Use of Android Keyboard and Keyboarding Skills Acquisition among Business Education Students in Tertiary Institutions in Ekiti State, Nigeria

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Abstract. The use of android keyboard is prominent among business education students prior to their introduction to keyboarding skills and operation due to emergence of sophisticated Global System of Mobile Communication (GSM). This seems to have affected skill acquisition in keyboarding as most business education students regularly use 'hunt and peck' method instead of 'touch type'. The study determined the impact of the use of android keyboard on keyboarding skills among business education students in Ekiti State. The survey research design was adopted. The population of the study consisted of 87 business education students (office technology and management option) during the 2018/2019 academic session and all were studied. The instrument was validated by three experts and subjected to split halves reliability test which yielded a coefficient of 0.81. The findings revealed that the use of android phone keyboard has an impact on students' manipulative and posture skills in learning keyboarding. It was recommended that business education students should always avoid wrong manipulative and posture skills that will not allow the use of touch type method in keyboarding classes, among others.
Key words: Android keyboard, Keyboarding skills, Gender, Business education students

Introduction

Keyboarding is one of the core courses in business education programme designed to provide occupational skills for interested students. It is an onerous task that demands full attention and concentration to achieve the production of mailable documents in business and office environments. In the time past, there were no alternatives to learning keyboarding (typewriting) than through the typewriters and the keyboarding lecturers who taught the learners the appropriate skills needed to be proficient in the use of the keyboard. It is more of a core subject in Office Technology and Management (OTM) education option at the college of education, polytechnic and university education levels. It is also an important component of business studies' curriculum at the nation's junior secondary school level (NERDC, 2012).

Of importance among the keyboarding skills are manipulative and posture skills, the acquisition of which may either have negative or positive influence on the overall output of a keyboard user. Keyboarding has become an important aspect of academic, medical, social and personal lives as the use of keyboard has engulfed every aspect of human endeavours in one way or the other due to technological explosion. By this, most business education students are exposed to the use of android phone keyboard to type and process messages for onward transmission as appropriate in their personal lives.

Android phone is a mobile telephone device that can be used to type messages and download applications from the net at the press of keys. The phone has a complete keyboard setting as in computers or typewriters which are manipulated by users mostly through the right hand index finger or the middle finger. Android phones enable individuals to send written communication among people through social media where they create, share and

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exchange information in virtual networks. These networks sites, according to Brown (2010) and Okoli and Idele (2015) include facebook, whatsapp, blogs, goggle talk, blackberry messages and twitter.

Effective acquisition of keyboarding skills in business education programme requires good mastery of the keyboard without looking at the keyboard (Aina, 2016). To achieve this, students are expected to have good manipulative, reading and posture skills that will distinguish them from other lay keyboarders. The main purpose of learning keyboarding is to acquire expertise in the manipulation of the keyboard which will enable them secure paid or self employment after graduation. This is in line with one of the nation's educational goals as reported in FRN (2013) that education in Nigeria is to develop appropriate skills, mental, physical and social abilities and competencies to empower the individual to live in and contribute positively to the society. Supporting the foregoing, Azih and Nwagwu (2015) remarked that it is obvious that empowering Nigerians through skill acquisition oriented courses (keyboarding inclusive) and training will be a proactive measure of solving the problems emanating from root causes of insecurity. Thus, business education students who are expected to possess the practical keyboarding skills needed in industries are to be mindful of their exposure to manipulative activities that may bring about negative transfer of learning in the acquisition of practical keyboarding skills.

Given the observed scenario, the question that arises is: Will exposure to the use of android keyboard prior to keyboarding training affect business education students' manipulative and posture skills? Thus, the study found out whether the use of android phone keyboard has impact on skill acquisition in keyboarding among business education students in College of Education, Ikere Ekiti and Ekiti State University, Ado Ekiti in Ekiti State.

Theoretical Underpinning and Literature Review

This study is based on the Theory of Psychomotor which was developed by Gottfried Wilhelm Leibniz between the years 1646 and 1716. Psychomotor relates to psychical movement which has extended to communication industry such as telephone skills, computer operations like data entry and keyboarding skills, among others. The theory is focused on multipart physical and cognitive skills acquired in coordination with each other. The major goal of this theory is to promote the development of psychomotor skills for all circumstances (Reigeluth, 1999). In his contribution, Okwelle (2013) reported that a theory of psychomotor skill enhances the effectiveness of the TVET instruction as it serves as a means of systematizing information which is contained in area of knowledge, skill and attitude, thereby leading to the disarray of unknown facts. Scholars who had worked on theoretical models of psychomotor skills, according to Okwelle (2013) include Seymour (1966); who proposed classification of psychomotor skills into five categories, Miller (1967) explained the theory in four classes, Havenstenin (1970) developed a model of the theory into five stages, Harrow (1972), Simpson (1972), Dave (1975) and Hoover (1980) among others.

