisted learning strategy and those taught with conventional method?

2.   What is the difference in the post-test mean gain scores of business education students taught Shorthand with peer-assisted learning strategy and those taught with conventional method?

3.   What is the difference between the pre-test and post-test mean gain scores of business education students taught Shorthand with peer-assisted learning strategy (experimental group)?

4.   What is the difference between the pre-test and post-test mean gain scores of business education students taught Shorthand with conventional method (control group)?

Hypotheses

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

1.   There is no significant difference in the pre-test mean gain scores of business education students taught Shorthand with peer-assisted learning strategy and those taught with the conventional method.

2.   There is no significant difference in the post-test mean gain scores of business education students taught Shorthand with peer-assisted learning strategy and those taught with the conventional method.

3.   There is no significant difference between the pre-test and post-test mean gain scores of business education students taught Shorthand with peer-assisted learning strategy (the experimental group).

4.   There is no significant difference between the pre-test and post-test mean gain scores of business education students taught Shorthand with the conventional method (control group).

Theoretical Framework

This research is hinged on Johnson and Johnson Social Interdependence Theory (1989). The social interdependence theory was propounded by Johnson and Johnson (1989). This theoretical framework is adopted because it tends to focus on effect of peer-assisted learning strategy on students' academic performance. Social interdependence exists when the accomplishment of each individual's goals is affected by the actions of others. There are two types of social interdependence: positive (cooperation) and negative (competition). Positive interdependence exists when individuals perceive that they can reach their goals if, and only if, the other individuals with whom they are cooperatively linked also reach their goals and, therefore, promote each other's efforts to achieve the goals. Negative interdependence exists when individuals perceive that they can obtain their goals if, and only if, the other individuals with whom they are competitively linked fail to obtain their goals and, therefore, obstruct each other's efforts to achieve the goals. No interdependence results in a situation in which individuals perceive that they can reach their goal regardless of whether other individuals in the situation attain or do not attain their goals.

The basic premise of social interdependence theory is that how participants' goals are structured determines the ways they interact and the interaction pattern determines the outcomes of the situation. Johnson and Johnson modified and extended Deutsch's SIT by identifying and validating five principles that mediate the effectiveness of cooperation and competition. The combination of these principles, argued by Johnson and Johnson, is essential to structure cooperation.

These principles are:

a. Positive interdependence: the perception of team members that they have to work together to accomplish a common goal. Team membership in itself is not sufficient for higher achievement and productivity, positive interdependence is also required. This way, team members perceive that their work is important to the entire group.

b.   Individual accountability: assessing individual performances and holding team members responsible for doing their share in achieving the mutual goal. Individual accountability leads to feelings of responsibility among team members for completing their share of the work and facilitating the work of others in the team.

c. Promotive interactions: face-to-face meetings between team members to encourage and facilitate each other's efforts to accomplish the group goals. Positive interdependence tends to result in promotive interactions between individuals, strengthening caring and committed relationships. Negative interdependence, on the other hand, leads to oppositional or contrient interactions.

d. Appropriate use of social skills: team members need appropriate interpersonal and small-group skills (such as active listening and good questioning) as well as the motivation to use them. Social skills are essential to cope with the stresses and strains of working in a team and are a precondition for promotive interactions to occur.

