



Effect of Interactive Computer Software Package on Keyboarding Students Academic Achievement Between Gender in Federal Colleges of Education in North East Nigeria

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Abstract

The study investigates the effect of interactive computer software package on keyboarding students' academic achievement among gender in Federal Colleges of Education in North-East Nigeria. The study had two objectives, two research questions and two null hypotheses. The pretest posttest comparison group design was used. The population of the study was 1748 students that offered keyboarding in two of the Federal Colleges of Education in North-east Nigeria in 2019/2020 academic session. Two intact classes of 43 male, 30 female making 176 students and 62 male, 103 female students were used for the study respectively. The instrument used for data collection were keyboarding pre-diagnostic achievement test (KPAT) and keyboarding diagnostic achievement test (KDAT) was designed by the researcher and validated by three experts. The data obtained from pilot study were subjected to statistical analysis using Cronbach Alpha. The instrument had Reliability Coefficient of 0.85 while that of posttest was 0.89. The KDAT were administered to student before the treatment while KDAP were administered after the treatment. Data collected from the two instruments were marked by the researcher using drawn marking scheme. The results of the data were coded in to Statistical Package of Social Sciences (SPSS) software version 25. The SPSS was used analyze Descriptive statistics of Mean, Standard Deviation and t-test, Mean and Standard Deviation were used to answer the research question while t-test was employed in testing the null hypotheses at 0.05 level of significance. The result revealed among others that those taught using conventional method perform woefully in both gender. Based on the findings, the researcher concluded that the use of interactive computer software package would help both male and female students to have proficiency in mastering the keyboard which will facilitate their typing skills. It was recommended among others that school should charge all the keyboarding lecturers to use computer software package in teaching the students irrespective of gender.

Keyword: Interactive, Computer, Software, Academic, Achievement, Gender, Keyboarding

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Introduction

Information and Communication Technology as an electronic medium for creating storing, manipulating receiving and sending information from one place to another. It makes message delivery faster, and more convenient, easy to access, understand and interpret. It uses gadgets such as computer, cell phone, the internet wireless network and others. The role ICT is to equip the students to be innovative and develop new ways of solving problems

scientifically and to create gainful employment Collier (2013).

According to Essien (2008) Interactive Computer Software Package is the programs that allow students to learn new skills, content, practice using content already learned, and/or be evaluated on how much they know. These programs allow students to demonstrate skills, concepts, do simulations. Collier (2013) reported that a good typing software program will allow the students to develop their skills



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with the keyboard quickly without losing motivation to use the computer. The best software should include the following features: Ergonomic and safe keyboarding guide or section, provide a multi-sensory approach, where both sound and images are used to reinforce instructions and allow repetition of instructions if possible, A large, clear on-screen keyboard which shows the position of both keys and your fingers is very helpful, the use of real words rather than nonsense letter patterns as soon as possible within practice exercises can be very helpful to the students, being able to change font size and style, background and text color, the use of sound, speed and accuracy targets to be achieve are all very helpful to students learning the appropriate key-reaching techniques to build speed and accuracy. The emphasis is on keyboarding students but with regular practice progress can be tracked and recorded.

Keyboarding refers to the process of writing or inputting text by pressing keys on a typewriter, computer keyboard, cell phone, or calculator. It can be distinguished from other means of text input, such as handwriting and speech recognition. Text can be in the form of letters, numbers and other symbols. To the input of data using the touch method on a standard alphanumeric keyboard. According to Bailey (2008), Typing is a technology literacy skill necessary for students to become productive citizens in an increasingly global and digital world. Bailey stress that typing is one of the technology competencies our students will need to demonstrate mastery of Common Core Standards in Arts and effectively manage the on-line requirements. The role of typing as contain in the National Commission for Colleges of Education (NCCE) minimum standard is to equip the male and female students with the necessary skills that will enable them to engage in work as well as to improve their academic achievement.

Academic Achievement in the context of this study is referred to what students achieved in their studies and how they cope with or accomplish different learning experiences given to them by their teacher. It includes measuring the learners' ability using formative

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and summative types of evaluation after systematic procedure of instructional delivery by the teacher. Sambo (2008) described academic achievement as scores and grade obtained in the subject. Nwakocha (2018) defined academic achievement as extent to which students gain from a class, test or examination. The indicators of academic achievement according to Nwakocha (2018) include marks scored and grades obtained by candidates with respect to the examination standard board of a country or educational institution.