This study adopted the model of Hoover (1980) based on its ease of flow of learning sequence. He classified psychomotor skills into the following four sequences: Observation, Imitation, Practice and Adaptation, (OIPA). The model is appropriate for this study because it is considered to be applicable to the steps needed to be taken when business education students are learning keyboarding in order to acquire high level expertise required in today's world of work.

Concept of Keyboarding and Keyboarding Skills

Keyboarding is synonymous to typewriting. Keyboarding can be defined as the art of learning how to be proficient in the use of computer or typewriter's keyboard to produce mailable documents. The arrangement of alphabets, numbers, signs and punctuation marks

are the same on both the typewriter and the computer. By this, the skills acquired on the typewriter can be perfectly and positively transferred to imputing skill on the computer. Thus, Erthal (2003) defined keyboarding as the ability to input data into a specific software application. Also, Ownby (2008) viewed that keyboarding is a skill of entering data by means of keyboard. Keyboarding skills can be taught on the typewriter as well as on the computer. Johnson, Nelson and Townsend in Commonwealth of Virginia (2012), reported that keyboarding is the penmanship of the computer age. They define keyboarding as the inputting of data using the touch method on a standard alphanumeric keyboard such as the QWERTY keyboard. It stated that the goal of keyboarding instruction is to develop a touch skill that will enable an individual to enter alphanumeric information at a speed that is faster than handwriting.

Mastering keyboarding involves more than just learning the locations of keys. The foundation for masterful keyboarding is technique. Technique involves the positioning and action of the body and fingers as the student is typing. Ergonomics is an important aspect of keyboarding that students need to learn from the beginning of their keyboarding instruction. Learning key location involves a sequential process beginning with letters followed by punctuation, numbers, and symbols, as mastery develops through practice (Zeitz, 2010).

Manipulative and Posture Skills

The computer or typewriter is manipulated through an input device called keyboard. Addah (2008) remarked that the keyboard is the most frequently used device and advised that prospective keyboard user should master the keyboard for effective manipulative skills. Johnson et al, (2012), noted that the keyboard is located on a desk that allows the student to have arms from shoulder to elbows in a vertical position, with the forearm reaching up at a slight angle with hands over the keyboard. Fingers are pointed down from the hand as they are held in a curved position over the home keys. The hands should not be allowed to rest on the keyboard or desk but palms of the hands should be held up in a position that is at the same angle as the forearms. Correct positioning allows for correct reaches in learning the keyboard. The student is expected to strike the key as if it were hot. A keystroke is a staccato movement, and as the student keys faster, it may appear that the fingers do not remain on the home row. Arms and hands should not move around when striking keys. They are described as being "quiet".

Also, Addah (2008) explained that, to type the upper character on the key, the use of the shift key with the little finger should be taught as a three-phase operation of (1) shift, (2) type, and (3) release. Students must be taught to use the shift key on the opposite side of the keyboard from the key that is being capitalized and drills should be given to ensure that the operation of the shift key becomes automatic. This keying technique is by touch and it does not allow students to press "shift lock". It will break their concentration and fluency, cause them to look at their hands, and add an extra stroke in the operation. This skill is the link between concrete and abstract thinking. This skill is very important in that what has been taught and learnt in the cognitive domain are brought into the limelight in the psychomotor domain and concretized. By this, the knowledge of the principles guiding the typing of the keyboarding tasks is displayed through this skill.

The chair should allow the student to sit up straight with feet flat on the floor. One foot is placed slightly in front of the other. Provision should be made for adaptation of the furniture and chair so that the student may sit comfortably. Balance is necessary for good key stroking techniques. Thus, keyboard users must check their posture and ensure that their eyes are on the copy book while their backs are straightened and waists sitting back in the chairs to avoid fatigue and stress.

When learning the use of the space bar, students should be asked to try tapping it separately with each thumb to determine which is the most convenient. The student should be taught how to strike the space bar correctly with the thumb that is chosen which, conventionally, is the right thumb. A quick tap of the space bar is critical so that extra space will not appear in the copy. The technique of spacing after each word as a part of the word should be taught with skill.

