Timeliness of Keyboarding Instruction as Perceived by Business Educators in Ondo and Ekiti States, Nigeria

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ABSTRACT

The rate at which pupils are learning how to key-in and make use of the keyboard for typing without adequate consideration for acquisition of appropriate skills for effective keyboarding has become worrisome in recent times. This study determined the appropriate time for learning keyboarding in Nigerian educational system as perceived by business educators in Ondo and Ekiti States. Three research questions were raised to guide the study. Survey research design was employed. The population of the study was made up of 98 business educators in On do and Ekiti states. The entire population was studied. The instrument designed for the study consisted of 31 items which was validated by Business Education and Test and Measurement experts. The validated instrument was subjected to reliability test, using split-half method. The data collected were analysed using Pearson product moment correlation formula and a coefficient of 0.83 was obtained. Mean and standard deviation were used to answer the research questions. The findings of the study revealed that keyboarding skills cannot be effectively mastered at the lower and middle basic levels of Nigerian education system, among others. It was concluded that keyboarding skills are best acquired at the upper basic level where students would have developed appropriate cognitive and psychomotor skills. Thus, it was recommended that manipulative keyboarding skills should not be incorporated into the curriculum of lower and middle basic levels of the nation's educational system, among others.

Keywords: *Business education, Perception, Keyboarding skills, Timeliness, Instruction, Teaching, Learning.*

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Highlights of this paper

- This study determined the appropriate time for learning keyboarding in Nigerian educational system as perceived by business educators in Ondo and Ekiti States.
- The findings of the study revealed that keyboarding skills cannot be effectively mastered at the lower and middle basic levels of Nigerian education system, among others.
- This study recommended that manipulative keyboarding skills should not be incorporated into the curriculum of lower and middle basic levels of the nation's educational system, among others.

1. INTRODUCTION

The advent of Information and Communication Technology (ICT) has extended the use of keyboard to all areas of human endeavours. Keyboarding has become a household name across the nation's educational strata in teaching, learning, decision making, evaluation and record keeping processes. The need for skill acquisition in keyboarding is germane because most of the economic, social, medical, academic, health endeavours are carried out through the use of computer which is accessible by a press of the buttons (keys). In fact, keyboarding skills have become part of the important skills required in the 21st century's world of work as the use of computer has dominated today's business environments. Efficient keyboarding and computer operation skills are necessary for majority of occupations and they are also expected tools for communication throughout one's life.

The wide spread use of computers in all spheres of lives suggests that the need for keyboarding skills will continue to increase in the nearest future. In support of this, the use of Computer Based Test (CBT) for Unified Tertiary Matriculation Examination (UTME) in Nigeria and other professional and employment interviews shows the need to be versatile in keyboarding skills. Keyboarding is a process of instruction which moves the learner from the level of 'hunt and peck' to the 'touch type' level which allows the learners to proficiently manipulate the computer or typewriters' keyboard to produce mailable documents. Keyboarding is more than knowing how to strike the keys as there are some keyboarding skills (such as manipulative, posture and proofreading) that must be mastered for efficient operation of the keyboard.

The Federal Government of Nigeria (FGN) (2013) reported that one of the goals of basic education is to provide opportunities for the child to develop manipulative skills that will enable the child function effectively in the society within the limit of the child's capability. However, the policy did not expressly specify whether the goal is meant for pre-primary (5 years old), primary (6-12 years old) or junior secondary school education (13 years old) which formed the basic education in Nigeria hence, the need to determine where and when to teach keyboarding skill. The method of teaching employed in impacting keyboarding skills into the learner is a factor to reckon with as it plays an important role in students' academic performance and future success in one's career. Thus, Ajayi (2004) listed a number of methods of teaching that can be employed to include demonstration, field trip, discussion, play way, dramatization, question and answer and problem solving method, while Okeya *et al.* (2005) classified teaching methods into two major categories of student centred and teacher centred.

This study is based on Skill Acquisition Theory which was developed by Snoddy (1926). The author hypothesized that the number of repetitions was the primary parameter that affected the course of learning a skill. The scholar explained that motor skill learning is a two-stage process which comprised of adaptation stage in which the learner acquires the neuromuscular pattern required to perform the movement, and a facilitation stage, in which the efficiency of the movement pattern is improved.

