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An Evaluation of Computer-Assisted Teaching Strategies Used by Postgraduate Diploma Students in Teacher Training Programmes

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Abstract

The research sought to evaluate the use of computer assisted teaching strategies by PGDE student teachers who are on teaching practice in Hwange Urban district secondary schools of Zimbabwe. The objectives of the study were to examine the degree of support of computer assisted teaching strategies used by (PGDE) students during their teacher training programme and to find out the effectiveness of the computer assisted teaching strategies and assess the competence skills of PGDE students in the use of computer assisted teaching strategies as well as challenges faced by these students. This qualitative study employed the descriptive survey research design. The main research findings revealed that though PGDE student teachers were eager to embrace computer assisted teaching strategies, most student teachers lacked ICT proficiency and most schools had no computers. The study recommended that the training institutions for (PGDE) students should embrace ICT to equip student teachers with pre-requisite skills in ICT. And that the government should facilitate the acquisition of computers by schools to enable teachers to keep abreast with the digital world. Further the study recommended that the government should employ ICT technical staff to service the gadgets.

Keyword: Computer-assisted, Post graduate diploma, students, strategies, teacher, training programmes.

INTRODUCTION

Educational systems around the world have been experiencing changes and reforms as evidenced by the use of computers in teaching and learning in the new millennium (21st century). Many societies around the world went through educational reforms. Teacher professional training was not spared by this rapid change (Costin, 2017). It's a fact that teachers are not only one of the 'variables' that need to be changed in order to improve the educational system but are also the most significant agents in this reform. This dual role of teachers as the subjects and objects of change has made the field of teacher professional training a growing and challenging area beyond the new millennium.

Today, it is common knowledge that teachers are under a growing pressure to perform especially those that are in developing nations (Jamil, Hazri, et al, 2007). Higher expectations and greater needs are now pressuring the teachers to perform effectively in classroom. It all comes down to quality teachers who are the determinants of student achievement. Costin (2017), concurred with the notion that the most prepared and genuinely qualified teacher still has a great deal to learn when they begin to teach. Hence it

is vitally essential that teachers should be conversant with computer assisted teaching aids during training and thereafter continue to improve their knowledge and skills throughout their careers.

Technological advancement in the form of ICT is increasingly becoming apparent in Zimbabwean's modern society. The Nziramasanga Commission Report of 1999, recommended the promotion of the educational use of Information Communication Technology (ICT) for teaching and learning in the educational institutions. The introduction of computers and their use in the education sector in Zimbabwe started in the 2000, when the then, former President of the Republic of Zimbabwe, Cde. Robert G. Mugabe donated computers to several schools in all provinces in Zimbabwe. In support of the computerisation initiative, Computers for African Schools (CFAS) and Computer Aid International donated computers to Zimbabwe for installation and use as educational tools (CFAS 2005, Comp Aid 2006). During that period, teacher training colleges were not using computers. Teachers were graduating from these colleges without the knowledge of computing thereby presenting a challenge in schools where computer subject was supposed to be taught. Computer application as a subject was thereafter infused in every curriculum in teacher education and in all degree programs in various universities in the country but already there were teachers who graduated from the colleges before the introduction of the computer module.

Since the computers were donated to schools by Zimbabwe's Former President Cde. R.G Mugabe, students were expecting to be taught how to use the computers and there were no qualified teachers who could teach them. The Dailynews (2018) reported Cde. Supa Mandiwanzira's response in Zimbabwe parliament when asked about the government's plan on schools that received donated computers without computer teachers, said

…due to lack of teachers, those computers were never used and now a good number of them are obsolete so to speak. Could there be a plan in place to replace these computers and assist the affected communities…

Some schools kept the computers in strong rooms anticipating that they could get a qualified teacher who could take the subject despite the directive that use of computers in school was mandatory. Technology is dynamic; it changes within a short space of time such that some computers which were stored in strong rooms became absolute.