According to Ekpenyong (1988), skill is the ability to use one's knowledge effectively and readily in execution of performance. He noted that a skill is based on using knowledge expertly, the objective of which is to bring that knowledge to maximum level of competency. Akomolafe and Adegun (2005) define skill as proficiency, the ability of doing something well. They viewed that, to have skill is taken to mean that a person is able to respond more or less habitually in an efficient way; and that skills are commonly classified as motor, intellectual and social. The systematic and sequential developments of skill are of utmost importance to business education students because skills are the tools with which they continue their learning. Consequently, inadequately developed skills tend to retard their performance in keyboarding examinations. Hence, Fasae and Olusola averred that skills, knowledge, abilities and tasks are the major requirements for the office professional to be productive and self reliant.

Maximum skill acquisition involves that ability to perform any given task with ease, and demonstration of the technical know-how involved without stress, which will lead to enhanced productivity. In support of this, Ezeji and Okorie (1988) reported that the acquisition of the requisite skills is a means of increasing the productive power of any nation. Also, Fieldman in Toby (2000) expressing the importance of skill acquisition observed that 'we do not believe that people are enslaved when they learn and acquire occupational and employment skills, we believe that they are enslaved when they have no skill'. However, in their contributions, Langan-Fox, Armstrong, Balvin and Anglim (2002) questioned whether it is easier to learn a new task by practicing it continuously, until mastered, or whether it is better to divide the time into short periods interspersed with rest or other activity.

The main purpose of learning keyboarding is to acquire expertise on the manipulation of keyboard. Thus, the development of adequate skills and competencies is an important characteristic of trained personnel who had undergone a course of study in keyboarding. Consequently, the FRN (2004), states that the nation's educational activity should be centred on the students in order for them to acquire maximum skill acquisition for self-development and fulfilment in the labour market.

Corroborating this view, Yamaguchi and Logan (2014) remarked that skilled typists differ from novices in their typing method. Novice typists hunt and peck, they start with encoding a single letter, finding a target key, and moving the finger to that key. Skilled typists touch-type, they start encoding a word, translating it to multiple key strokes and executing them. They concluded that the development of typing skill is characterized by a transition from the hunt and peck method to the touch typing method regardless of gender.

Gender

The issue of gender difference in relation to academic performance has been a concern to researchers in education. Thus, Correll (2001) defined gender as beliefs, which are cultural presentation for interpreting the social world. Uloko (2005) observed that difference in academic achievement due to gender difference is a crucial matter to the educationist. Research findings on effect or influence of gender on students' academic performance are divergent. According to Okeke (2008), sex refers to those characteristics of male or female which are biologically determined. He said, gender is the socially, culturally constructed characteristics and roles which are ascribed to males and females in any society. Gender has

been a determining factor that influences students' choice of subject and subsequent career choice. It is a distinguishing feature showing feminine and masculine. Basson in Anumba (2014) defined gender as a psychological term describing behaviour and attributes expected of individuals on the basis of being born either male or female. Gender is pertinent in this study because the institutions involved are made up of both male and female students and there has been insinuation on gender's influence on students' academic performance in keyboarding. Fasae's (2013) study on executives' sex preference of secretaries in government parastatals in Ekiti State revealed that gender does not affect the performance of secretaries as both male and female secretaries can work effectively and efficiently for the development of the organizational goal.

Purpose of the Study

The main purpose of the study was to ascertain the impact of the use of android phone keyboard on acquisition of keyboarding skills by business education students in tertiary institutions in Ekiti State. Specifically, the study sought to:
  (a) Identify the extent of the use of android phones in typing messages by business education students.
  (b) Ascertain the extent of the influence of the use of android keyboard on business education students' manipulative skills in keyboarding.
  (c) Find out the extent of the influence of the use of android keyboard on business education students' posture skills in keyboarding.

Research Questions

The following research questions guided the study:
  (a) To what extent do business education students use android keyboard in typing messages?
  (b) To what extent does the use of android keyboard influence business education students' manipulative skills in keyboarding?
  (c) To what extent does the use of android keyboard influence business education students' posture skills in keyboarding?

Hypothesis

The following null hypothesis was formulated for this study:

There is no significant difference between the mean scores of male and female business education students on the influence of the use of android keyboard on manipulative skills.

Methodology

The descriptive survey design was adopted. The population of the study consisted of 87 business education students (Office Technology and Management option) in Ekiti State tertiary institutions during the 2018/2019 academic session, made up of 34 students from Ekiti State University Ado, Ekiti and 53 students from College of Education, Ikere Ekiti. The population was manageable and all were studied. The instrument used for data collection was a 30-item structured questionnaire titled: Questionnaire on the Use of Android Keyboard on Keyboarding Skills among Business Education Students (QUAKBKBSBES) with High Extent (HE) (4), Moderate Extent (ME) (3), Low Extent (LE) (2) and No Extent (NE) (1). The instrument was subjected to face and content validity structures by three experts: two from the field of Business Education and one from Text and Measurement Department. Their comments and corrections were incorporated into the final copy used for the study. Using split halves method on twenty business education students from Adeyemi College of Education, Ondo, the reliability coefficient of the instrument yielded a correlation index of

0.81.   The data collected for the research questions were analysed using mean and standard deviation, while the hypothesis was tested, using paired t-test at 0.05 level of significance. In taking decision, any item with a mean score of 2.50 and above is regarded as High Extent (HE) while any mean score response of less than 2.50 is regarded as Low Extent (LE).