e. Group processing: team members reflecting upon the group process and making decisions about which actions to continue or change. To continuously improve their work over time, teams need time to discuss how well they are achieving their goals and maintaining effective working relationships among members (Johnson & Johnson, 2005; 2009).
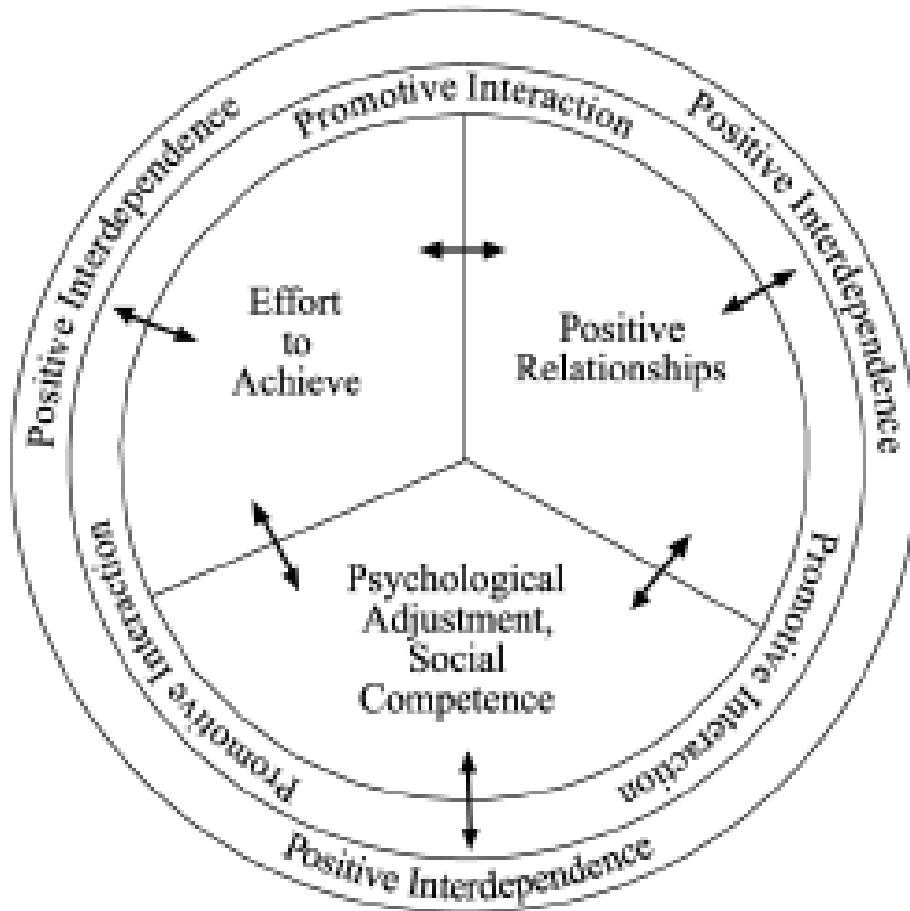
Figure 1: Promotive Interaction Model. *Source: Johnson and Johnson (1989)*

The social interdependence theory is relevant to this study as it reveals that knowledge is not something that is handed down from the teacher to the student, but rather knowledge is constructed through interactions among many variables. This perspective is also featured in peer-assisted learning strategy whereby learners are expected to be actively engaged in learning process in order to give room for robust and meaningful learning to take place. This implies that learners should be provided with the learning resources and freedom to search for knowledge by themselves in order to ensure that meaningful learning takes place. In essence, social interdependence is often associated with pedagogical approaches that promote active learning or learning by doing, and this is also attributed to peer-assisted learning strategy.

METHODOLOGY.

Design of the Study
Quasi-experimental design was used for this study. This design is considered suitable because intact classes non-randomized groups were studied (Gall, Gall & Borg, 2007).

Population of the Study
The population of this study comprised a total of five hundred and seventy-seven (577) NCE 200 level full-time students studying business education in colleges of education (Federal, State and Privately-owned) in Ogun State, Nigeria, during 2020/2021 academic session. There are six (6) colleges of education offering business education in Ogun State: Federal College of Education, Abeokuta, Tai Solarin College of Education, Omu-Ijebu (state-owned), Yewa Central College of Education, Abeokuta, Piaget College of Education, Abeokuta, Royal City College of Education, Ota and Awori District College of Education, Ota. The population distributions is as follows:

Table 1: Population Distribution of 200 Level NCE Students

S/N	Name of School	Number of Students
1.	Federal College of Education, Abeokuta	290
2.	Tai Solarin College of Education, Ijebu-Ode	74
3.	Yewa Central College of Education, Ayetoro	50
4.	Piaget College of Education, Abeokuta	70
5.	Royal City College of Eduation Ota	53
6.	Awori District College of Education, Ota	40
	Total	**577**

Source: *Heads of Departments of respective Institutions (2021)*

Sample and Sampling Technique
This study made use of the entire intact classes of 364 (200 Level) business education students in the two colleges of education. Purposive sampling technique was used to select both the Federal and State Government-owned colleges of education, during the 2020/2021 academic session. The two public institutions so-selected for the study were homogeneous in that they had been granted full accreditation by the National Commission for Colleges of Education (NCCE, 2012) and fulfilled the minimum standards for business education programme as stipulated by the Commission, in the areas of qualifications and availability of personnel, facilities and equipment. In addition it is often the lecturers in these public institutions that are the ones also engaged as adjunct in the private-owned institutions.