Graduates who did computers from universities were not qualified and were few in number such that they cannot fill up all the vacancies that were in both the education sector and the teacher training colleges. Teacher training colleges and universities kept on producing graduates without computer operation knowledge into the industry thereby increasing a gap between computer literacy demand and computer illiteracy. All graduates from universities who were not majoring in computers required a computer appreciation module but were being offloaded into the industry of teaching without information communication Technology skills. This on its own presented a challenge to the Ministry of Primary and Secondary Education such that they end up directing schools to employ unqualified teachers with computer knowledge to teach the computer subjects at school. The Ministry of education introduced the pre-service model of teacher education, where those with various degrees that are not related to teaching would enroll for a Post Graduate Diploma in Education (PGDE) for them to be qualified teachers. The short comings of the pre-service teachers as far as technological skills are concerned had presented a challenge and therefore the tenets of the study.

Zimbabwe's Education Ministry plays a key role in ICT teaching, hence the need to ensure that all teachers and students are part and parcel of this trend. Zimbabwe being a developing nation, needs to

integrate ICT processes into the education system. Kachembere (2011), observes that "many pre-teachers and students are losing out on better education and well-paying ICT jobs". As a result of this realisation, the research is carried out to evaluate if PGDE students in secondary schools in Hwange Urban district, are making use of computer assisted teaching strategies. PGDE students fall under the Pre-service Model of Teacher Education in Zimbabwe. The students' efforts are informed by the understanding that ICT in education is a significant key driver for student achievement through enhanced production of information and knowledge. In support of their understanding, Victoria (2011) asserts that;

…the effective use of ICT in education has the potential to enhance achievement among students through greater collaboration, improved communication and opening of wider opportunities to share information…

ICT education in Zimbabwe is not yet very widespread observable fact, when taking into cognizance that the rural settings where most schools are located are not electrified due to a decade of economic meltdown 2000-2010. Chronicle (2013) reported that some schools in Matabeleland North province of Zimbabwe do not have computer laboratories to house the computers and they are lying idle. Hwange Urban District is composed of both urban schools and rural schools surrounding Hwange town. Some of the secondary schools are electrified whilst the majority are not, thereby giving an impression that teaching and learning for PGDE students have largely remained rooted in the traditional models of delivery. As the traditional systems of teaching and learning have long been outpaced and outstripped by new and dynamic trends, PGDE students need to make use of computer assisted teaching strategies for teacher training education programme.

Schools were directed by the Ministry of Primary and Secondary Education to request School Development Associations (SDA) to purchase and install ICT equipment in their respective schools (Chitanana, 2009). However some poor (SDA) could not afford as the price of computers are beyond their reach. It is vital therefore, that all PGDE students, whether in urban or rural settings, are equipped with the necessary ICT skills to fully empower them to participate in the highly digitalised world from a young age. All sectors of education from primary, secondary to university as well as vocational and skills-based education need to harness ICT.

This study therefore sought to evaluate the use of computer assisted teaching strategies by PGDE students during their teaching practice in Hwange District secondary schools of Zimbabwe.

STATEMENT OF THE PROBLEM.

The Zimbabwe PGDE students are not computer literate as their foundation of education used hard copy textbooks to access information. The advent of the introduction of computers in schools which was necessitated by the technological advancement in the ICT the world over has come as a night mare to the PGDE students. The PGDE students are finding it difficult to catch up with the technological advancement, hence they find it difficult to use computer assisted teaching strategies in their teaching practice.

OBJECTIVES OF THE STUDY.

The objectives of the study were:

To examine the degree of support of computer assisted teaching strategies by secondary schools in Hwange urban district for PGDE students.

To find out the effectiveness of the use of computer assisted teaching strategies by PGDE students in Hwange urban District Secondary schools
To assess the competence skills of PGDE students in the use of computer assisted teaching strategies.

REVIEW OF RELATED LITERATURE.