Results

Research Question 1: To what extent do business education students use android keyboard in typing messages?

Table 1: Extent of the Use of Android Keyboard in Typing Messages by Business Education Students

S/N	Items	Mean	S.D	Decision
1	I have an android phone	4.32	0.73	High Extent
2	I regularly type messages on my android phone keyboard	3.80	0.64	High Extent
3	I use my android phone to reply my whatsapp messages	3.93	0.71	High Extent
4	I am a regular user of 2go	4.08	0.80	High Extent
5	I communicate regularly on my face book page	4.70	0.66	High Extent
6	I visit my e-mail box everyday to respond to my inbox message	3.09	0.72	High Extent
7	Most of my assignments are done through internet	3.65	0.55	High Extent
8	I sort for academic information on daily basis through the web	3.82	0.60	High Extent
9	I am a regular user of Twitter	2.75	0.69	High Extent
10	I belong to some online groups with similar interests where we share ideas	3.78	0.98	High Extent
11	I type some of my assignments on the android keyboard before printing.	2.87	0.57	High Extent

Source: 2022 Field Work   N = 87   Grand Mean: 3.71

The data in Table 1 show that to a high extent, the mean scores of all the eleven items were more than the 2.50 cut off point. Thus, all the items in relation to the use of android keyboard were agreed upon by the respondents with the grand mean score of 3.71. This implies that most of the respondents regularly carry out one operation or the other on their phones using the keyboard.

Research Question 2: To what extent does the use of android keyboard influence business education students' manipulative skills in keyboarding?

Table 2: Extent of the Impact of the Use of Android Keyboard on Business Education Students' Manipulative Skills

S/N	Items	Mean	S.D	Decision
12	I mostly use my index finger to type (key in) my information	4.32	0.56	High Extent
13	I need to master the keyboard before I make use of the android keyboard	1.13	0.73	Low Extent
14	All the nine typing fingers are engaged in android keyboard	1.72	0.69	Low Extent

15	The android keyboard is not wide enough to give room for effective keyboard manipulation	1.93	0.58	Low Extent
16	There is positive transfer of learning of android keyboarding to computer or typewriter's keyboarding	1.02	0.86	Low Extent
17	I use touch type method to operate android keyboard	0.93	0.62	Low Extent
18	I regularly use my left fingers to key-in information on my android keyboard	1.67	0.66	Low Extent
19	Effective use of home keys with appropriate typing fingers is possible on android keyboard	1.76	0.59	Low Extent

Source: 2022 Field Work   N = 87 Grand Mean: 1.81

Table 2 shows that only item 12 recorded a mean score of 4.32, while items 13 to 19 had mean scores of less than 2.50. By this, the data revealed that the use of android keyboard prior to the learning of keyboarding skills had negative influence on business education students' manipulative skills. Analysis of item 13 indicated that most of the respondents always use one or two fingers to type and item 16 revealed that there is no positive transfer of learning from using android keyboard to effective keyboarding skills among business education students.

Research Question 3: To what extent does the use of android keyboard influence business education students' posture skills in keyboarding?

Table 3: Extent of the Impact of the Use of Android Keyboard on Business Education Students' Posture Skills

S/N	Items	Mean	S.D	Decision
20	I cannot operate my android keyboard on motion	0.89	0.71	Low Extent
21	I need to take away my eyes from the android keyboard	1.98	0.63	Low Extent
22	There is need to maintain certain position before you can key-in on your android keyboard	1.54	0.87	Low Extent
23.	Need to place the finger tips on the home keys (ASDF; LKJ)	2.06	0.92	Low Extent
24	Feet standing firmly on the floor and one slightly in front of the other.	1.45	0.81	Low Extent
25	Acquisition of touch type method	1.86	0.68	Low Extent
26	Placement of copy book on the right hand side on the table	1.42	0.80	Low Extent
27	Use of right hand thumb to depress space bar to create space in between words	1.75	0.76	Low Extent
28	Have your waist sitting back in your chairs	1.13	0.77	Low Extent
29	Arms and elbows hanged loosely while you keep your wrists low	1.51	0.81	Low Extent
30	Shoulders relaxed and held back while you put yourself of the centre.	1.74	0.92	Low Extent

Source: 2022 Field Work   N = 87 Grand Mean: 1.58

Table 3 shows that the respondents do not need to maintain a specific posture before the android keyboard can be manipulated. All the eleven items recorded a grand mean score of 1.58 which was below the cut off point of 2.50. This implies that most of the posture skills required in effective and efficient keyboarding in business education are not demonstrated when using android phone.