Table 2: Assignment to Treatment Groups

Treatment Group	Treatment	Name of School
Experimental Group **(A)**	Taught by Experimental Method (Peer-Assisted Learning Strategy)	Federal College of Educ., Osiele, Odeda Local Govt. Area. 200 Level students of Department of Business Education
Control Group **(B)**	Taught by Conventional Method	Tai Solarin College of Educ., Omu, Odogbolu Local Govt. Area. 200 Level students of Department of Business Education

Source: *Researcher's Fieldwork (2021)*

Research Instrument
The instrument for data collection was Shorthand Practical Performance Test (SPPT). The Shorthand Practical Performance Test (SPPT) consisted of two passages of 60 words per minute (60 wpm) dictated for three minutes each, at the Syllabic Intensity (S.I.) of 1.33. The SPPT was used for both pre-test and post-test. In order to minimize pre-test sensitization, SPPT was not dictated again to the students after pre-test until the post-test. It was properly guarded to prevent using it for revision by the students.

Validity of the Instrument
The research instrument was validated by three experts. The content validation was carried out by checking that the SPPT was in consonance with the topics that were taught for the study and face validation involved checking the items of the instrument for arrangement and logical sequence. The comments and suggestions by each of the validators were incorporated into the final draft of the instrument. This was to ensure that tests and processes arrived at were answers to the questions raised.

Reliability of the Instrument
The test-retest reliability method was employed to ensure the reliability of the instrument. Pearson Product Moment Correlation (PPMC) formula was used to determine the stability over time of the instrument, which yielded 0.85 coefficient.

Methods of Data Collection
The regular shorthand teachers administered the pre-test to their students in the two groups. After the pre-test, treatments were also administered to the subjects. By the end of the six-week intensive teaching,

post-test was administered to both the experimental and control groups. The post-test was administered, supervised, marked and graded by the regular teachers who taught the groups in their respective schools, using the marking guide and grading scale developed by the researcher. The scores of the experimental and control groups in both pre-test and post-test were recorded and compared to check if there was a significant difference in the achievement of the groups.

Methods of Data Analysis

Data collected from the administration of pre-test and post-test were analyzed using mean (x) and standard deviation for the research questions. The decision rule in answering the research questions was based on the mean gain score. If the mean gain score of the experimental group was greater than the mean gain score of the control group, it meant that the treatment had an effect. To determine the significant difference in the effect of the treatment, the test of the hypotheses sufficed. The hypotheses formulated for the study were tested at 0.05 level of significance using t-test and ANCOVA. ANCOVA tool was appropriate because it controlled the initial differences across groups and also increased the precision, thus reducing error variance that might be due to the extraneous variables.   For the hypotheses, if the probability value (p), for the group obtained after data analysis was less than or equal to the 0.05 alpha value at which it was being tested, the null hypothesis was rejected (Owei, 2013), which meant that there was a significant effect of the treatment.

PRESENTATION OF RESULTS

The data collected to answer the research questions were analysed using mean and standard deviation, and testing of hypotheses using t-test and ANCOVA.

Research Question 1: What is the difference in the pre-test mean gain scores of business education students taught Shorthand with peer-assisted learning strategy and those taught with conventional method?

Table 3: Difference in the Pre-Test Mean Scores of the Experimental and Control Groups

Statistics	Experimental	Control
Number of participants (N)	290	74
Mean	**28.91**	28.31
Standard Deviation	10.85	9.12
Mean Difference	**0.60**	

Source: Researcher's Fieldwork, 2021

Results in Table 3 show mean and standard deviation of 28.91 (10.85) for peer-assisted learning strategy (Experimental Group) and 28.31 (9.12) for conventional method (Control Group). At pre-test, the Experimental Group has the higher mean score (28.91>28.31) the mean difference between the groups at pre-test is 0.60.

Hypothesis 1: There is no significant difference between the pre-test mean scores of business education students taught Shorthand with peer-assisted learning strategy and those taught with the conventional method.

