



## **PERCEIVED EFFECTS OF COMPUTER AIDED INSTRUCTION ON STUDENTS' ACQUISITION OF KEYBOARDING SKILLS IN THE NEW NORMAL**

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### **Abstract**

*The study investigated perceived effects of computer aided instruction (CAI) on students' acquisition of keyboarding skills in the new normal. Descriptive survey research design was adopted for the study. Population comprised 115 business educators from six public colleges of education from South west, Nigeria. The total population was used for the study since it is manageable. Hence, there was no sampling. Instrument for data collection was a questionnaire tagged "Perceived Effects of CAI on Keyboarding Skills Acquisition" (PECKSA). Two experts validated the instrument. Cronbach Alpha reliability test was used to determine the consistency of the instrument with 0.8 co-efficient. The questionnaire was structured on a four-point rating scale as VHE - 4 points, HE - 3 points, LE - 2 points and VLE - 1 point. The researchers and an assistant administered 115 questionnaire out of which 81 (70.43%) copies were retrieved. Data collected were analysed using descriptive statistics of mean and standard deviation. Mean rating of 2.50 was used for decision on research questions. Items of mean value of 2.50 and above were considered as high extent and vise-versa. Findings revealed that CAI has brought convenience, flexibility engagement and interactivity into teaching/learning of keyboarding skills as learning through CAI with or without face-to-face interaction with the teacher is possible. It blends students on correct fingering, sitting position and building speed for optimal typing accuracy. The study found that insufficient modern infrastructure, laboratory, technological tools and epileptic power supply, are some of the challenges of teaching/learning using CAI. The study recommends that CAI be adopted as a strategy for teaching/learning keyboarding skills in the new normal and the challenges resolved.*

**Keywords:** *Computer Aided Instruction (CAI), acquisition, keyboarding skills, new normal.*

### **Introduction**

Keyboarding is one of the courses taught in business education. It is an art of communicating fluently with the keyboard through manipulation of the keys to produce mailable documents from typewritten or handwritten manuscripts. Being a skill-based course, it is



expected of keyboarders to have face-to-face interaction with their teachers for appropriate acquisition of the skills as done in the traditional setting of teaching and learning. However, there was an outbreak of COVID-19 pandemic that disrupted all activities of all sectors in the whole world. The effect of this pandemic on education sector was so great as a result of the lockdown generally observed across board. Nevertheless, the International Commission on the Futures of Education established by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in 2019 came up with strategies to resuscitate the dying education sector one of which is virtual teaching and learning.

The pandemic, as observed by Pacheco in (2020), ushers in a “new normal”, in which digitization enforces ways of working and learning. The “new normal” emphasizes two ideas which include competence-based education referred to as knowledge in the Delors Report, and a new learning framework structured by digital technologies (OECD, 2019a). Pacheco added that the pandemic forces education further into digitization, a development already well underway but the outbreak of COVID-19 meant that changes intended to occur over months or years had to be implemented in a few days. UNESCO (2020) buttressed this that the pandemic forced immediate transfer of learning to online modalities, without authentic planning and modification of curriculum design to adapt it to the online mode.

Furthermore, Daniel (2020) noted that many institutions had plans to make greater use of technology in teaching and learning, but the outbreak of COVID-19 has fast forwarded the intended changes meant to happen in the future. This view was supported by Barbara (2021) that the COVID-19 pandemic has forced the world to engage in the ubiquitous use of virtual learning. In essence, the outbreak of COVID-19 has changed the strategy of teaching and learning with the assistance of technology aided learning such as Computer Aided Instruction (CAI) through the use of internet, computer and other related new technological tools.

According to Obi in Oyedele, Ademiluyi and Olupayimo (2021), teaching strategies are the most prominent among several reasons which impact on students’ acquisition of effective skills needed to be professional and active participators in creative building. In other to encourage the students to acquire necessary skills in keyboarding, teachers have to prepare them using strategies that would arouse their interest and as well enhance their acquisition of the skills.

Computer Aided Instruction (CAI) is an interactive instructional technique whereby a computer is used to present the instructional material and monitor the learning that takes place. It is an instruction or remediation presented on a computer which improves instructional qualities and it is also used to train individuals for vocations (Dowdle, 2016). According to Him, CAI programmes are interactive and can illustrate a concept through attractive animation, sound, and demonstration. It allow students to progress at their own pace and work individually or problem solve in a group.