Testing of Hypothesis

There is no significant difference in the mean scores of male and female business education students on the use android keyboard on manipulative skills.

Table 4: Independent sample t-test of the difference between Mean Scores of students on Manipulative Skills based on Gender

Variables	N	Mean	t	df	sig.
Male	33	15.90	0.124	85	.80
Female	54	15.08			

Note: N = Number of observation, df = degree of freedom, t = Student's t-test value, sig = sig. value (p-value)

Table 4 shows that the calculated t-test value for male and female students on influence of use of android keyboard on manipulative skills is 0.124 with a p-value of .802. Since the p-value is greater than 0.05, the null hypothesis was accepted. This implies that there is no significant difference between the mean scores of male and female business education students on the influence of the use of android keyboard on acquisition of manipulative skills in keyboarding.

Discussion

Table 1 revealed that all the listed items relating to the use of android keyboard by business education students were accepted as the analysis of data collected showed 'High Extent' in all the items. Thus, the study revealed that most business education students in Ekiti State regularly make use of their android keyboard in communication, replying, and sending messages on social media such as whatsapp, 2go, email, twitter, among others on their android phones. The finding of this study is in consonance with the findings of Brown (2010) when he observed that the importance of social media is found in the ease of accessibility, convenience functionality and flexibility. Also, in a study conducted by Okoli and Idele (2015), they found out that most of the social media listed in their study were accessible for business education students to use except for Twitter and blogs that were of a very little extent. Thus, their findings were in agreement with the outcome of this study on the use of keyboarding among business education students.

Analysis of research question two revealed that all the manipulative skills used in operating android keyboard have low impact on the manipulative keyboarding skills expected from business education students. This shows that business education students' exposure to the use of android keyboard prior to keyboarding classes will affect the students' good mastery of manipulative skills that can enhance their academic performance in keyboarding examinations and as well reduce their ability to acquire the dexterity needed for employment. The use of android keyboard has no regard for the skills needed for effective keyboarding by business education students. In their findings, Azih and Nwagwu (2015) reported that business skills taught should be produced to ensure expertise possession of the skills. Also, Aina (2016) found out that good mastery of the keyboard by business education students will help to maintain effective classroom management in any keyboarding teaching/learning process. Yamaguchi and Logan (2014), in their study found that skilled typists differ from novices in their typing method.

The analysis of research question three presented in Table 3 revealed that all the identified posture skills required for effective keyboarding operation in business education programme are not mandatory in the use of android keyboard. The implication of this is that most business education students may have the believe that keyboarding can be learnt with

little consideration to sitting, fingering, shoulder, arm and elbow positions. This may tend to retard their performance in keyboarding operation.

Finally, the null hypothesis was accepted because the computed p-value of 0.802 was greater than the alpha value of 0.05. The finding agreed with the view of Okoli and Idele (2015) who reported that there was no significant difference between the mean ratings of business education students on the use of social media as a result of gender.

The findings of this study has provided empirical information to keyboarding lecturers that business education students' prior knowledge on the use of android keyboard has negative effect on their proficiency and effective mastery of the keyboard for enhanced academic performance. It has also provided an empirical proof that manipulative and posture skills are negatively developed through the use of android keyboard. Thus, keyboarding lecturers are to be mindful of the students' prior knowledge when teaching elementary keyboarding and ensure strict compliance to the use of 'touch type' method from the elementary stage.

Conclusion and Recommendations

The study concluded that most business education students in Ekiti State tertiary institutions have been operating android keyboard using hunt and peck method prior to introduction to keyboarding skills and found it difficult to adjust to touch-type method, which is the expected standard for professional keyboarders. It is also concluded that poor initial typing habit prior to the learning of keyboarding skills have effect on students' academic performance in keyboarding examinations. Based on the conclusion, the following recommendations are made:

   a. Business education students should not allow prior knowledge of android keyboard operation to affect their dexterity in keyboarding classes in order to be proficient in keyboarding operation.
   b. Business education students should always avoid wrong manipulative and posture skills that will not allow the use of touch type method in keyboarding classes which may negatively affect their academic performance in keyboarding examinations and future employment.

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