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INTEGRATING ICT AS A TEACHING TOOL IN THE ELT CLASSROOM AT HIGHER EDUCATION LEVEL: A DESCRIPTIVE STUDY

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Abstract

While learning a second or foreign language Information technologies provide a catalyst for language learners. In English Language Teaching, teachers have started integrating information and communication technologies as a tool to accomplish better language learning amongst the students. This study investigates how the undergraduate English teachers' of private universities have integrated ICT during English language classes. Moreover, it explores their perceptions regarding procedures and challenges faced by teachers while integrating ICT based tools in teaching English. The population of the study comprised of English language teachers at the tertiary level. Sample size was drawn through simple random sampling technique and 130 teachers from 12 private sector universities situated in Karachi Pakistan to get the questionnaire filled and semi-structured interview schedule was used to get the in-depth information on integrating ICTs in ELT. The quantitative data were analyzed by descriptive statistics and qualitative data was analyzed with the help of thematic analysis. The analysis of data revealed that the higher-level English teachers were aware of ICT and integrated ICT in ELT by employing strategies like PowerPoint, blogs, online submission of work and the marking of such work, which were effective. However, the teachers faced power challenges, connectivity challenges, lack of knowledge, lack of trained technical support etc. This paper further sheds light on the strategies to overcome challenges and encourage the incorporation of ICT in English language classrooms. Therefore, management should establish in-service training for the teachers to incorporate technology into English language classroom.

Keywords: Information and communication technology (ICT), integrated English language learning, higher education, challenges.

Introduction

For decades, ICT is embraced in education. It can be traced back to early 1970s (Levy, 1997) the applications of computer are being embedded in teaching and learning setting. Due to the workability and multipurpose-ness of ICT and its contributions to technology and pedagogy governments of different countries in 1980s became exceedingly interested in it. The use of ICT in education expands onto utilizing multimedia in teaching, communications which are computer-mediated, learning enhancement through technology-enhanced learning, assisted learning through computer, online learning, and electronic-learning (e.g. Skinner, 2009; Spencer-Oatey, 2007). Romeo and Walker (2002) present a dual perspective on the use of ICT in education. The initial perspective is derived from behaviorist learning theories, which centers on the idea of a computer being a medium to transfer information. The latter is derived from constructivism, which focuses on the utilization of computers as a medium to increase teaching and learning. This latter view is about capitalizing on the versatility and distinctiveness of technology, which aid the teacher in creating a conducive environment for the learning of the students (p. 323).

The impact of ICT on the process of education is explored theoretically and empirically for decades (Bliss & Bliss, 2003; Feng, Zheng, & Shao, 2005; L. Hu, 2007; Z. Hu, 2009; Karagiorgi & Charalambous, 2006). The functioning of schools, pedagogies in use, curriculum, content and students' learning has affected after the inculcation of ICT. ICT has an impact on the modes of teaching and learning. (See, e.g. Bliss & Bliss, 2003; Z. Hu, 2009; Karagiorgi &

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Charalambous, 2006). The quality of education has improved due to the integration of ICT in the domain of education. A wide perspective is that ICT can help in reforming the standard of education by making it accessible and affordable. One of the branches of ICT is the 'computer-assisted language learning' (CALL) which has been in use for decades. Since 1960s, the duration can be divided into time intervals: the 1960s–1970s (behaviorist CALL), the 1980s (communicative CALL), and the 1990s until present (integrative CALL) (Fotos & Browne, 2004; Levy, 1997; Warschauer, 2004).

ICT has the power to shift the paradigm of content and teaching methodology, go beyond the impediment and space if utilized appropriately. The shift from teacher-centered to the active learner-centered approach of ICT has altered the system of education i.e. dissemination, circulation, and remittance of knowledge. The understanding of technological creativity can help the learner in creating, sharing, producing knowledge within and outside the assigned tasks and to perform better while developing skills to cope with the changes but the pace of change. The technology-enhanced learning (TEL) defines teacher's role as challenging and different from the traditional practice. In the new dimension, teacher will play a director, a facilitator, a trainer, because ICT embedded classes' circles around inquiry, curiosity and exploration. Since, ICT is regarded as an important part of English Language Teaching (ELT) (Dudeney& Hockly 2007, p. 7). Therefore, paper attempts to discuss the role of ICT in teaching English language and learning processes, the challenges of technology-mediated classes in the context of tertiary level.

OBJECTIVES:

- To investigate the effectiveness of ICT in terms of teaching-learning process efficacy in ELT classes.
- To explore the barriers of technology embedded ELT classes.

RESEARCH QUESTIONS:

- What is the role of ICT in increasing the efficacy of teaching-learning process in ELT classes?
- What are the challenges teachers facing in implanting ICT as a teaching tool in an English classroom?

Literature Review

A volume of research and discussion on the integration of Internet technology as a tool for learning in education is discoverable in literature concerning languages, humanities and literacy. The creation and integration of Internet brings in a landmark in English teaching methods (Ganderton, 1998; Hellebrandt, 1999; Kelm, 1992; Lee, 1997; Sanaoui & Lapkin, 1992; Van Handle & Corl, 1998; Warschauer, 1996). The availability of resources and a variety of tools on the Internet cultivate the communicative skills through different channels i.e. listening, speaking, writing, reading, and communication. The Internet provides English learners to communicate directly with native English speakers while utilizing the resources. After realizing the power of technology based education, the Ministry of Education in Taiwan encouraged teachers to use technology into their curriculum and infuse in learning activities, which are rooted in technology to enhance global competence. The Government initiated funding program to enhance the use of information technology (IT) in schools. Initially they started by providing instruments to support courses that would give students the skills for participating in an increasingly technological workplace. Initial funding is provided Establish computer laboratories for teaching computer literacy, accompanied by workshops to train teachers' into designing Web-based course materials on different subjects. The expansion of internet technology, the literacy of computers has transferred from labs to classrooms, bringing a new dimension to think and produce with technology.

It is the pressure on teaching with technology, which reflects teachers' level of preparedness is increasing the use of technology in education nowadays. This need is extensively stressed in different contexts (Albion, 1999; Chen, 2008). Nevertheless, multiple teachers' use of technology has not expand over emails and search engines. (Chen, 2008; Ertmer & Ottenbreit-Leftwich, 2010; Jimoyiannis & Komis, 2007; Markauskaite, 2007; Tezci, 2009; Tondeur, van Braak, Sang, Voogt, Fisser & Ottenbreit-Leftwich, 2012). In the educational settings, along with the recent inventions students have become smarter in the way they control their learning process by self-directed learning with the help of Internet.