Also, Ginzberg in Oladele (1987) explained that the degree of readiness to make the reality shifts determines the amount of difficulty a young person experiences in making an occupation. In his contribution, Thorndike (2002)

agreed that behaviour and learning are influenced by the readiness or un-readiness of respondents, as well as by their strength.

The theory is related to this study in the sense that skill acquisition is task-oriented and the goal of learning keyboarding can only be achieved through regular practice in order to attain the level of automaticity in keyboarding. The theory if adopted when teaching keyboarding will be helpful to learners as it follows the stages of learning a skill. The theory also considers the three domains of learning. By this, the cognitive phase requires the identification of the component parts of typewriters and the computeThe psychomotor phase deals with the manipulation of the keyboard for speed development and training towards automaticity. The affective domain is involved in the learner's ability to display keyboarding exercises like tabular work, memorandum, itinerary and business letter effectively for readers to acknowledge the expertise in the tasks. Skill acquisition theory is related because the mental processes that the proponent discussed are helpful in explaining and demonstrating the presentation of keyboarding learning techniques. Thus, the theory sees the learners as active participants in their learning environment. Ellis and Shintani (2013) predicted that this theory will benefit receptive and productive skills respectively.

The scientific roots of Skill Acquisition Theory can be found in different branches of psychology, which ranges from behaviourism to cognitivism and connectionism. Anderson (1995) noted that cognitive learning theory posits that the learner is actively involved in the learning process. It is a general theory of learning ranging from cognitive to psychomotor skills. The theory claims that learners commence learning something through largely explicit processes, and with subsequent sufficient practice and exposure, move into implicit processes.

In addition to cognitive type of knowledge, human beings also appear to have capacity for affective and psychomotor domains. Bloom *et al.* (1956) was among the first psychologists to accept that human being's learned capabilities comprise of three major domains namely; cognitive, affective and psychomotor. Dekeyser (2007b) postulated that the learning of a wide variety of skills shows a remarkable similarity in development from initial representation of knowledge through initial change in behaviour to eventual fluent, spontaneous, largely effortless, and highly skilled behaviour, and that this set of phenomena can be accounted for by a set of basic principles common to the acquisition of all skills.

1.1. Acquisition of Keyboarding Skill

(a) Declarative Stage: This is the stage during which knowledge and skills may be acquired through perceptive observation and analysis of others engaged in skilled behaviour like when the 'expert' demonstrates the behaviour slowly while commenting on the relevant aspects. According to Richards and Schmidit (2010) declarative knowledge is conscious knowledge of facts, concepts or ideas that can be stored as propositions. Also, Anderson (1995) distinguished between declarative knowledge and procedural knowledge and describes the three stages (cognitive, associative and autonomous) of skills acquisition by which one can proceed from the declarative to business letter effectively for readers to acknowledge the expertise in the tasks. Skill acquisition theory is related because the mental processes that the proponent discussed are helpful in explaining and demonstrating the presentation of keyboarding learning techniques. Thus, the theory sees the learners as active participants in their learning environment. Ellis and Shintani (2013) predicted that this theory will benefit receptive and productive skills respectively.

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(b) Procedural Stage: This is also known as associative or practice stage. It is the stage of acting on the knowledge acquired during the declarative stage and turning it to action or performance. Vanpattern and Benati (2010) noted that using declarative knowledge involves explicit learning or processes, learners obtain rules explicitly and have some type of conscious awareness of those rules.

(c) Automaticity Stage: This is the stage where learning has become relatively permanent and with ease of skill performance. Taie (2014) referred to this stage as "speeding up the performance of a skill, reducing the error rate and inference from other tasks". At this stage, the relevant behaviour has to be consistently displayed with complete fluency or spontaneity, rarely showing any error. To achieve this stage, Dekeyser (2001) remarked that a large amount of practice is needed to decrease the time required to execute the task (reaction time), the percentage of errors (error rate), and the amount of attention required and hence, interference with or from other tasks. Similarly, Ertl (2007) and Erthal (2003) emphasized the need to have good mastery of the location of the keys to ensure touch type method and that how well a student does in achieving speed is based on opportunity to input information after initial training.

By this, Nwanaka and Amaehule (2011) noted that an important factor in skill acquisition process is exposure to practical situations where skills are displayed. The acquisition of keyboarding skills is a cumulative process which must be introduced in a consistent and sequential order, starting from the previously learned skills as individuals who undergo instruction in keyboarding are required to acquire skills for work upon graduation. MacIntyre (1990) found out that keyboarding skills development should continue into the established curriculum.