In the opinion of Dowdle in Olupayimo (2018), Computer Aided Instruction (CAI) is a term often used interchangeably with Computer-Based Instruction (CBI), Web Based Instruction (WBI), Computer-Assisted Learning (CAL), Computer Enriched Instruction (CEI), and Web Based Training (WBT). It is also known as Computer Based Training (CBT) when used to train individual for vocations. It combines presentation of material with drill-and-practice, games, or a simulation to emphasize material and assist in learning.

Computer aided instruction (CAI) is a diverse and rapidly expanding spectrum of computer technologies that assist the teaching and learning process. CAI systems can be categorized based on who controls the progression of the lesson. Early systems were linear presentations of information and guided drill, and control was directed by the author of the software. In modern systems, and especially with visualization systems and simulated environments, control often rests with the student or with the instructor. This permits information to be reviewed or examined out of sequence. Related material also may be explored. In some group instructional activities,



the lesson can progress according to the dynamics of the group (Ekoru, Ekoru & Udo in Olupayimo, 2018).

Moreover, computer aided instruction (CAI) to Alasoluyi (2015) is an educational software programmes that follow the same design as programmed instruction whereby students receive some instructional material, followed by a probe (a small test); it allows users to move on to the next lesson after each correct response; or repeat the lesson or receive a different lesson covering the same material if the responses were not correct.

In the author's further explanations, CAI is often repetitive, and it reduces learning to discrete units that sometimes obscure the relationship between ideas. CAI is better suited for drill and practice than for building concepts and promoting comprehension. Computer aided instruction (CAI) is a diverse and rapidly expanding spectrum of computer technologies that assist the teaching and learning process (Ekoru, Ofem and Sylvester, 2013).

Keyboarding is the act of producing written words as a printed document using either word processor or computer. Nyam (2012) defines keyboarding as the work of inputting information into the computer using a keyboard. Likewise, Virginia Department of Education (2012) describes keyboarding as the input of data using touch method on a standard alphanumeric keyboard such as the QWERTY keyboard. Keyboarding is the ability to input data by touch, using alphabetical and numeric keys on the computer keyboard. Mastery of keyboarding skills have become necessary and equally important in the world of work as the use of computer has tended to dominate today's business environment (Oborah, 2011). In this technological era, it is expected of students to produce handwritten and computer generated works vis-à-vis assignments and other forms of assessments such as test, examinations and write their long essays using word processors requiring a level of keyboarding proficiency.

Skills is the ability to do something well through the experience gained in a particular training or practice. Adigun (2015) defines skills as the ability and capacity acquired through deliberate, systematic and sustained efforts to smoothly and adaptively perform functions involving ideas, things and people. Likewise, Ezenwafor (2014) sees skills as aptitudes and abilities appropriate for a specific job. In other words, a skillful person is someone who is very good at what he is doing. It is the knowledge that enables an individual to meet established performance criteria (Aina, 2013). Keyboarding skills, therefore, are the abilities and aptitudes that enable someone communicate fluently with the keyboard, touch type speedily and accurately and fit into the world of work in this globalized world.

Contributing, Willer (2013) sees keyboarding skill as the ability to fluently communicate through a computer keyboard. Fluent keyboard communication is the ability to formulate thoughts, compose sentences, and emit them through our fingers without a conscious thought of how our fingers make the words. To communicate fluently, the individual must use all five fingers of each hand in a conventional manner. For students, fluent keyboard communication would be of great advantage to their entire academic career and they will also find it an essential skill for every job in this globalized world.

In *computer aided instruction* (CAI), the performance of the students, the sequence of learning and the amount of time spent on learning tasks are determined by learners themselves, the achievement of each learner is assessed against a given performance standard rather than against the performance of other learners (Muraina, Adeleke & Rahman, 2011). Consequently, with the use of CAI, students can learn well in considerably less time, help a student in all areas of the curriculum and it is probably one of the easiest ways to deliver individualized instruction which encouraged the acquisition and mastery of keyboarding skills. Students' acquisition of keyboarding skills is very much necessary because it blends students on correct finger placement and building speed for optimal typing accuracy; and production of malleable document needed in today's workplace.