It is argued by many researchers that the integration of ICT enhances English Language learning. Thinking on the similar aspect Professor Sugata Mitra, who discovered the Hole-in-the-Wall concept in 1992. Mitra proposed that: "The acquisition of basic computing skills by any set of children can be achieved through incidental learning provided that learners are given access to a suitable computing facility, with entertainment". Professor Mitra came to this hypothesis in 1982 when thought of learning of students by using computers. In 1999, he tested his hypothesis with his team using the famous "hole in the wall" concept in New Delhi. Inamdar and Kulkarni (2007) had this to say: In 1999, the 'hole-in-the-wall' experiment in New Delhi, India, transferred the computer out of schools and homes environments into playgrounds. This computer had an Internet connection and installed into a brick wall of a playground in the residential slum. This experiment was labeled as "hole-in-the-wall" by the press. Many researchers named it "Minimally Invasive Education" (MIE). Through research it was discovered that youngsters on their own could access shared computers, even in the absence of adults. (2004, p. 170). Therefore, the conclusion, which can be arrived at out of this experiment is that schools can assist learners to carry out assignments with help of appropriate ICT tools.

Many studies and papers are written on ICT incorporation in global education and also in English. Motshegwe (2005 p.10) in a paper presents that "If the teacher has the skills to organize and stimulate the ICT-based activity, then both whole-class and individual work can be equally effective". Therefore, teachers, together with English Language teachers, must include ICT in their practices because it provides a catalyst in learning of the students. Researchers like Yunus et al (2009) discusses the integration of ICT by students to acquire English Language while focusing on the challenges learners face. As per the report, the result of the study declared that to learn English Language most of the students did not employ ICT, "some usage on surfing internet to get information", and "searching for words' meaning and pronunciation" (Yunus et al 2009 p.1456). Therefore, when learners get access to the internet, they abused the ICT instrument, in the process of learning the English Language. Although, they learned new words, what they mean and the way they are pronounced. It shows the importance of the use of ICT in the teaching and learning process of the English Language. Moreover, Yunus et al (2009) say that the study indicated that students were informed about the pivotal role of ICT in the improvement of their English Language. The authors of the research are of the opinion that ICT has the ability to "enhance their language learning in vocabulary, grammar, writing, speaking and allows them to take greater control in their learning" (Yunus et al 2009 p.1458). This reflects the value of ICT integration in the learning of English Language. Despite the challenges, the teachers should put in extra effort in integrating ICT in their teaching and learning process.

In 2004 Ofsted stated that the most difficult subject to teach is English Language. Therefore, Instructors should establish active participation and create conducive environment to maintain an interesting session which keeps the students engaged in learning. It is advised to those who implement curriculum to make ICT an integral component of learning and teaching processes. Kent and Facer (2004, p.25) says, "ICT in an educational point of view supports teaching, learning and a range of activities in education in various ways". Therefore, present day education is ideally achieved with ICT and related facilities and with the ICT literacy in both the teacher and student. Giordano (2007) argues that learners equipped with ICT literacy can effectively be unified into both the curriculum of English Language and other academic practices. Gumbo (2003) confirms that ICT is an important tool to encourage teaching and learning of English Language. It grants learners an opportunity to exploit ICT gadgets during multiple activities dedicated to learning. Rumpagaporn (2007) says with ICT, students can perform their tasks in multiple ways. Learners can be assigned tasks, which requires the utilization of ICT features and instruments to produce a school magazine, word processing and assignment, preparing a power-point presentation or just carrying out research. Whence, such tasks are carried out, learners correct their own grammatical errors, mechanical errors and improve the means of communication. Related to the prior claim, Huang (2005) further indicates that most of the ICT tools have word processing software that learners can access as a function learning. Students learn to tackle difficulties which were previously not possible.

While using ICT learners are reflecting, correcting, and accessing tools, improving learning all by themselves. Dickinson (1998) also shares his view on the effectiveness of ICT embedded in the curriculum, and integrated into

the classroom while teaching. To deliver content in dynamic ways an English language teacher can increase the use of ICT to help learners. Teachers' objectives can be achieved with the use of ICT as the expectation is for the teacher is to be creative and innovative in conducting classroom activities. Arnell (2012, p.9), cites "Svensson (2008) who defines four different ways in which ICT can be used in language teaching and learning: ICT as an automat, ICT as a tool, ICT as an arena and ICT as a medium". "The use of ICT as an automat involves reinforcing behavior that goes with correct responses at the same time making learners aware of incorrect ones." In 2012 Arnell says to teach computers Skinners modal can be replicated in which he taught animals a certain behavior. Arnell (2012), moreover says that grammar is in this way taught, similarly, to teach English Language computers can also be used, albeit many teachers and researchers have a distinct view on the claim. Arnell (2012, p.10) mentions Svensson (2008) who says ICT is a tool for learning meaning "that ICT is used to facilitate communication with teachers, other learners and people outside a particular school setting". With the use of ICT, learners can access relevant information on the Internet therefore; learners can use the gadget to interact in English language hence, learning language through application. Henceforth, it is clear that ICT improves tutoring of English Language in contexts like Botswana where English is medium of instruction. The students with this strategy get an opportunity to learn the English Language while developing skills of computer, which will be helpful in other subjects.

However, the availability of technology is a major concern in implementing ICT as a teaching tool. Despite ICT providing with a gateway in learning and teaching language in ELT classrooms, there are challenges in implementing it. Shrestha (2011, p.33) has mentioned some shortcomings that can exist in an ICT integrated classroom e.g. difficulties in infrastructure development, internet access to all the teachers and learners, problem of electricity, problem in providing training to the students by the teachers. Moreover, time management and material development difficulties can hamper the integration of ICT. Problems like lack of authentic English materials having cultural appropriateness. Lack of expert teachers to handle their teaching with ICT in the classroom. These factors discourage teachers from adopting ICT in their teaching methodology. Some problems can be associated with the school administration for example. The authorities inquire if modern technology tools and gadgets can really work inside the classroom to bring the desired results. As a matter of fact, many researchers dealt with the context when computers were a new thing in the teaching practices. The early research studies were not conducted properly because it was considered not as equipment, which cannot be instrumental in the method of teaching in itself. Therefore, it was presumed that computer or the internet may not be worth trying in an academic setting (Warschauer & Meskill, 2000). There is also the lack of or limited access to technological equipment within institutes which provides an obstacle towards the use of modern technologies as a tool for teaching. Many types of research cite this as a problem. Indeed, the lack of efficiently functioning computers and software will surely limit teachers to exploit the classroom according to their and student's needs. The durability of the technology can also hinder the effective use of technology because of the constant a teacher experiences of the equipment breaking down in the middle of a lesson. lack of computer skills and literacy can also result in computer damage. Meanwhile, reparation can be a bit costly; installation of the technological equipment (either in classrooms or in labs) and the software bears expenses.