To achieve this, Crews *et al.* (2011) described three stages of skill acquisition that keyboarding students need to pass through. The stages are:

(a) Cognitive Stage: This stage is the introductory stage during which learners are taught how to strike the right keys in the right way and with appropriate fingers. At this stage, the learner is consciously thinking about the position of each key and the appropriate finger to strike the key.

(b) Associative Stage: The features of the previously learned skills that are appropriate to the new situation are strengthened on the basis of feedback, whereas inappropriate features are weakened. It includes a situation whereby students learn how to connect the recognition of the character with the action of striking the corresponding key, hence, Starr (2014) observed that developing kinesthetic memory trace is part of the psychomotor learning process.

(c) The Autonomous Stage: During this stage, skills acquired continued to be more efficient and faster. The rate of improvement is dependent on the frequency of practice and application of the learned skills. Therefore, the success of keyboarding instruction is dependent on the content, pedagogy and efforts of the individual learner.

1.2. Methods and Approaches to the Learning of Keyboarding

There are different Business Education scholars who have worked on effectiveness of methods of teaching keyboarding. Adejumo (2016); Akhigbe (2015); Allu (2014); Ash (2006); Dekeyser (2001); Oyekan (2009) observed that there are three major approaches to teaching the keyboard to students. They are:

(a) Vertical Approach: This approach lays emphasis on the finger. The first fingers of both left and right hands are named 'f' finger and 'j' finger respectively, these fingers are generally known as index fingers. Naturally, these

two fingers are the most active when typing and they key-in more keys than any other fingers. The first finger on the left (f-finger) is trained to move from its home (f-key) upward to the upper row and strike the key directly on the top of the 'f' key where 'r' key is located and then return to its home. The finger is also trained to strike the 'v' key located on the lower row; and return to its home. Likewise the right hand first finger (j-finger) is trained to move upward to strike 'u' and return to its home and move downward to strike 'm' key and then return to its home.

From the above, the training in vertical method indicates the movement of the fingers to upper row and to lower row to type the appropriate keys and return to their home. Subsequently, other typing fingers in the two hands are introduced to their home keys and the keys on their upper and lower rows. The 'f' and 'j' fingers are trained for longer period because of the number of keys/characters they need to strike.

(b) Horizontal Approach: This approach emphasizes the learning of the 'home keys' meaningfully before moving to other keys. In this approach, the ASDFJKL; called the home keys are learnt concurrently with the ability to return the carriage (if typewriter is being used) with the left hand and place the fingers on their homes without looking at the keyboard. When the 8 home keys are properly mastered, the students are introduced to G and H along the same home key row. These keys are struck by the first fingers on the left and right hands respectively. With the demonstration of good mastery of the home keys and G and H keys, students are introduced to the upper row containing Q,W,E,R,T,Y,U,I,O,P and followed by the learning of bottom or lower row keys which are Z, X, C, V, B, N, M. By this approach, the typing fingers are guided by 'a' and ';' which are called guide keys while the two little fingers are called the guide fingers. This enables the students to develop the correct fingering position from the onset. Despite this, the horizontal approach may not give room for word-formation at early stage of learning the keyboard.

(c) The Skip-round Approach: This approach is a combination of both the vertical and horizontal approaches. Adejumo (2016) reported that the approach presents the home keys (asdfjkl;) first and the other keys followed in both vertical and horizontal sequence. The home keys are used to guide the typing fingers while the eyes are on the copy book. The author noted that this approach required proper mastery by the teacher in order to avoid a twist to either vertical or horizontal method. In his contribution, Martinez (2015), remarked that teaching keyboarding involves a special talent that no other content area truly magnifies.

(d) Demonstration Method: Duch (2002) defined demonstration as an instructional strategy that challenges students to "learn how to learn" working cooperatively in groups to seek solutions to real world problems. Mundi (2006) viewed demonstration as a display or exhibition usually done by the teacher while the students watch with keen interest. Osakwe (2001) asserted that the demonstration method is preferably given by a 'live' teacher rather than video tape. The author added that live demonstrations should be easily perceived, organized and remembered by viewers, capable of approximate imitation by the students.