Adamu et al, (2019) asserted that the mode of learning keyboarding using Interactive computer software package is the strategy that involve drilling and practice programs intelligent tutoring systems, simulations, and educational games. The four components of computer software instruction are prevalent in 21st century classrooms. Learning keyboarding through drill and practice software programs helps in increasing fluency, speed and accuracy of students in keyboarding. Skinner and Daly (2010) maintained that expertise includes speed, accuracy, and utilizing little effort or cognitive processes. Keyboarding game according to Schrader and Shin (2006) allows user to engage in higher order thinking skills rather than games comprised of drill and practice situations. However, there are conflicting research studies on the effectiveness of computer software learning on academic achievement. A research conducted by Tsai, Yu, and Hsaio et al, (2012) revealed that that previous research supports that digital game based learning positively influences student motivation to learn, but does not fully reveal the power to increase student Gender in knowledge acquisition.

Gender is one of such factor that also mentioned in literature to have considerable effects on students' academic achievement especially in arts subjects. According to Josept & Irunokhai (2015) that gender is the range of physical, mental and behavioral characteristics pertaining to and differentiating between the feminine and masculine (female and male) population. The importance of examining performance in relation to gender is based primarily on the socio-cultural differences



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between girls and boys. Some vocations and professions have been regarded as men's (engineering, arts and crafts, agriculture and others.) while others as women's (catering, typing, nursing and others). In a nutshell, what are regarded as complex and difficult tasks are allocated to boys whereas girls are expected to handle the relatively easy and less demanding tasks. As a result of this way of thinking the larger society has tended to see girls as a weaker sex". Consequently, an average Nigerian girl goes to school with these fixed stereotypes and regarded as best in keyboarding profession when compared to their counterpart. Learning keyboarding using conventional method has its own set of inherent difficulties that students must grapple with in order to complete their work successfully. Research by Cassingham (1986) shows that conventional method being the most widespread strategy, there are a number of problems inherent in the method that can create difficulty and discomfort for users. These design issues mean that the conventional method is not user friendly for comfortable or fast typing. This probably explained why persistent failure in keyboarding has been reported from examination over the period of years. Shin (2006) and Mbaze (1998) reported that poor keyboarding skills affects students' ability to complete course-related tasks, projects and assignments correctly. In addition, it limits the ability of students to participate in keyboarding mediated communications activities, such as live online chats. As a result of poor performance of students in keyboarding, scholars such as Roblyer and Doering (2010), Sam (2014) emphasized on shifting from conventional instruction to Interactive computer software package. The scholars reported that computer software package help in developing the interest of students, it is user friendly, learners' centered and it is a private tutor that enables learner to overcome their keyboarding problems. Based on these accessions, the research empirically determine the difference between pretest and posttest achievement score of male and female taught keyboarding using Interactive Computer Software Package (ICSP) on academic achievement of keyboarding students between

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gender in Federal Colleges of Education in North East, Nigeria; establish the difference between pretest and posttest achievement score of male and female students taught keyboarding using Conventional Instruction (CI) in Federal Colleges of Education in North East, Nigeria; and assess the difference between posttest mean achievement score of male and female students taught keyboarding using Interactive Computer software instruction (ICSP) and those taught using Conventional Instruction (CI) in Federal Colleges of Education in North East Nigeria.

Research Questions

The following are considered as the Research Question of the study

1. What is the differences between mean achievement of male and female students taught keyboarding using conventional method at pretest and posttest in Colleges of Education in North East, Nigeria?
2. What is the differences between mean achievement of male and female students taught keyboarding using interactive computer software package at pretest and posttest in Colleges of Education in North East, Nigeria?

Research Hypotheses

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

1. There is no significant difference between mean achievement of male and female students taught keyboarding using conventional method of instruction in Colleges of Education in North East, Nigeria.
2. There is no significant difference between mean achievement of male and female students taught keyboarding using Interactive Computer Software Package in Colleges of Education in North East, Nigeria.

Methodology

The research design adopted for the study was Quasi experimental design. According to Essien (2008), pretest-posttest design is often used to determine the effect of treatment where baseline (pretest) information is collected for all selected units before they are randomly assigned to treatment. The target population



comprised of all the 1748 NCE II Business Education Students in three Federal Colleges of Education admitted in 2019/2020 academic session in North East Nigeria. The sample size of the study was 176 students that offered Keyboarding from two Colleges of Education in 2019/2020 Academic Session in North East, Nigeria. In order to facilitate the selection of institutions used for the study, the names of the three colleges of education offering business education in the zone were written separately on plain paper, rolled and placed on table, an independent person was asked to select two from the groups. Two intact classes of NCE II Business Education students in the institutions comprising 43 Males and 30 Females (73) made up control group while 62 Males and 41 Females (103) made up experimental group were used for the study respectively.