Methodology

This study focuses on language teachers' technology-related views and their impact on technology integration into classroom practices. Researcher mixed method approach (Quan + qual) design and concurrently collected data. According to Creswell and Clark (2007), a Mixed Method Design consists of two phases, in which the qualitative data strengthen the quantitative data is primarily collected. The emphasis was on the quantitative data, which was later placed on the qualitative data collection. This two-phase design befitted the study because it helps reveal indefinite factors language teachers face while including technology into their classroom processes through questionnaires. Later the data collection had followed-up interviews with English language educators linked with their feelings, emotions, and understanding of technology integration. Since in nature Individual beliefs are multifarious that are not shown thoroughly within the questionnaire because of interchanging elements. Green (1971) determined that an individual's convictions conflict with another individual. This can be problematic for the reason that an educator may not

synchronize the reality of their classroom exercises as a result of unnoticeable elements. To understand teachers' perceptions completely, it is important to "infer from what they say, intend, and do" (Pajares, 1992, p. 314).

Henceforth, a deeper observation of teachers' beliefs assists in revealing problems impediments barriers, stimuli, attitudes, etc. related to the inclusion of technology in their space of teaching. In fact, interview questions were created from the questionnaire findings to further understand teachers' perceptions and barriers that impacted the application of technology integration in the classroom. Therefore, a mixed methods research approach was employed instead of choosing one research method. An investigator can create a more comprehensive study with the help of a mixed method. Through one approach, the data collection would have been inefficient. In this study, the quantitative data determined the association among teachers' perspective regarding the use of technology and their technological beliefs. The qualitative data provided deeper information which further expanded on the quantitative data. For the current study, English Language teachers from a private university were selected for the population. The sample size was drawn through simple random sampling technique and 130 (74 females and 56 males) teachers from 12 private sector universities situated in Karachi Pakistan to fill the questionnaire. The Questionnaire involves 8 items uses a five-point Likert scale which ranges from 'SA: Strongly Agree, A: Agree, N: Neutral, D: disagree, SD: Strongly Disagree'. Participants chose the concerns true of them according to the appropriate degree.

Qualitative data was collected with the help of the interview schedule and for this purpose, 03 teachers were interviewed in-depth. The research instruments developed were surveying the research objective, which is ICT integration in English language classes as a teaching tool. Questionnaires were distributed to 156 teachers by using simple random sampling technique; out of them 130, questionnaires were returned. The quantitative data were analyzed and interpreted with the help of descriptive statistics. Furthermore, the qualitative data was analyzed with the help of the constant comparative method and thematic analysis. The sets of qualitative and quantitative data were compared, constructed then, interpreted to check the connectivity.

Data Analysis

Findings from quantitative data

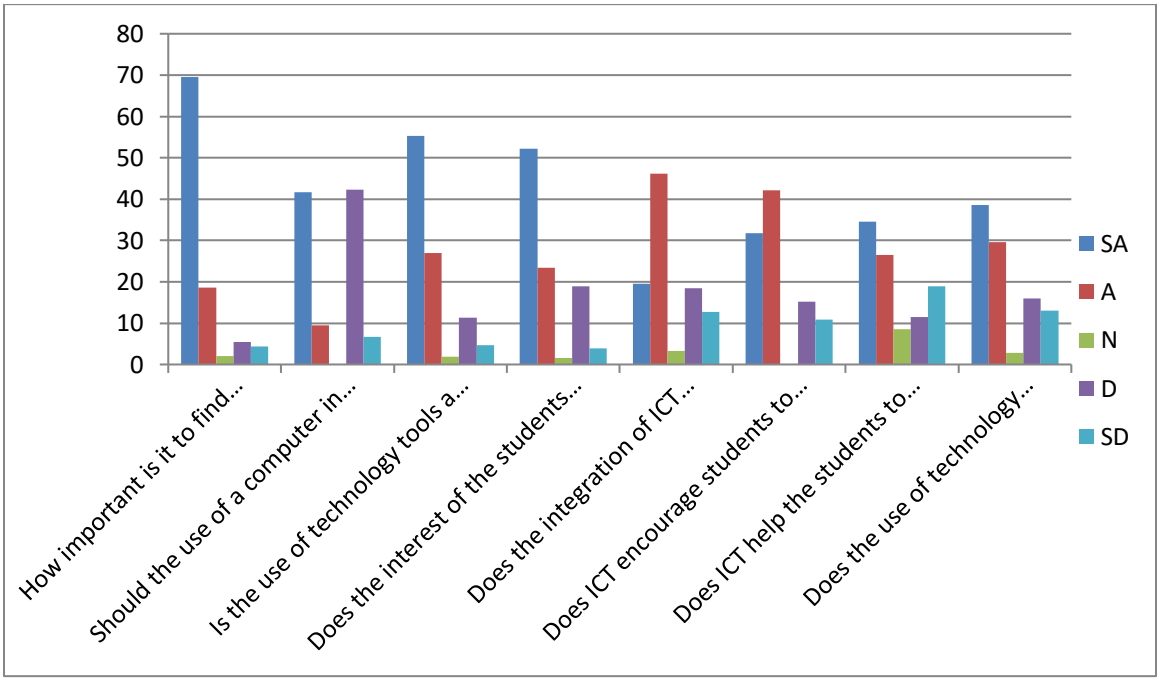
Table 1.