CAI provide immediate feedback, letting students know whether their answer is correct. If the answer is not correct, the programme shows students how to correctly answer the question. It offer a different type of activity and a change of pace from teacher-led or group instruction. Moreover, CAI improve instruction for students with disabilities because students receive immediate feedback and do not continue to practice the wrong skills. It capture the students' attention because the programmes are interactive and engage the students' spirit of competitiveness to increase their scores. CAI move at the students' own pace and usually do not move ahead until they have mastered the skill (Alasoluyi, 2015). Technology through computer aided instruction has brought convenience, flexibility engagement and interactivity into teaching and learning process. In the light of the foregoing, CAI may be seen as a good instructional strategy in teaching keyboarding skills in the new normal.

Despite the benefits of CAI to teaching and learning of keyboarding skills, CAI is being faced with a lot of challenges such as insufficient modern infrastructure, laboratory and technological tools, epileptic power supply, lack of access to internet connectivity, limited training period, inadequate trained personnel, high cost of purchasing computer system, lack of skills on the part of users, lack of relevant software and poor maintenance, among others. In addition, Cahapay (2020) opines that teachers may be faced with the challenge of moving from offline mode to online mode, changing their teaching methodologies, and managing their time since teaching and learning keyboarding skills cannot be effective with the use of CAI alone. Conversely, provided lasting solutions are proffered to the identified challenges, CAI may be considered a good strategy for teaching and learning keyboarding skills.

### **Statement of the Problem**

Before the spread of COVID-19 pandemic, some institutions have introduced virtual teaching and learning into their academic programmes. While some institutions are still operating the face-to-face method of teaching and learning process, some are just warming up for this development of virtual teaching and learning and suddenly, the insurgency occurred which ravaged the whole world for several months. The UNESCO suggested some strategies of teaching and learning the chief of which is virtual as a result of the challenges posed on all spheres of life by COVID-19 pandemic, including educational sector. Teaching and learning through virtual means was embraced by the whole world for continuity in education since education is the bed rock of any successful nation. However, some school of thought believed that teaching and learning of keyboarding skills may be a little difficult task for fresh keyboarders who supposed to have face-to-face interaction with their teachers for proper teaching and learning process to take place most especially in public colleges of education in the South-west geopolitical zone of Nigeria. The question agitating the mind of this researcher now is what strategy can be adopted in teaching and learning of keyboarding skills to enable the students acquire appropriate keyboarding skills in the new normal? It is against this backdrop that the researchers intend to investigate the perceived effects of computer aided instruction on students' acquisition of keyboarding skills in public colleges of education in South west geopolitical zone of Nigeria.

### **Research Questions**

The following research questions were raised:

1. What is the extent of effects of computer aided instruction on students' acquisition of keyboarding skills as perceived by business educators?
2. What are the perceived challenges of teaching and learning with computer aided instruction on students' acquisition of keyboarding skills?



### **Research Hypotheses**

The following hypotheses were tested at 0.05 level of significance:

- H<sub>01</sub>: There is no significant difference in the mean rating of male and female business educators in public colleges of education on the perceived extent of effect of computer aided instruction on students' acquisition of keyboarding skills.
- H<sub>02</sub>: There is no significant difference in the mean rating of male and female business educators on the perceived challenges of teaching and learning with computer aided instruction on students' acquisition of keyboarding skills.

### **Method**

Descriptive survey research design was adopted for the study. The population comprised 115 business educators from six public colleges of education from South west geopolitical zone of Nigeria which includes Adeyemi College of Education, Ondo (16), Federal College of Education (Technical), Akoka (34), College of Education, Ila-orangun (12), College of Education, Ikere (22), Federal College of Education (Special), Oyo (18) and Tai Solarin College of Education (13) (one college from each State, comprising three Federal and three State colleges of education respectively). The total population was used for the study since it is manageable. Hence, there was no sampling. The instrument for data collection was a questionnaire tagged "Perceived Effects of CAI on Keyboarding Skills Acquisition" (PECKSA). Three experts, one in tests and measurement and two in business education from Adeyemi College of Education, Ondo and Federal College of Education (Technical), Akoka respectively validated the instrument. The Cronbach Alpha reliability test was used to determine the consistency of the instrument which yielded 0.8 reliability co-efficient. The questionnaire was structured on a four-point rating scale as Very High Extent (VHE) - 4 points, High Extent (HE) - 3 points, Low Extent (LE) - 2 points and Very Low Extent (VLE) - 1 point. The researchers with the help of two research assistants administered 115 questionnaire out of which 81 (70.43%) copies were retrieved. Data collected were analysed using descriptive statistics of mean and standard deviation. Regarding the research questions, mean rating of 2.50 was used for decision. Items of mean value of 2.50 and above were considered as high extent while items with mean values below 2.50 were considered as low extent.