were found reliable. This is in line with Sambo (2008) who opined that an average value of correlation co-efficient should not be less than 0.65 Pretest was administered to both group so as to determine the entry skills of the students in keyboarding. The scripts of the exercise which lasted for 30 minutes were retrieved by the researcher and research assistants. In the second stage, the researcher provided the treatment to the two groups of the students independently using two hours for the period of four weeks using the drawn lesson plan. This was done through the support of the research assistants in each of the institution. After the treatment, posttest was administered to the students. The scripts of the pretest and posttest were marked by the researcher personally using drawn marking scheme. Data were analyzed in two stages with the aid of Statistical Package of Social Science (Version 25). Descriptive statistics of Mean score, Standard Deviation and Mean difference were used to answer the research questions. Independent sample t-test was used to test null hypotheses one and paired sample t-test was used to test null hypotheses two. The null hypotheses were tested at significant level of 0.05

The instruments used for data collection are Keyboarding Pre-Diagnostic Achievement Test (KPAT) otherwise known as pretest and Keyboarding Diagnostic Achievement Test (KDAT) which was known as posttest. The KPAT was used to determine the entry level of the students while the KDAT was used to determine the effect of treatment on the achievement of the keyboarding students. Each of the instruments was allocated 50 marks. For the validity of the instrument, three experts in business education were given the instruments to ascertain the content and face validity of the instruments together with the marking schemes. Based on this, their contributions were incorporated into the final copy. The instrument is valid when it is validated by the experts and measures what is supposed to be measured (Sambo, 2008). The KPAT instrument had reliability coefficient of 0.85 while that of KDAT was 0.89. The instruments

Results

Results of the Research Questions

The result of research questions is presented in Table 1 and 2

Research Question One: What is the difference between mean achievement of male and female students taught keyboarding using Conventional method at pretest and posttest in Federal Colleges of Education in North East, Nigeria

Table 1: Difference between Male and Female pretest Mean Achievement of Students taught Keyboarding using Conventional Method

Gender Test	N	Mean	Std. Dev.	Mean diff.
Pretest (Male)	43	36.88	18.99	4.52
Pretest (Female)	30	41.40	21.13	
Posttest (Male)	43	46.83	16.38	2.57
Posttest (Female)	30	49.40	15.42	

The pretest mean academic achievement of students taught keyboarding using

Conventional method stood at 36.88 and 41.40 for Male and Female respectively while the



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posttest was 46.83 and 49.40 for Male and Female with standard deviations of 18.99 and 21.13 for Male and Female respectively. The mean difference of 2.14 and 2.57 obtained shows that slight difference exists between the pretest and posttest mean achievement of students taught keyboarding using conventional method in favour of posttest.

Research Question Two: What is the difference between mean achievement of male and female students taught keyboarding using Interactive computer software package at pretest and posttest in Federal Colleges of Education in North East, Nigeria?

Table 2: Difference between Male and Female pretest mean Achievement of Students taught Keyboarding using Interactive Computer Software Package

Gender Test	N	Mean	Std. Dev.	Mean diff.
Pretest (Male)	73	59.19	11.77	4.79
Pretest (Female)	62	54.40	10.59	
Posttest (Male)	73	51.50	14.86	3.49
Posttest (Female)	62	54.99	9.78	

The pretest mean academic achievement of students taught keyboarding using Interactive Computer Software Package stood at 59.19 and 54.40 for Male and Female while the posttest was 51.50 and 54.99 for Male and Female with standard deviations of 11.77 and 10.59 for Male and Female respectively. The mean difference of 4.79 and 3.49 obtained shows slight difference exists between the pretest and posttest mean academic achievement of Male and Female students taught keyboarding using

Interactive Computer Software Package in favour of female posttest.

Results of Null Hypotheses

The results of the test of hypotheses are presented in Table 3 and 4.

Hypothesis One: There is no significant difference between Male and Female pretest and posttest mean Achievement score of students taught keyboarding using Conventional Method in Federal Colleges of Education in North East, Nigeria.

Table 3: t-test analysis on Difference between Male and Female pretest and posttest mean Achievement of Students taught Keyboarding using Conventional Method

Gender Test	N	Mean	Std. Dev.	Std. Error Mean	df	t-value	p-value
Pretest (Male)	43	36.88	18.99	2.89713	42	12.73	.000
Pretest (Female)	30	41.40	21.13	3.85829	29	10.73	.000
Posttest (Male)	43	46.83	16.38	2.49772	42	18.74	.000
Posttest (Female)	30	49.40	15.41	2.81534s	29	17.55	.000

The result of test of null hypothesis one revealed that pretest mean academic achievement of male and female students are 36.88 and 41.40 while the posttest was 46.83 and 49.40 with standard deviation of 18.99 and 21.13 for Pretest Male and Female students, and 16.38 and 15.41 for Posttest Male and Female students respectively. The t-value was 12.72 and 10.73 for Male and Female Pretest and 18.74 and 17.55 for Male and Female Posttest while the p-value was .000. The p-value obtained was less than 0.05 level of

significance, hence, it was concluded that there was significant difference between the pretest and posttest mean academic achievement of Male and Female students taught keyboarding using Conventional Method in favour of Female posttest. The null hypothesis is rejected.