ICT as a teaching tool	**SA**	**A**	**N**	**D**	**SD**
1 How important is it to find different ways to use a computer in a language classroom?	69.56%	18.64%	2.01%	5.5%	4.29%
2. Should the use of a computer in an ELT classroom be a priority?	41.64%	9.43%	-	42.29%	6.64%
3. Is the use of technology tools a professional goal for a teacher?	55.23%	26.88%	1.94%	11.25%	4.7
4. Does the interest of the students increase in doing technology related activities in an English language class?	52.24%	23.42%	1.52%	18.96%	3.86%
5.Does the integration of ICT enhance language learning?	19.46%	46.12%	3.21%	18.43%	12.78%

6. Does ICT encourage students to work hard and learn the English language?	31.83%	42.15%	-	15.12%	10.9%
7. Does ICT help the students to understand and recall information more easily?	34.59%	26.52%	8.52%	11.42%	18.95%
8. Does the use of technology improve the problem solving and critical thinking skills of the students?	38.55%	29.52%	2.85%	16.04%	13.04%

SA: Strongly Agree, A: Agree, Un: Undecided, D: disagree, SD: Strongly Disagree

Chart 1. Graphical Representation of the data



The above table shows that there is a strong awareness of ICT among ELT teachers, 88.2% of teachers show agreement about the use of computer among ELT teachers as an instrument for teaching in English language classroom. However, 8.56% displayed disagreement.

2. Although a great number of teachers considered important to use technology they do not prioritize it only 51.07 of teachers agreed on the use of ICT in their classroom the rest of the teachers showed their disagreement.

3. 82.11% of teachers considered the use of technology as a professional goal which is a positive trend however, 1.94% are neutral and 15.95% showed their disagreement.

4. If technology-related activities are employed in an English language classroom student's interest increase. 75.66% of teachers agreed that technology enhances the interest of the students in the technology integrated activity. However, 22.8% of teachers are of the opinion that it does not change anything.

5.65.58% of teachers perceived that supports the language acquisition process. Integration of technology does not only increase the interest of the students in the ongoing activity, but it also aids in acquiring the language. Though, 31.21% of teachers disagreed with the statement.

6. 61.11% of teachers agreed that ICT enhances the language learning process and also able to retain the acquired information. Yet, 38.89% of teachers were in against the perception.

7.68.07% perceived that technology integration improves the higher order thinking skills that are critical thinking and problem-solving. 2.87% of teachers were indecisive in this regard and 29.08% of teachers are in disagreement.

To understand the importance teachers When requested in Question one (1) to express their perception about the use of ICT during lessons, 69.58% of the participants were using the computer in the language classroom and 46.12% considered ICT as enhancing the learners' learning. Moreover, less than 41% of them thought of computer use as a priority. While using ICT teachers considered their student's background, interests, prior experiences, and problem-solving skills. The table reveals that 55.22 % of the informants had a desire to utilize technology as a medium for the professional goal to improve their technology skills and knowledge of the language teaching with technology as part of their self-development. In responding to a question on whether the use of technology improves the critical thinking and problem solving skills of the students 38.55 % strongly agree, whereas less than 19.46 % disagreed on the idea that technology enhances learning. While responding if ICT encourage students to work hard and learn English language 73.98% indicated a favorable response.

Findings from qualitative data

In response to the questions, teacher agreed to adopt ICT in English language teaching. They think that integration of technology improves English language learning. They shared their experiences of technology integration into their lesson plans and they found it helpful in developing the interest of their students. With the technology embedded classes teachers felt the need for ICT being crucial to language teaching the more, they integrated it the more they felt that language learning was taking place. Even though they faced some problems while integrating ICT, they estimated that the technology-embedded instructions fostered critical thinking which enhanced their learning. Moreover, teachers shared the difficulties they faced in employing technology as a teaching tool which was: lack of resources, power challenges, connectivity challenges, lack of knowledge, lack of trained technical support, lack of support from the administration, difficulties in administering the technology embedded classes, etc. Even though, teachers faced many hindrances in encouraging technology embedded classes they still continued with their practices and tried to overpower the complexities.

To get a response aligned with the research objective, interviews which were semi-structured were conducted with English language teachers. The questionnaire survey facilitated in designing the questions for the interview. The data obtained from interviews (03) were audio-recorded. The analysis of qualitative data consisted of interpretation of transcript, along with extracting themes, groupings, and developing conceptions (Denscombe, 2007). Most of the teachers agreed to the integration of technology in the classes as a tool for teaching. Teachers were of the opinion that technology enhances language acquisition chances among the learners. Technology develops an interest in the students to get involved in the tasks actively therefore, teacher believed that integration of ICT is essential to English language teaching. Teachers also expressed to encourage other ELT practitioners to utilize the resource of technology in their classrooms. However, the participants of the interview shared the difficulties they face in adopting ICT because of the lack of concerned equipment, resources, and internet connectivity.

Findings and Discussion

The attitude of Teachers towards ICT in English language teaching (ELT) is regarded as a significant element which effect their decision of integrating ICT in their teaching space (see, e.g., Bliss & Bliss, 2003; Fullan, 2001; L. Hu, 2007; Mumtaz, 2000). In this era ELT teachers in Pakistan consider ICT as an important tool for language teaching, the data implies that the most of the teachers had immense interest in using ICT in English language teaching. The findings are aligned with results of the research conducted by Macho (2005) which substantiated that utilizing ICT in teaching would increase students' comprehension. In the questionnaire survey, teachers agreed on using different ICT tools to enhance English language learning. Teachers also shared their views positively on the advantages that ICT had created for students and their language acquisition. Teachers realize the importance of ICT integrated classes however, traditional ELT method still rules over because of insufficient ICT tools. The data revealed that with the assistance of ICT integration students were able to enhance their higher order thinking skills, which involves critical thinking and problem-solving areas within language learning process. This aided the students in recalling the absorbed information at any given time and situation. Teachers showed favor in adopting ICT in language teaching. Moreover, they recognize it as a requirement for their career and professional growth, because they face pedagogical challenges.In 2010, Schneckenberg elaborates that the "faculty is nowadays facing new pedagogical challenges; they have to design learning environments which respond to the changing needs of technology-savvy students, and they have to integrate ICT into their courses to extend the flexibility of educational services in universities". Further, elaborating he writes, there is a need to develop the staff and faculty to "judge why, when and how to use ICT in education". Teachers were expectant to have a positive effect on language learning and considered it to accelerate the interest of the students with help of computer and world wide websites, they mentioned this during the interviews. Teacher's responses also revealed that students learning could be enhanced and improved with an impact if it is categorized with the help of technology. Although teachers were mindful of the advantages of employing ICT as a tool in their language classes, however, it was due to the lack of appropriate resources and ICT tools that Teacher found it difficult to combine technology while teaching English language. Due to this, situation ELT practitioners hesitate in integrating technology in their classrooms because of the unavailability of concerned resources. Therefore, it is suggested to the authorities to bring in programs promoting technology embedded teaching of English language. As English is the prime language of the world, it should be provided with all the dimensions available in the teaching world to increase its learning and application. Moreover, ICT in ELT will bring in enormous progress to the notion of learning English language.