### **Result**

**Research Question 1:** What is the extent of effects of computer aided instruction on students' acquisition of keyboarding skills as perceived by business educators?

**Table 1:** Mean scores and standard deviation of respondents on extent of effect of computer aided instruction on students' acquisition of keyboarding skills.

S/No	Items	Mean	SD	Remarks
1	CAI has brought convenience, flexibility engagement and interactivity into teaching and learning of keyboarding skills.	3.10	.87	High Extent
2	It blends students on correct finger placement, sitting position and building speed for optimal typing accuracy.	3.22	.72	High Extent
3	Learning through CAI with or without face-to-face interaction with the teacher is possible.	2.87	.76	High Extent
4	Allow students to learn at their own pace without skipping until they have mastered a particular skill.	3.05	.81	High Extent
5	CAI capture the students' attention because the programmes are interactive and engage the students' spirit of competitiveness to increase their scores.	3.11	.76	High Extent



6	Provision of immediate feedback, letting students know whether their answer is correct or not.	3.28	.84	High Extent
7	It offer a different type of activity and a change of pace from teacher-led or group instruction.	2.65	.77	High Extent
8	CAI improve instruction for students with disabilities	2.89	.71	High Extent
9	Helps in covering the curriculum content of keyboarding	3.19	.80	High Extent
10	Using CAI saves time and helps in covering a large class	3.12	.78	High Extent
11	Reduces teachers stress in delivering keyboarding instruction	3.15	.72	High Extent
12	The achievement of each learner is assessed against a given performance standard rather than against the performance of other learners	3.09	.74	High Extent
<b>Grand mean and standard deviation</b>		<b>3.06</b>	<b>.77</b>	<b>High Extent</b>

**Source: Field survey, 2021**

Table 1 reveals the respondents' positive response to all the items on the perceived effect of computer aided instruction (CAI) on students' acquisition of keyboarding skills with mean scores of 2.65 to 3.28. This positive response was very obvious as the mean scores were above the fixed decision value of 2.50 coupled with the grand mean of 3.06 and standard deviation of 0.77 respectively. The implication is that adopting computer aided instruction (CAI) as a strategy of teaching and learning keyboarding skills will go a long way to enhance the students' acquisition of keyboarding skills in the new normal.

**Research Question 2:** What are the perceived challenges of teaching and learning with computer aided instruction on students' acquisition of keyboarding skills?

**Table 2:** Mean scores and standard deviation of respondents on the perceived challenges of teaching and learning with computer aided instruction on students' acquisition of keyboarding skills

S/N	Items	Mean	SD	Remarks
1	Insufficient modern infrastructure, laboratory and technological tools affects teaching and learning of keyboarding skills	3.48	.74	High Extent
2	Epileptic power supply	3.21	.72	High Extent
3	Inadequate trained personnel	3.45	.81	High Extent
4	High cost of purchasing computer system	3.02	.70	High Extent
5	Lack of skills on the part of users	2.85	.82	High Extent
6	Lack of access to internet connectivity	2.80	.82	High Extent



7	Poor maintenance	3.01	.79	High Extent
8	Socio-economic status of parents	2.87	.80	High Extent
9	Lack of interest on the part of the learners	3.10	.77	High Extent
10	Lack of relevant software for teaching keyboarding skills	3.33	.84	High Extent
<b>Grand mean and standard deviation</b>		<b>3.11</b>	<b>.78</b>	<b>High Extent</b>

**Source: Field survey, 2021**

Table 2 reveals the respondents' positive response to the perceived challenges of teaching and learning using computer aided instruction (CAI) on students' acquisition of keyboarding skills with mean scores ranging from 2.80 to 3.48. This positive response was very obvious as the mean scores were above the fixed decision value of 2.50 coupled with the grand mean of 3.11 and standard deviation of 0.78 respectively. The implication is that as beneficial as using computer aided instruction (CAI) as a strategy of teaching and learning keyboarding skills is in the new normal, it is still being faced with a lot of challenges. These needs urgent attention in order to make the use of CAI in teaching and learning of keyboarding skills in the new normal effective.

### Hypothesis 1

**Table 3:** t-test analysis on the mean ratings of male and female business educators' on extent of effect of teaching and learning with computer aided instruction (CAI) on students' acquisition of keyboarding skills in the new normal.