Hypothesis Two: There is no significant difference between Male and Female pretest and posttest mean Achievement score of students taught keyboarding using Interactive



Table 4: t-test analysis on Difference between Male and Female pretest and posttest mean Achievement of Students taught Keyboarding using Interactive Computer Software Package

Tests	N	Mean	Std. Dev.	Std. Error Mean	df	t-value	p-value
Pretest (Male)	73	51.50	14.86	1.73963	72	29.60	.000
Pretest (Female)	62	54.99	9.78	1.24313	61	44.17	.000
Posttest (Male)	73	59.19	11.77	1.38448	72	38.62	.000
Posttest (Female)	62	54.40	10.59	1.34551	61	40.43	.000

The result of test of null hypothesis two revealed the pretest mean academic achievement of male and female students 51.50 and 54.99 while the posttest was 59.19 and 54.40 with standard deviation of 14.86 and 9.78 for Pretest Male and Female students, and 11.77 and 10.59 for Posttest Male and Female students respectively. The t-value was 29.60 and 44.17 for Male and Female Pretest and 38.62 and 40.43 for Male and Female Posttest while the p-value was .000. The p-value obtained was less than 0.05 level of significance, hence, it was concluded that there was significant difference between the pretest and posttest mean academic achievement of Male and Female students taught keyboarding using Interactive Computer Software Package in favour of Female posttest. The null hypothesis is rejected.

Discussion

The result of research question one and the test of its corresponding null hypothesis shows that there was significant difference between the pretest and posttest mean academic achievement of male and female students taught keyboarding using Conventional Method of Instruction in Colleges of Education in North East, Nigeria. The result of the study agreed with that Mbaeze (1998) who found that development in keyboarding skills is acquired through learning and practice without looking at the keys. Similarly, the study was in line with the previous study conducted by Skinner and Daly, (2010) whose result shows that a good typewriting teacher is that teacher that teaches keyboarding skills using proper keyboarding teaching techniques, Oyeyiola (2006) added that using Conventional Method of Instruction is likely to result in a low typing speed.

Accordingly, the study also agreed with that of Collier (2013) whose study revealed that Conventional Method of Instruction has affected the general academic achievement of keyboarding students. In the same lane, the study also agreed with that of Mc Donald and Foss (2007) the result of research question two and test of its corresponding null hypothesis shows that there was significant difference between the pretest and posttest mean academic achievement of male and female students taught keyboarding using Interactive computer software Package. The outcome of the study further affirmed the report of Christensen (2004) who found a positive relationship between keyboarding fluency of keyboarding students improve when students have the ability to efficiently touch typed typing without looking at the keyboard. The author maintained that the use of Interactive computer software package would help to improve students' academic achievement in Keyboarding. The result of the study also agrees with that of Oyeyiola (2006) whose result revealed that touch method of teaching keyboarding skills promotes the performance of students in keyboarding. Furthermore, the result was also in line with that of Sam (2014) who reported that associative phase in keyboarding through the use of Computer Package provide better skills in both speed and accuracy of students. The result also agreed with that of Posnick-Goodwin (2016) whose result shows that Touch typing such as computer package which involves cognitive, affective, and psychomotor skills, a combination of skills much more enhance the performance of students in keyboarding.

Conclusion



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The results of the study revealed that students' academic achievement in keyboarding improves with the use of Interactive Computer Software Package which emphasized on touch typing. Based on the outcome, it was concluded that the use of the Interactive Computer Software Package would enable students to be skillful (Speed, accuracy and mastering of keys) in keyboarding class. By implication, it therefore means that the use of modern technology would enhance the speedy learning of keyboarding and not having access to technology was cited as a barrier to keyboarding.

Recommendations

Based on the outcome of the study, the following recommendations were put forward:

- (i) School management through Head of Business Education Department should encourage lecturers to use standard Computer Package to teach both Male and Female students keyboarding in their colleges. This will help students to develop good skills (speed and accuracy) in the keyboarding.
- (ii) Lecturers in Colleges of Education in North-eastern Nigeria should use Computer Software Package in teaching keyboarding to business education students in colleges of education in North-eastern Nigeria.
- (iii) Keyboarding lecturers should enlighten students on the advantage of Computer Software Package over Conventional Method on skill development, speed and accuracy, this will enable them to develop positive attitude on adoption of Computer Software Package in learning keyboarding.
- (iv) School management should provide business education department with needed support, facilities and materials needed for teaching learning keyboarding through Interactive Computer Software Package.

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