Conclusion

Integrating ICT in English language classrooms is a vital practice in nowadays. Teachers and students need to consider the advantages and achievements that can be accomplished in various fields, by including technology appropriately in education. English language teachers should pay attention to develop an environment for students where they are not technophobic in learning a language. This article investigated the usage of ICT as a teaching instrument in an ELT context, the challenges, and benefits.

I would recommend Teachers to improve their technology skills by undertaking training courses, online courses, web browsing, collaboration and interaction to overcome the challenges encountered during the ICT integrated classes of English language. In contemporary world, the importance of ICT in the ELT classes is undeniable, henceforth, teachers, students and institutions and the policymakers should update their program on how to include ICT in the ELT teaching space effectively.

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Appendixes

Questionnaire

Integrating ICT as a Teaching Tool in the ELT Classroom at Higher Education Level: A Descriptive Study

Please fill the given questionnaire and respond according to the experience of using ICT in your English language classes.

ICT as a teaching tool	**SA**	**A**	**N**	**D**	**SD**
1. How important is it to find different ways to use a computer in a language classroom?					
2. Should the use of a computer in an ELT classroom be a priority?					
3. Is the use of technology tools a professional goal for a teacher?					

4. Does the interest of the students increase in doing technology related activities in an English language class?					
5. Does the integration of ICT enhance language learning?					
6. Does ICT encourage students to work hard and learn English language?					
7. Does ICT help the students to understand and recall information more easily?					
8. Does the use of technology improve the problem solving and critical thinking skills of the students?					

SA: Strongly Agree, A: Agree, Un: Undecided, D: disagree, SD: Strongly Disagree ICT as a Teaching Tool

Integrating ICT as a Teaching Tool in the ELT Classroom at Higher Education Level: A Descriptive Study

INTERVIEW PROTOCOL

Following are the questions:

1. What do you think about the adoption of ICT in English language teaching (ELT)?
2. What are experiences of conducting ICT embedded classroom?
3. Why is there a need for teachers to integrate technology into teaching?
4. Do you thing technology can help student to learn English language effectively?
5. Do you think technology has improved the critical thinking of the students that enhances learning?
6. What are the most common difficulties you face in the technology-integrated classes?
7. How do you over-come the barriers of using technology in the classes?
8. Will you encourage other English language teachers to adopt technology in their lesson planning?

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COMPARATIVE STUDY OF COMPUTER ASSISTED INSTRUCTION AND TRADITIONAL METHODS OF TEACHING KEYBOARDING AMONG POLYTECHNIC STUDENTS IN NIGERIA

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Abstract

The study was carried out to compare Computer Assisted Instruction and Traditional Methods of Teaching Keyboarding among Polytechnic Students in South West Geo-Political Zone, Nigeria. In order to achieve this, one specific objective was raised. In line with the specific objectives, four research questions and hypotheses were formulated for the study. Experimental design, specifically pretest-posttest control group design, was adopted for the study. The population for the study comprised of nine hundred and eighty students (980) from ten Polytechnics. Out of these, six Polytechnics used for the study were purposively selected from ten Polytechnics in South West Geo-Political zone, Nigeria. Thirty (30) students from each of the six (6) Polytechnics made up of the sample size of one hundred and eighty students (180) who were selected for the study through random sampling. The instrument used for data collection was Keyboarding Speed and Accuracy Test (KSAT), which was duly validated with a split-half reliability coefficient of 0.81. The data collected were statistically analyzed using mean and standard deviation for the research question. The null hypothesis was tested using Analysis of Covariance (ANCOVA) at 0.05 level of significance. The findings include among others that, the computer-assisted instruction group was better in keyboarding speed and accuracy than the traditional method group because of the significant difference found between the speed and accuracy mean scores of students taught using computer-assisted instruction and those taught using traditional methods. The study concludes that computer-assisted instruction is a better method of teaching keyboarding. Based on the findings and conclusion, it was recommended among others that; Keyboarding teachers should use computer-assisted instruction method in teaching speed and accuracy in keyboarding and that Polytechnic Management should also provide necessary facilities such as computers and software that will facilitate effective teaching and learning of keyboarding skills using Computer Assisted Instruction.

Keywords: Computer, Assisted, Instruction, Traditional, Methods, Keyboarding

Introduction

The introduction of computer-based courses to the curriculum of the secretarial profession in Polytechnics as reviewed by the National Board for Technical Education (NBTE) 2004 brought about fast understanding and qualities in learning of secretarial students. In this era of technology, the computer is a critical element in Information and

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Communication Technology. The computer has been referred to as a device that has turned the whole world into a global village. Information and Communication Technology (ICT) makes the transfer of information faster and easier. The computer has become a significant component of ICT, which has many advantages in this modern technological era.

[13] emphasized computer literacy with a statement that "the economic growth of a country depends on qualified labour and it is necessary that the university graduates are literate of technology for this labour to be used in 2020."

Computer literacy involves a set of abilities requiring individuals to communicate effectively with the computer system and as a basis for lifelong learning [2]. It is common and relevant to all disciplines, learning environments and all levels of education. This view was upheld by [5], who asserted that with the rate of growth of computer development, every aspect of man's life would be on the computer. He went further that, whoever neglects the study and use of computer today does so at his detriment. No wonder in the past, only people that can neither read nor write were illiterate, but in this era of technological advancement, whoever that cannot operate a computer would also be seen as an illiterate person.

The computer appears to be the best audio-visual material that has ever been devised. It is such a comprehensive device that allows for the use of about 60% of the sense organs. These organs are those of sight, touch, and hearing. These are the organs that are useful for more effective learning. About 75% of learning occurs through seeing, 13% through hearing and 6% through feeling or touching. Only 3% of learning takes place through smelling [8]. The application of computer, especially in teaching and learning is limitless; that is, there is almost nothing about teaching and learning or instructional aids that cannot be computerised. Therefore, the use of Computer Assisted Instruction for the teaching and learning of Keyboarding in Polytechnics will bring about effectiveness in terms of speed, accuracy, prompt feedback, self-assessment, learning autonomy and enhance academic performance in teaching and learning of keyboarding as a subject by secretarial students.