Demonstration method is one of the effective methods applied by teachers in achieving objectives of learning in real-life situations (Nwachukwu, 2006). For effective teaching of keyboarding using demonstration method, the teacher needs to explain, show, and do reform or act the procedures by means of step by step order and in stage by stage approach to enable the students acquire the skills.

Also, Olaitan and Agusiobo (1984) and Mundi (2006) highlighted some of the advantages of demonstration method as follows:

- It saves times and facilitates material economy.
- Students receive immediate feedback through their products or output.
- It gives a real-life situation of course of study as students acquire skills in real-life situations using tools and materials.

- It helps to motivate students when carried out by skilled teachers.
- It is good in showing the appropriate ways of doing things.

This is the type of teaching method in which the teacher is involved in the act of performance while the learners watch with the intention to imitate the teacher later. The teacher does what the learners should be able to do at the end of the lesson for the students to see and master it in a step by step process.

(e) Computer Assisted Instructional Technique: The advent of technologies has brought about changes in the mode of instructional delivery to enhance learning outcome of learners. Akiti and Onyemah (2010) remarked that computer assisted instructional packages are used in the presentation of lesson which enhances better understanding of the subject matter since the learners have the opportunity to visualize the concept taught using typing tutor for mastery of keyboarding exercises. Matinez in Ojeaga and Igbinedion (2012) noted that incorporating technology into learning would provide students with experience that would otherwise not be available to them and through technology, they are able to experience simulations that draw on their senses of sight and learning in ways that are different from looking and reading from a textbook.

1.3. Statement of the Problem

The advent of technology into virtually all aspects of human endeavour has popularized the use of keyboard across the globe. In view of the fact that computer usage has been spread all over, the use of computers and android phones for data processing, games, browsing, entertainment, education, among others has given pupils and students the opportunity to operate the keyboard with little or no expertise knowledge of the required keyboarding skills. It implies that young learners do manipulate the keyboard haphazardly, using 'hunt and peck' method just to get their results.

Based on the above, it has been observed that the generality of pupils at the kindergarten, primary and junior secondary schools have been using keyboard without proper training on keyboarding skills such as manipulative, posture and reading skill. This early exposure might likely have influence on the acquisition of keyboarding skills by the pupils in future. The concern of this study therefore is that this situation may affect keyboarding skill acquisition and development of most students who may want to develop interest in business education programme later in future.

In view of the fact that the nation's education policy document did not clearly state the how, where and when keyboarding can be taught, it has been observed that the teaching and learning of keyboarding are carried out right from the lower basic education level with little or no consideration for the level of maturity and readiness of the learners. This might not give room for pupils' effective learning of the subject once a bad habit had been formed at an elementary stage. Going by the above, there is therefore the need to determine where, when and how keyboarding should be taught in the nation's educational system through empirical study.

1.4. Purpose of the Study

The main purpose of this study is to determine where, when and how keyboarding skills should be acquired in Nigeria educational system with particular reference to Ondo and Ekiti States. Specifically the study sought to:

(a) Ascertain the age when keyboarding skills should be taught for effective learning.

(b) Find out the appropriate educational level where to impart keyboarding skills into learners.

(c) Determine the method of teaching that will be most effective for the attainment of keyboarding goals.

1.5. Research Questions

The following research questions guided the study:

(a) At what age should learners be introduced to the learning of keyboarding?

(b) At what level of education should keyboarding be taught?

(c) What is the appropriate teaching method for keyboarding?

2. METHOD

The research design adopted in this study was a survey type. The population for this study consisted of 98 business educators in all the five public tertiary institutions in Ondo and Ekiti States where keyboarding is offered in business related programmes. The institutions are Ekiti State University, Ado-Ekiti, College of Education, Ikere Ekiti, The Federal Polytechnic, Ado Ekiti, Adeyemi College of Education, Ondo and Rufus Giwa Polytechnic, Owo. The entire population was used as the study's sample. The instrument used for data collection was the researchers' developed 31-item structured questionnaire which adopted four-point likert scale response options as follows: Strongly Agree (SA) = 4, Agree (A) = 3; Disagree (D) = 2; and Strongly Disagree (SD) = 1. The instrument was content validated by three Business Educators selected from three of these institutions. Their suggestions and corrections were incorporated into the final draft used for this study. To determine the reliability of the instrument, a test re-test method was used on 20 business educators from the Federal College of Education, Oyo, who were not part of the population, but with the same characteristics. The data collected were analysed and subjected to Pearson product moment correlation formula, which yielded a coefficient of 0.83. A total of 98 copies of questionnaire distributed were collected, representing 100% return rate which were used for data analysis.