Variables	N	X	SD	df	t-cal	t-crit	Remarks
Male	56	3.01	0.76	79	0.21	1.96	NS
Female	25	2.98	0.82				

Data in tables 3 shows that the calculated t-value of 0.21 is less than the calculated critical value of 1.96. This reveals that there is no significant difference in the mean ratings of male and female business educators' on extent of effect of teaching and learning with computer aided instruction (CAI) on students' acquisition of keyboarding skills in the new normal, hence, the null hypothesis is upheld.



## Hypothesis 2

**Table 4:** t-test analysis on the mean ratings of male and female business educators' perception of challenges of using computer aided instruction on students' acquisition of keyboarding skills in the new normal.

Variables	N	X	SD	df	t-cal	t-crit	Remarks
Male	56	3.00	0.76	79	0.45	1.96	NS
Female	25	3.18	0.79				

Tables 4 reveals that the calculated t-value of 0.45 is less than the calculated critical value of 1.96. This is an indication that there is no significant difference in the mean ratings of male and female business educators' perception of challenges of using computer aided instruction on students' acquisition of keyboarding skills in the new normal. The null hypothesis is therefore, upheld.

## Discussion of Findings

The study investigated the perceived effects of computer aided instruction (CAI) on students' acquisition of keyboarding skills in the new normal. The result emanating from the study reveals business educators' positive response on their perception of the effects of CAI on students' keyboarding skills acquisition with highest mean score of 3.28 as it has brought convenience, flexibility engagement and interactivity into teaching and learning of keyboarding skills as learning through CAI with or without face-to-face interaction with the teacher is possible. It blends students on correct finger placement, sitting position and building speed for optimal typing accuracy. Also, with CAI, students can learn at their own pace without skipping until they have mastered a particular skill. It provide immediate feedback, letting students know whether their answer is correct or not and by this, CAI capture the students' attention because the programmes are interactive and engage the students' spirit of competitiveness to increase their scores. This means that if CAI is adopted as a strategy for teaching and learning of keyboarding skills in the new normal, students will be exposed to the correct fingering and sitting position which will enhance their speed and accuracy development in keyboarding. This is in line with the opinion of Muraina, Adeleke & Rahaman (2011) that the effect of CAI in teaching and learning of keyboarding skills is high because it blends students on correct finer placement and building speed for optimal typing accuracy and production of mailable document in today's workplace. Alasoluyi (2015) also supported the view by stating that CAI move at the students' own pace and usually do not move ahead until they have mastered the skill which may be impossible in the traditional teaching and learning setting. In essence, the effect of CAI on students' acquisition of keyboarding skills in the new normal will be very high if adopted as a strategy of teaching and learning keyboarding skills.

The study also found that insufficient modern infrastructure, laboratory and technological tools affects teaching and learning of keyboarding skills, epileptic power supply, inadequate trained personnel; high cost of purchasing computer system, lack of skills on the part of users; lack of access to internet connectivity, lack of interest on the part of the learners, socio-economic status of parents, poor maintenance and lack of relevant software for teaching keyboarding skills are some of the challenges of teaching and learning using computer aided instruction on students' acquisition of keyboarding skills as perceived by business educators with the highest



means score of 3.48. This was in agreement with the submission of Oyedele, Ademiluyi and Olupayimo (2021) that some of the challenges of virtual teaching and learning are epileptic power supply, high cost of purchasing personal computer and lack of interest on the part of the learners, among others. It therefore, implies that if lasting solution is not provided to resolve the challenges, adopting CAI as a strategy for teaching and learning of keyboarding skills in the new normal may not yield the expected result. Hence, the effect of CAI on students' acquisition of keyboarding skills in the new normal will be very low.

### **Conclusion**

Based on the discussion above, it was concluded that adopting computer aided instruction (CAI) into teaching and learning of keyboarding skills in the new normal in public colleges of education in South west geopolitical zone of Nigeria will have a very high effect on students' acquisition of keyboarding skills. Similarly, to record a remarkable effect of CAI on students' acquisition of keyboarding skills, solution should be proffer to the recurring challenges.

### **Recommendations**

In the light of this conclusion, the following recommendations were made:

1. Computer aided instruction be adopted as a strategy for teaching and learning keyboarding skills in the new normal.
2. Lasting solution be proffer to the challenges facing teaching and learning of keyboarding skills using computer aided instruction be in the new normal.

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