Computer Assisted Instruction is an instructional technology which can be designed for a course and used for teaching and learning both within and outside the classroom setting. Computer Assisted Instruction, also known as CAI, is a teaching process in which a computer is used to enhance the education of an individual. Instructional or CAI software that teaches specific skills and knowledge often narrowed to a specific content area and grade range. Computer Assisted Instruction can be used to describe Internet-based instruction using WebPages, web bulletin boards, newsgroups, video, and real audio. It can also be the use of computer technology in teaching and learning. Computer Assisted Instruction will simplify the teaching and learning of keyboarding and enhance students' understanding. It will make students learn and acquire the basic techniques and skills of keyboarding in an interactive way. It will bring the teaching and learning of keyboarding to the level of the student understanding through technology. Students will be allowed to repeat a practice session and practice repeatedly for proper control of techniques or skills.

Computer programs are user-friendly and can represent an idea through alluring activity, sound, and exhibition. They allow students to work at their own pace and solve problems individually or collectively. Information processing systems provide prompt feedback, which makes students know whether their solution is right or wrong. If the solution is not right, the information processing system shows students how to resolve the problem correctly. Computer Assisted Instruction draws students' thinking ability in the light of the fact that they are user-friendly and make students participate actively in the learning process resulting in higher scores. It moves with the students' level of understanding and does not go ahead of the students until they have acquired expertise in the skill. Keyboarding is an art that enables an individual to acquire skills which involve pressing of the keyboard with the fingers through the mastery of the keys to produce varieties of documents on the typewriter or computer. Each hand made its assignment of fingers to keys. A touch typewriting method which is widely used today involves the use of all eight fingers to type without looking at the keys [1]. The main point behind keyboarding is techniques, and the hypothesis for this instructional method is in the domain of educators and the way by which the lesson is delivered. Keyboarding is a vital practical skill that all learners must acquire, the art of keyboarding involves preparing fingers to react effectively

and rapidly to press the right key, and one must continue to practice this art until it becomes effective and a skill. The goal for new students is the development of the skill to use the appropriate techniques, pressing the right keys quickly and accurately.

In line with this, Polytechnics are one of the higher institutions in Nigeria which are saddled with the responsibilities of training both low and medium level human resources in varieties of occupation or profession. The products of these institutions are expected to have acquired the necessary skills and competencies that can make them fit properly into society or the world of work after graduation. Therefore, for Polytechnics to meet these responsibilities, there must be a concerted effort to move from traditional methods of teaching to modern, motivating and exciting methods such as CAI especially in this era of technological advancement.

Office Technology and Management departments are the departments where keyboarding is being taught in Polytechnics. Using modern techniques to teach keyboarding will boost the interest of learners, increase their speed and accuracy, and drastically reduce failure rates and the number of dropouts.

In view of the above, the traditional methods of teaching and learning such as demonstration, lecture method and others are becoming inadequate as approaches towards functional education. The traditional method of teaching, as meant in this paper is the method of teaching that is being used in teaching a course. 'Traditional' means what has been on the ground, what they are used to. 'Their tradition'. In this paper, the course is keyboarding, which is a practical course, the students go to the laboratory where the teacher shows them how to use the keyboard. The teacher explains how to place fingers on the keyboard and gives them exercises from the textbook for them to work on. The adverse situations in which teaching and learning take place make the traditional methods ineffective. To make teaching and learning to be effective in this knowledge-based economy, part of the solution is to provide better technical support for the learning environment [10].

The use of Computer Assisted Instruction for effective classroom teaching and learning has for a long time been introduced in the developed countries to improve the efficiency and effectiveness of education at all levels. The role of Computer Assisted Instruction in teaching and learning of keyboarding is to teach keyboarding creatively and serve as a complement to the old or traditional method in Polytechnics. The traditional method along these lines could be viewed as the up to this point existing strategy for guidance in the typical classroom setting. Among the traditional techniques for guidance in the teaching and learning of keyboarding is the lecture method. Lecture strategy enables much information to be passed to the student and favours treatment of large classes. Despite this preferred standpoint, the lecture method does not promote active learning and there is no cooperation and interaction between the teacher and pupils in the lecture process unless in situations where other teaching methods, such as questioning and problem-solving activities, are incorporated into the lecture. [7].

It has along these lines turned out to be clear that the lecture strategy which is as of now the common instructing approach in Nigerian polytechnics is improper and insufficient for accomplishing the goals of educating and learning of keyboarding. There is, hence, a critical need to look for progressively successful strategies which are appropriate and effective in advancing the extent of skill acquisition in keyboarding in Nigerian polytechnics. This, therefore, constitutes the background information in which the study was conducted on the comparative study of Computer Assisted Instruction and traditional methods of teaching keyboarding among polytechnic students in South-west Zone, Nigeria.

The Computer has become an integral part of the day to day life as well as an integral part of the education system. Having Computer Assisted Instruction as part of the method of teaching and learning of keyboarding in polytechnics can prove very helpful. Keyboarding is one of the core skill subjects in secretarial option which students must master very well. There is a significant relationship between background knowledge of keyboarding and computer application [12]. He further suggested that the students of any computer programme should be exposed to the manipulation of that typewriter (keyboard) before they start the practical aspect of the computer study. This exposure is nothing other than

the conscious effort on teaching methods that will enable these students to grasps the proper keyboarding. However, the method by which keyboarding is taught in polytechnics makes students lose interest in the secretarial option in Nigeria polytechnics [11]. As a result of this, the researchers are of the opinion that, in this era of technology development, secretarial education or profession in Nigeria cannot be relevant to the present societal needs without preparing future labour force with the appropriate method. This will assist the lower and medium human resources level graduates from polytechnics to acquire the necessary technical skills needed to function effectively in their work. Secretarial education training in Nigeria might not be concrete without viable grooming of new age learners to successfully utilize the new ICT in their area of study [4]. Therefore, there should be more proactive, creativity and dynamism of methods in teaching and learning of keyboarding.