Table 4: Independent Sample t-test of Difference in Pre-Test Mean Score for the Experimental and Control Group

Group	N	Mean	Std. Dev.	df	t-value	p-value (Sig. 2-tailed)
Experimental	290	28.91	10.85			
				362	.440	**.660**
Control	74	28.31	9.12			

α = .05, p > 05 Not Significant

Table 4 shows difference in the pre-test mean gain scores of business education students taught Shorthand with peer-assisted learning strategy (Experimental) and those taught with the conventional method (Control). From the table, Experimental Group N=290 with Mean (Standard Deviation) as 28.91(10.85) while the Control Group has mean and standard deviation as 28.31 (9.12). The degree of freedom (df) = 362 and t-value = .440. The t-value is not significant, when the p-value and the alpha level are compared. The p-value is greater than the alpha (.660 > .05, therefore, the null hypothesis is retained. This implies that, there is no statistical evidence that both groups are different in the mean academic performance at pre-test any differences observed in their Mean scores it attributed to chance.

Research Question 2: What is the difference in the post-test mean scores of business education students taught Shorthand with peer-assisted learning strategy and those taught with conventional method?

Table 5: Difference in the Post-Test Mean Scores of the Experimental and Control Groups

Statistics	Experimental	Control
Number of participants (N)	290	74
Mean	**49.93**	28.54
Standard Deviation	8.65	8.45
Mean Difference	**21.39**	

Source*: Researcher's Fieldwork, 2021*

Results in Table 5 show mean and standard deviation of 49.93 (8.65) for peer-assisted learning strategy (Experimental Group) and 28.54 (8.45) for conventional method (Control Group). At post-test the Experimental Group achieved a higher mean score (49.93 >28.54) the mean difference between the groups at pre-test is 21.39.

Hypothesis 2: There is no significant difference in the post-test mean scores of business education students taught Shorthand with peer-assisted learning strategy and those taught with the conventional method.

Table 6: Analysis of Covariance of Post-Test Mean Score in Academic Performance for Experimental and Control Group

Source	Type III Sum of Squares	df	Mean Square	F	Sig. (p-value)
Corrected Model	33048.689a	2	16524.345	287.456	.000
Intercept	31989.932	1	31989.932	556.494	.000
Pretest	6081.858	1	6081.858	105.799	.000
Groups	26363.685	1	26363.685	**458.620**	**.000**
Error	20752.000	361	57.485		
Total	810013.000	364			
Corrected Total	53800.690	363			

a. R Squared = .614 (Adjusted R Squared = .612)   P < 0.05 = Significant

Result in Table 6 the F-value value of 458.620 for the group is significant, when comparison is done between the p-value and alpha. The p-value is less than alpha level (p < 0.05). Hence, the null hypothesis is rejected. This implies that Peer-Assisted learning Strategy has a significant effect on the academic performance of students, because, looking at the statistics in Table 6, business education students taught Shorthand with peer-assisted learning strategy had higher Mean value than those taught with the conventional method.

Research Question 3: What is the difference between the pre-test and post-test mean scores of business education students taught Shorthand with peer-assisted learning strategy (Experimental Group)?

Table 7: Difference between the Pre-Test and Post-Test Mean Scores of the Experimental Group

Statistics	Pre-Test	Post-Test
Number of participants (N)	290	290
Mean	28.91	**49.93**
Standard Deviation	10.84	8.65
Mean Difference	**21.02**	

Source: Researcher's Fieldwork, 2021

Results from Table 7 show mean and standard deviation for peer-assisted learning strategy (Experimental Group) at pre-test and post-test. At pre-test it was 28.91 (10.84) while at post-test it is 49.93 (8.65). The mean score for the Experimental Group is higher at Post-Test (49.93 >28.91) the mean difference is 21.02.

Hypothesis 3: There is no significant difference between the pre-test and post-test mean scores of business education students taught Shorthand with peer-assisted learning strategy (the Experimental Group).