The data collected for this study were analysed using Mean (x) and Standard Deviation (SD). The mean of 2.50 was taken as the cut off point for decision. By this, a mean response that falls below 2.50 was regarded as Disagree, while a mean response of 2.50 and above was regarded as 'Agree'.

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2.1. Analysis and Discussion of Results

Research question 1: At what age should learner be introduced to the learning of keyboarding?

Table-1. Age and learning of keyboarding skills.

S/N	Items	Mean	SD	Decision
1	Pupils at the kindergarten (pre-primary) level can effectively learn keyboarding (2-3 years)	1.87	0.98	Disagree
2	Pupils at the lower basic level of education (primary 1-3) can manipulate keyboard very well (4-6 years)	1.94	1.36	Disagree
3	Middle basic level of education (primary 4-6) is very appropriate for keyboarding beginners (7-9 years)	2.45	0.71	Disagree
4	It is easy to achieve touch-type method among pupils of lower and middle basic level	2.26	0.81	Disagree
5	Students at the upper basic level of education (JSS 1-3) are mentally ready to learn keyboarding rules (10-12 years)	3.62	0.74	Agree
6	At the JSS level students fingers are strong enough to strike the keys with little or no pains	4.40	0.65	Agree
7	The students can engage in a purposeful learning of the keyboard at age 10 years and above	3.98	0.72	Agree
8	Learners' age has no influence on students' ability to acquire keyboarding skills.	1.93	0.98	Disagree
9	Acquisition of appropriate keyboarding skill is easily achieved with students than pupils	4.43	0.64	Agree
10	Most pupils below the age of 10 do use touch-type method.	1.90	0.89	Disagree

Source: Fieldwork, 2019.

In response to research question 1, Table 1 revealed that most of the respondents agreed with four items out of the 10 items with mean scores ranging from 3.62 to 4.43 and disagreed with the other six items with mean scores ranging from 1.87 to 2.45. This indicated that pupils below the age 10 years cannot be skilful in the manipulation of keyboarding.

Research question 2: At what level of education should keyboarding be taught?

Table-2. Level of education and keyboarding skill acquisition.

S/N	Items	Mean	SD	Decision
11	Lower basic education level is very appropriate to learn keyboarding.	2.05	0.59	Disagree
12	Pupils at the middle basic education level have good mastery of the keyboard.	1.93	0.63	Disagree
13	The fingers of the primary school pupils are strong enough to manipulate the keys effectively.	2.33	0.74	Disagree
14	The pupils are mentally matured to use touch type method.	2.18	0.81	Disagree
15	Most pupils do use touch type method in keyboarding	2.43	0.68	Disagree
16	At JSS level, students can learn keyboarding based on given rules and guidelines.	3.86	0.32	Agree
17	The JSS students have the mental ability to master the location of the keys.	3.67	0.93	Agree
18	The students at the JSS level can conveniently place their fingers on the home keys.	4.10	0.76	Agree
19	At the JSS level, the fingers are strong enough to key in data with little or no stress.	4.35	0.63	Agree
20	At lower basic level, pupils key-in with adequate consideration for fingering rules.	1.85	0.99	Disagree
21	Pupils at lower basic education can properly take care of computer and its peripherals during usage	2.09	1.22	Disagree

Source: Fieldwork, 2019.

In response to research question 2, Table 2 showed that majority of the respondents agreed that four out of the eleven items supported that keyboarding skills can be acquired at the Junior Secondary School level while the other seven items showed that keyboarding skills cannot be effectively acquired at the lower and middle basic educational levels, (that is, primary school). This implied that effective keyboarding skill cannot be acquired at the first and second lower basic educational levels.

Research question 3: What is the appropriate teaching method for keyboarding?

Table-3. Teaching methods and skill acquisition is keyboarding.