There are three approaches to teaching keyboarding in the conventional classroom; they include horizontal, vertical and skip-around [11]. Using any of the three approaches, in a group situation does not seem to facilitate enough student or teacher interaction (individualized teaching). None of the approaches makes it possible for the teacher to monitor each student's position or posture in relation to the keyboard and how keystroke is made. It is also not possible for the teacher to analyze each student's error and proffer solution within the lecture period.

Consequently, there is a delay in feedback, which in turn builds-up to poor students' performance, especially in speed and accuracy tests. Moderators of keyboarding answer scripts have consistently commented negatively on the accuracy and speed acquisition by keyboarding students [11]. It has been found out that about 80% of keyboarding students lose all the marks allocated to this task in any keyboarding question paper [11]. It is pertinent to find the most effective way of teaching and learning keyboarding so that less time is spent on its learning. It is also necessary to produce fast and accurate students in keyboarding as modern organisations rely on accurate and timely information for their survival and development. All these are the confronting problems which the study has addressed using empirical evidence. It is expected that the findings of the study will make students to appreciate the importance of using CAI in teaching and learning of keyboarding and most importantly to imbibe, embrace the culture and acquaint them generally with the various uses or application of ICT skills even after graduation. It will also assist keyboarding teachers in Polytechnics to be up and doing. It will gear them up to acquire the necessary skills on how to use or incorporate CAI to complement the conventional methods of teaching the students.

Statement of the Problem

Based on the researchers' interaction with students of some polytechnics in the Southwest geo-political zone, Nigeria, the researchers observed that keyboarding skills are ill-acquired by the students which is a worrisome situation that calls for concern. The polytechnic students who are expected to acquire proper keyboarding skills for producing professional documents are found picking and pecking when typing. They cannot type without looking at the manuscript, and the speed of typing is deficient. Could this situation be attributed to the inefficiency of the traditional or old method of instruction, which is predominantly used in teaching keyboarding? When the researchers interacted with the students, they complained that this method of teaching keyboarding is boring and does not motivate them, thereby making keyboarding challenging to learn. The teachers of keyboarding complained that despite their efforts in making students to acquire keyboarding skills, there is still a mass failure of students in keyboarding. From the foregoing, it becomes evident that there is a dire need for other methods of teaching to address this problem. Methods of teaching that will make students take responsibility for their learning. This becomes the problem which this study addressed using empirical evidence of Computer Assisted Instruction and traditional methods of teaching keyboarding among Polytechnic students in the South-west Geo-Political Zone, Nigeria. This study is unique because to the best of the researchers' knowledge; no study has been conducted to compare the effects computer-assisted instruction and lecture method on speed and accuracy skills in keyboarding in the South-west, Nigeria. This becomes the gap in the literature which the study filled.

Purpose of the Study

The general objective of the study is to compare the Computer Assisted Instruction and traditional methods of teaching keyboarding among Polytechnic students in the South-west Geo-Political Zone, Nigeria. The specific objectives are to:

1. compare the speed and accuracy of students being taught with Computer Assisted Instruction and traditional methods of teaching keyboarding in polytechnics in the South-west geo-political zone, Nigeria.

Research Questions

In line with each specific objective, the following research questions are formulated for the study within the scope of the South-west geo-political zone, Nigeria:

1. To what extent do the pre-test and post-test speed and accuracy mean scores of students taught keyboarding with Computer Assisted Instruction method differ with the pretest and posttest speed, and accuracy mean scores of students taught keyboarding with the traditional method in polytechnics?

Research Hypothesis

In line with the research questions and within the scope of the South-west geo-political zone, Nigeria, the researcher tested the following null hypotheses:

H_{01}: There is no significant difference between the mean score of speed and accuracy of students being taught with Computer Assisted Instruction and traditional methods of teaching keyboarding in polytechnics.

Methodology

The quasi-experimental research design was used to carry out the study; the schools were assigned to experimental and control groups. The population of the study comprised ND I students from 10 polytechnics who were admitted in 2017/2018 academic session in both state and Federal polytechnics in the South-west zone, Nigeria. There are a total number of 980 ND I students. The purposeful sampling technique was used to select six from the 10 polytechnics in the Southwest geo-political zone, Nigeria. Purposeful sampling was used because of the available facilities in each of this polytechnic. Thirty students were selected from each polytechnic. Three polytechnics were used each for experimental and control groups. The polytechnics selected were: Lagos State Polytechnic Ikorodu, Osun State Polytechnic, Ire, Rufus Giwa Polytechnic, Owo, The Polytechnic Ibadan, Federal Polytechnic, Ilaro, and Federal Polytechnic, Ado-Ekiti. Lagos State Polytechnic Ikorodu, was used as Computer Assisted Instruction group, Osun State Polytechnic, Ire as traditional method group, Rufus Giwa Polytechnic, Owo as Computer Assisted Instruction group, The Polytechnic Ibadan, as traditional method group, Federal Polytechnic, Ilaro as traditional method group, and Federal Polytechnic, Ado-Ekiti as Computer Assisted Instruction group. From the six polytechnics, the total number of 180 students were selected. This number comprised 90 males and 90 females randomly selected and randomly assigned to both Computer Assisted Instruction group and traditional method groups; that is, 30 students from each polytechnic. Keyboarding Speed and Accuracy Test (KSAT) was the instrument used for data collection. KSAT was duly validated with a split-half reliability coefficient of 0.81. The students were pretested, after which the treatment began. The treatment period lasted for four weeks. The experimental group was taught with the CAI method using Mavis Beacon Package while the control group was taught with the traditional method where the participants also had access to the computer but not with any software package. The two groups of participants had access to computers, but the only difference between them was that the experimental group which is CAI group were given computer and Mavis Beacon typing software to follow with very little facilitation from the teacher. The control group, on the other hand, were also given the computer, but without Mavis Beacon typing software rather the group was

taught typing skills by the teacher. Mean, and standard deviation were used to answer the data for the research question, while Analysis of Covariance (ANCOVA) was used to test the hypothesis at the 0.05 level of significance.

Results

Research Question 1

To what extent do the pretest and posttest speed and accuracy mean scores of students taught keyboarding with Computer Assisted Instruction method differ in polytechnics?