Table 8: Correlated Sample t-test of Difference between Pre-Test and Post-Test Mean   Score of the Experimental Group

Group	Mean	Std. Dev.	Mean Diff.	df	t-value	p-value (Sig. 2-tailed)
Pre-Test	28.92	10.85				
			21.01	289	**32.714**	**.000**
Post-Test	49.93	8.65				

α = .05,   **p <.05 =** Significant, N=290

Table 8 shows difference in the pre-test and post-test mean scores of business education students taught Shorthand with peer-assisted learning strategy (Experimental Group). From the Table, experimental group n=290. At pre-test, mean and standard deviation = 28.92 (10.85) while at post-test mean and standard deviation = 49.93 (8.65). The degree of freedom (df) = 289 and t-value = 32.714. The t-value is significant, when the p-value and the alpha level are compared. The p-value is less than the alpha (.000 < .05), therefore, the null hypothesis is rejected in favour of the alternate hypothesis. This implies that, there is statistical evidence to support the fact that, participants in the experimental groups are different in the mean academic performance in favour of the post-test score (49.93>28.92). Hence the observed difference seen cannot be attributed to chance.

Research Question 4: What is the difference between the pre-test and post-test mean scores
of business education students taught shorthand with conventional method (Control Group)?

Table 9: Difference between Pre-Test and Post-Test Mean Scores of the Control Group

Statistics	Pre-Test	Post-Test
Number of participants (N)	74	74
Mean	28.31	**28.54**
Standard Deviation	9.12	8.45
Mean Difference	**0.23**	

Source: Researcher's Fieldwork, 2021

Results from Table 9 show mean and standard deviation for conventional method (Control Group) at pre-
test and post-test. At pre-test it is of 28.31 (9.12) while at post-test it is 28.54 (8.45). The mean score for the
Control Group is higher at post-test (28.54 >28.31) the mean difference is 0.23.

Hypothesis 4: There is no significant difference between the pre-test and post-test mean
scores of business education students taught Shorthand with the conventional method
(Control Group).

Table 10: Correlated Sample t-test of Difference between Pre-Test and Post-Test Mean Score of the
Control Group

Group	Mean	Std. Dev.	Mean Diff.	df	t-value	p-value (Sig. 2-tailed)
Pre-Test	28.31	9.12	**.23**	73	**.507**	**.614**
Post-Test	28.54	8.45				

α = .05,   **p > .05 = Not** Significant,   N=74

Table 10 shows difference in the pre-test and post-test mean scores of business education students taught
Shorthand with the conventional method (Control Group). From the Table, control group n=74. at pre-test
mean and standard deviation = 28.31 (9.12) while at post-test mean (standard deviation) = 28.54 (8.45).
The degree of freedom (df) = 73 and t-value = .507. The t-value is not significant, when the p-value and the
alpha level are compared. The p-value is greater than the alpha (.614 > .05), therefore, the null hypothesis
is retained. This implies that, there is no statistical evidence to support, that participants in the control group
are different in the mean academic performance at pre-test and post-test, hence, any observed difference
is a mere chance occurrence.

DISCUSSION OF FINDINGS

The results obtained in this study are discussed based on the research questions and hypotheses formulated and tested in the study. The results presented in Tables 3, 5, 7 and 9 were used to answer relevant research questions while Tables 4, 6, 8, and 10 were used to test the hypotheses on effects of treatments (Peer Assisted Learning Strategy and Conventional method) on students' academic performance. The findings of the first research question revealed that students' academic performance in shorthand was low in the two institutions before the students were exposed to treatment.

The findings of the study were in consonance with the findings of Onamade (2006) and Adeola (2011) who reported that there was poor academic performance of students in Shorthand. This is because the conventional method employed by teachers seemed inadequate for equipping students studying Shorthand with the skills, knowledge and attitude needed in the subject. The duo of Adeola and Onamade pointed out that students' performance in Shorthand in some colleges of education in Nigeria was low in relation to what they need to be. The two groups were homogenous prior to the administration of treatment on them. By this, any observed difference between the groups after the treatment was attributed to the effect of treatment given to the groups. In a similar vein, the findings of the study were buttressed by Adeola (2011), Olakotan (2016) and Owolabani (2018), respectively. Adeola (2011) attributed the perennial low performance of students in Shorthand to inadequate knowledge of the subject matter by teachers and poor instructional techniques. Olakotan (2016) opined that students taught with methods based on the behavioural theories, such as lecture method, do not sufficiently retain their learning and apply it to new situations. Owolabani (2018) noted that the teaching method adopted by Shorthand teacher has great influence on the academic performance of the student involved.