S/N	Items	Mean	SD	Decision
22	Lecture method is very effective for teaching keyboarding.	2.30	0.90	Disagree
23	Discussion method can greatly enhance keyboarding skills among learners.	2.29	0.83	Disagree
24	Peer tutoring teaching method is very good for teaching keyboarding.	2.27	0.91	Disagree
25	Guided discovery is an effective teaching method in keyboarding.	2.09	0.89	Disagree
26	Cooperative learning method is very effective for teaching keyboarding.	2.26	0.76	Disagree
27	Problem solving method can be effectively used to enhance acquisition of keyboarding skills.	2.29	0.83	Disagree
28	The use of traditional demonstration method can enhance students' skill acquisition in keyboarding.	3.46	1.06	Agree
29	The use of computer aided demonstration can greatly improve skill acquisition in keyboarding.	4.35	0.65	Agree
30	Rote method is very appropriate for learning keyboarding.	1.87	0.96	Disagree
31	Studio-based method can be used to effectively acquire keyboarding skills	4.05	0.73	Agree

Source: Fieldwork, 2019.

The analysis of research question 3 presented in Table 3 revealed that majority of the respondents agreed that three methods are mostly appropriate for effective teaching of keyboarding with mean scores ranging from 3.46 to 4.35; but disagreed with seven other items or methods. This implied that seven methods out of the listed ones are not appropriate for teaching keyboarding.

3. DISCUSSION

The finding in Table 1 revealed that pupils at the lower and middle basic levels are not matured enough to effectively manipulate the keyboard. It was found out that their fingers were not strong enough and that their mental ability cannot cope with the manipulative skills required to use touch type method, hence, they resulted in hunt and peck method which may later affect their mastery of the keyboarding. This corroborates the finding of Erthal (2003) when the author reported that teaching keyboarding for mastery requires a greater time commitment in an elementary curriculum that is already tight. Supporting the finding of this study too, Anderson (1995) noted that effective learning ranges from cognitive to psychomotor, which borders on learners' mental ability to withhold information before the practical or psychomotor display of the skill. In their contributions, Dekeyser (2001); Taie (2014) also reported that performance fluency is the outcome of implicit learning and that practical skills must be acquired to contain minimum level to facilitate the possession of appreciable relevant production skills which ability and capability of young keyboard users cannot withstand.

The findings of research question two revealed that students in the upper basic level (JSS) possess the mental maturity to learn the rules and guidelines for effective keyboarding and that their fingers can be well placed on the home keys to demonstrate touch-typing method on the keyboard. This finding is in support of FGN (2013) which listed keyboarding as one of the components of business studies at the JSS level. In addition, a study conducted by Ash (2006) reported that majority of his respondents (teachers) believed that sixth grade was an appropriate trade to learn keyboarding skill in an urban school district. Also, Martinez (2015) remarked that keyboarding teachers must be able to push students through the initial pain and inflammation of fingers and sore backs until the proper ergonomic kinesthetic movements are mastered, which can only be achieved with matured learned. In support of this study, MacIntyre (1990) in his study remarked that if there is no continuous use, developed skills would regress to initial keyboarding rates calling to question the expenditure of time, money and energy in the first place.

The finding of research question 3 revealed that out of the ten listed different methods that can be used in teaching, three methods were agreed upon for teaching keyboarding. These are computer-aided demonstration, studio-based and traditional demonstration methods which recorded the highest mean scores respectively. The finding is in support of the findings of Oyekan (2009) where the researcher reported that students taught with typing tutor instructional package performed better than those students taught with conventional method. Also, in a study conducted by Allu (2014), the author found out that demonstration method was better than lecture method in teaching keyboarding, which is in support of the finding of this study as lecture method recorded a mean score less than the cut off point. Also, in agreement with this study, the finding of Akhigbe (2015) reported that students taught with computer assisted instructional method performed better than those taught with lecture and demonstration methods. Supporting the finding of this study, Adejumo (2016) reported that demonstration method yielded better performance among business education students than group discussion.

4. RECOMMENDATIONS

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

1. Children below the age of 10 years should not be introduced to practical keyboarding skills in order to avoid ill-formed of the appropriate skills.
2. Manipulative keyboarding should not be incorporated into the curriculum of lower and middle basic levels of Nigerian educational system.
3. Computer aided instructional method should be used in teaching and learning keyboarding at the upper basic level to achieve effective keyboarding skills.

5. CONCLUSION

From the findings of this study it can be concluded that keyboarding skills are best acquired at the upper basic level of Nigerian educational system. By this, it is concluded that keyboarding skills such as manipulative, posture and reading or proof reading skills are not properly inculcated at the lower and middle basic levels due to their low level of psychomotor and cognitive development. This may have effect on the ability of the learners in their future keyboarding endeavours, once a bad habit is formed at the inception.

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