Table 1. Mean of pre-test and post-test scores of the treatment group taught keyboarding using Computer Assisted Instruction method

GROUP	**Experimental Group (CAI Method)**			**Control Group (Traditional Method)**		
	N	$\overline{X}$	**SD**	**N**	$\overline{X}$	**SD**
PRE-TEST	30	42.02	9.48	30	44.39	7.64
POST-TEST	30	76.03	10.11	30	52.56	8.55
MEAN & SD DIFFERENCE		34.01	0.63		8.17	0.91

Source: Field experiment, 2018

The data presented in Table 1 revealed that the treatment group taught keyboarding with Computer Assisted Instruction method had a mean score of 42.02 in the pretest and a mean score of 76.03 in the post-test with standard deviation of 9.48 and 10.11 for the pre-test and post-test, respectively, pre-test ($\overline{X}$ = 42.02; SD = 9.48), post-test ($\overline{X}$ = 76.03; SD = 10.11). The result gave a pre-test; post-test mean gain of the treatment group taught with Computer Assisted Instruction method to be 34.01. The low standard deviation difference (0.63) showed that the scores of students in both the pre-test and post-test are clustered around their respective mean scores. The traditional method had a mean score of 44.39 and standard deviation of 7.64 ($\overline{X}$ = 44.39; SD = 7.64) in the pretest and mean score of 52.56 and standard deviation of 8.55 ($\overline{X}$ = 52.56; SD = 8.55) in the posttest, giving a pre-test post-test mean gain in the control group taught keyboarding with a traditional method to be 8.17. With this result, Computer Assisted Instruction method is effective in improving students' speed and accuracy in keyboarding. The CAI group did better by far than the traditional method group.

Test of Hypothesis

The null hypothesis for the study was tested using Analysis of Covariance (ANCOVA) at 0.05 level of significance, and the summaries are presented in Tables 7 to 9 as follows:

H_{01}: There is no significant difference between the mean score of speed and accuracy of students being taught with Computer Assisted Instruction and traditional methods of teaching keyboarding in polytechnics.

Table 2. Summary of Analysis of Covariance (ANCOVA) for Test of Significance of difference between the mean score of speed and accuracy of students being taught with Computer Assisted Instruction and traditional methods of teaching keyboarding

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	1231.051[a]	4	307.014	3.119	.002
Intercept	7688.775	1	7688.775	102.838	.000
Pretest	474.145	1	474.145	5.486	.021
Treatment	947.330	1	947.330	12.862	.000
Gender	164.322	1	163.322	1.880	.124
Treatment*gender	5.360	1	6.360	.064	.674
Error	4543.507	88	86.435		
Total	214522.000	90			
Corrected Total	10067.562	89			

a. R Squared = .141 (Adjusted R Squared = .107)

Source: Field experiment, 2018

The data presented in Table 2 showed F-calculated values for the effects of treatment of Computer Assisted Instruction method on students' speed and accuracy in keyboarding. The Table showed that there was a significant main effect of treatment of Computer Assisted Instruction on speed and accuracy of polytechnics students in keyboarding (F= 12.862; P = 000). Hence, the null hypothesis that stated that there is no significant difference between the mean score of speed and accuracy of students being taught with Computer Assisted Instruction and traditional methods of teaching keyboarding was therefore rejected. This implied that teaching with Computer Assisted Instruction method has a positive effect on the speed and accuracy of polytechnic students in keyboarding. This means that the effect observed is due to the main treatment given to students.

Table 3. Estimated marginal means of both the treatment and control groups

Groups	Mean	Std. Error
Treatment	67.27	1.161
Control	49.98	1.503

Source: Field experiment, 2018

The data in Table 3 showed estimated marginal means for the two groups, i.e. the adjusted mean after the covariance. The Table revealed that the participants in the experimental group performed better than their counterparts in the control group because they had the highest adjusted post mean score (mean = 67.27) as against the adjusted posttest

mean score of the control group (mean = 49.98). The implication here is that teaching with Computer Assisted Instruction method is effective for improving the speed and accuracy of polytechnics students in keyboarding far more than the traditional method.

Discussion

The study found that there was a significant difference between the speed and accuracy of students taught using computer-assisted instruction and traditional method (F= 12.862; P = 000). This could also be seen from the mean performance of Computer Assisted Instruction of 76.03, which was greater than the mean of 44.39 for students taught using the traditional method. The students taught with computer-assisted instruction method performed better in terms of speed and accuracy than those taught with the traditional method. The mean difference showed that the computer-assisted instruction group was better than the traditional method group by 34.01 mean differences. This implied that the computer-assisted instruction method is more effective in teaching speed and accuracy in keyboarding than the traditional method. This finding supports the earlier finding of [3] who found that computer-assisted instruction method of teaching keyboarding speed and accuracy led to the greater acquisition of speed and accuracy in keyboarding by the students. Speed and accuracy skill can be acquired when students learn to keyboard without looking at the keys. This is also in line with [9] who found 58.6% failure in control groups post-test where the computer Assisted Instruction method of teaching keyboarding skills was not used. That was why [4] pointed out that computer-assisted instruction method of keyboarding promotes faster speed and accuracy, acquisition of proper skills and techniques of keyboarding. This, therefore, makes it clear that if students are taught keyboarding with CAI, their academic performance will be better and proper skills will be acquired.

Conclusion

Based on the finding of the study which revealed that CAI students performed better in speed and accuracy than the traditional method students, it was therefore concluded that Computer Assisted Instruction method is better than the traditional method of teaching keyboarding. The implication here is that the Computer Assisted Instruction method of teaching keyboarding speed/accuracy is a more effective teaching method for acquiring keyboarding skills and techniques. Since this is the case, it means that the continuous use of the traditional method in teaching keyboarding will continue to negatively affect students' acquisition of proper keyboarding skills which will adversely affect their performance in the modern office when they eventually graduate.

Recommendations

1. Keyboarding teachers should use computer-assisted instruction method in teaching speed and accuracy in keyboarding.
2. There is the need for the State and Federal Governments to encourage keyboarding teachers to go for in-service training or refresher courses to acquire additional qualifications in keyboarding skills to be able to incorporate gender equality in the teaching of keyboarding.
3. Polytechnic Management should also provide necessary facilities like computers and software that will help the effective acquisition of keyboarding skills using Computer Assisted Instruction.
4. National Board for Technical Education (NBTE) should recommend the application of Computer Assisted Instruction in teaching and learning keyboarding skills and competencies in various Polytechnics in Nigeria.

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