The findings of the second research question revealed an improvement in the students' academic performance in Shorthand from their exposure to treatments. The effect of treatments were recorded in the two groups as there were differences between the group's pre-test and post-test mean scores but not at the same rate. The findings revealed higher difference between the pre-test mean score and post-test mean score of the experimental (PALS) than control (Conventional) in Shorthand. By this, PALS had greater positive influence on the students' academic performance in Shorthand than the conventional method. The findings of the study agreed with the findings of Colvin (2007); Steinhoff (2007) who advocated that PALS greatly enhance the learning experience of both the student tutor and learner. Similarly, PALS according to Kunsch, Jitendra and Sood (2007) leads to better understanding of the academic concepts but it is more fruitful when the students having different ability levels work with each other.

The findings of the third and fourth research questions revealed that the experimental group (PALS) with higher mean score performed academically better than the control group (Conventional). This is an indication that PALS was more effective in teaching Shorthand. The findings of the study were

corroborated by the positions of Shodehinde (2013) who posited that the traditional approach of delivering knowledge through lecture must be replaced with methodologies which allow students to learn needed skills in the context within which the skills are used in the real world. Also, Adewale (2004) asserted that conventional teaching method provides limited values in promoting behavioural changes. It does not permit active participation of learners and it is largely unsuited to the teaching of skills which requires constant practice.

In testing related hypotheses, the first hypothesis revealed that there was no significant difference in the pre-test mean scores of business education students taught Shorthand with peer-assisted learning strategy and those taught with the conventional method. The result implies that there was no statistical evidence that both groups are different in the mean academic performance at pre-test. Furthermore, the findings of the study in the second hypothesis revealed that there was a significant difference in the post-test mean scores of business education students taught shorthand with peer-assisted learning strategy and those taught with the conventional method. This implies that peer-assisted learning strategy has a significant effect on the academic performance of students. The results revealed that PALS is more effective in teaching Shorthand than the conventional method.

The testing of the second hypothesis revealed that PALS was more effective on students' academic performance than the conventional method. The testing of the second hypothesis revealed the post-test mean scores of business education students taught Shorthand with peer-assisted learning strategy and those taught with the conventional method. Looking at the statistics in Table 6, business education students taught Shorthand with peer-assisted learning strategy had higher Mean value than those taught with the conventional method. The findings were buttressed by Owolabani (2018) who noted that the teaching method adopted by shorthand teacher has great influence on the academic performance of the student involved. Hence, the adoption of PALS in teaching Shorthand to the experimental group has shown relative significance on students' academic performance.

Similarly, the third hypothesis revealed that there was a significant difference between the pre-test and post-test mean scores of business education students taught Shorthand with peer-assisted learning strategy (the experimental group). This implies that there was statistical evidence to support the fact that, participants in the experimental groups are different in the mean academic performance in favour of the post-test score. Also, the fourth hypothesis revealed that there was no significant difference between the pre-test and post-test mean scores of business education students taught Shorthand with the conventional method (control group). This implies that, there was no statistical evidence to support, that participants in the control group are different in the mean academic performance at pre-test and post-test, hence, any observed difference is a mere chance occurrence.

CONCLUSION

Based on the findings of this study, there was a significant effect of peer assisted learning strategy on students' academic performance in Shorthand when compared with the conventional method. It is, therefore, concluded that peer assisted learning strategy improves students' academic performance in Shorthand than the use of the conventional teaching method.

Recommendations

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

1. The significant effect of the treatment on the academic performance of students in Shorthand is an indication that peer assisted learning strategy has the potential to enhance the level of students' academic performance in Shorthand. In light of this, it is recommended that peer assisted learning strategy should be used as a method of instruction in the teaching and learning of Shorthand by lecturers in `colleges of education.

2. In order to popularise the adoption and the use of peer assisted learning strategy, periodic seminars and workshops should be organized by curriculum planners and educational administrators to train and retrain Shorthand teachers in the use of peer assisted learning strategy.

3. Curriculum planners and educational administrators should implement PALS method of teaching and learning process which would help students in acquiring relevant knowledge and skills in business education.

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