Conceptual Framework.

The conceptual framework provided by Lim (2002) was the basis of the conceptual framework in this study as it outlined the value of computer assisted teaching strategies and learning as supported by the theories of Vygotsky. It also emphasized the role of ICT in facilitating higher order thinking skills thus the 21st century skills like digital literacy, creativity and innovation skills communication and collaboration and self- directed learning (Stravert, 2013). All this is required by teachers during their teacher training education programme so that they would be able to make use of computer assisted strategies during and after their teaching practice.

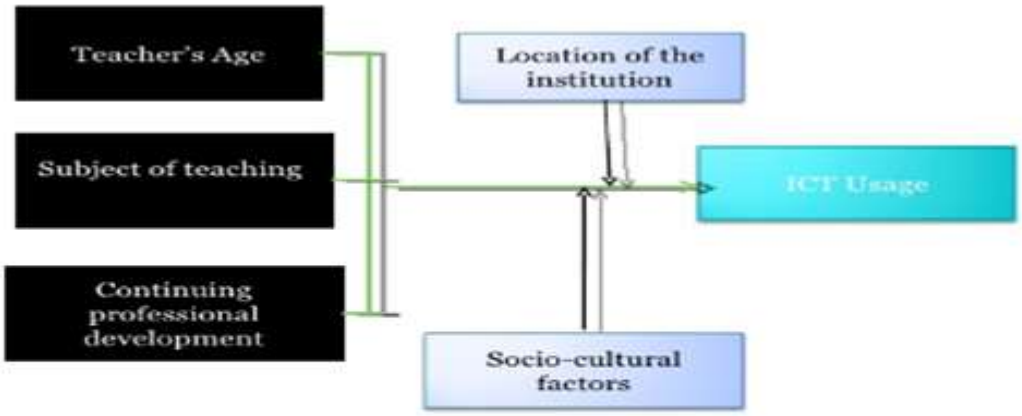

Figure 2.1: Conceptual Framework Diagram

The age of the teacher has a negative effect when it comes to the use of technology and at times old people find it difficult to learn new things. The saying catch them young has an effect in that when students are doing their first degrees or diplomas in universities and colleges, they should be taught a computer appreciation subject. All disciplines in today's education have a bias in interest in computers and as such stakeholders should infuse the aspect of computer when crafting syllabuses. Also when engaging in continual professional development, it is paramount that the curriculum be balanced with technological subjects.

Roberts, Hutchinson and Little (2003) in their study find out that the probability that teachers would use ICT in the classroom was limited by the reality that teachers who were educated 20 years ago were trained by people who themselves were trained before the arrival of computers in schools. Social and cultural factors may hinder the use and adaptation of computers in some societies. When ICT usage in schools is done on every school, societies will gradually change their perception on the use of computers. For new technology to be accepted in a society it is attributed on how well the proposed technology innovation fits into the existing culture. Within the college, school organization, school culture is an important consideration in terms of ICT integration (Tearle, 2003). Therefore, there must be an equivalency between organizational culture and new technology in the school or college. If the

technology is not received well by teachers, therefore a mismatch of values between the culture of schools and the technology exist (Albirini, 2006). Therefore teachers who have positive perceptions about the cultural relevance of computer technology will apply ICT in education. The physical location of the institution plays an important role in the accessibility of the schools in terms of infrastructure and network availability. Some schools have no roads and there is also no electricity. In such a scenario, computer use is not possible also when those services are to be given to such schools they prioritize those institutions with better infrastructure. Some schools are located in valleys such that even satellite dishes or microwave technologies can hardly connect.

THEORETICAL FRAMEWORK

The theoretical framework for this study is going to considers the ICT readiness, ICT skills and ICT use in teacher education training programmes so as to have a pre-service teacher with ICT skills that would enable him to make use of computer assisted teaching strategies. To this end, it will go a long way in shaping the student's ICT competencies in classrooms.

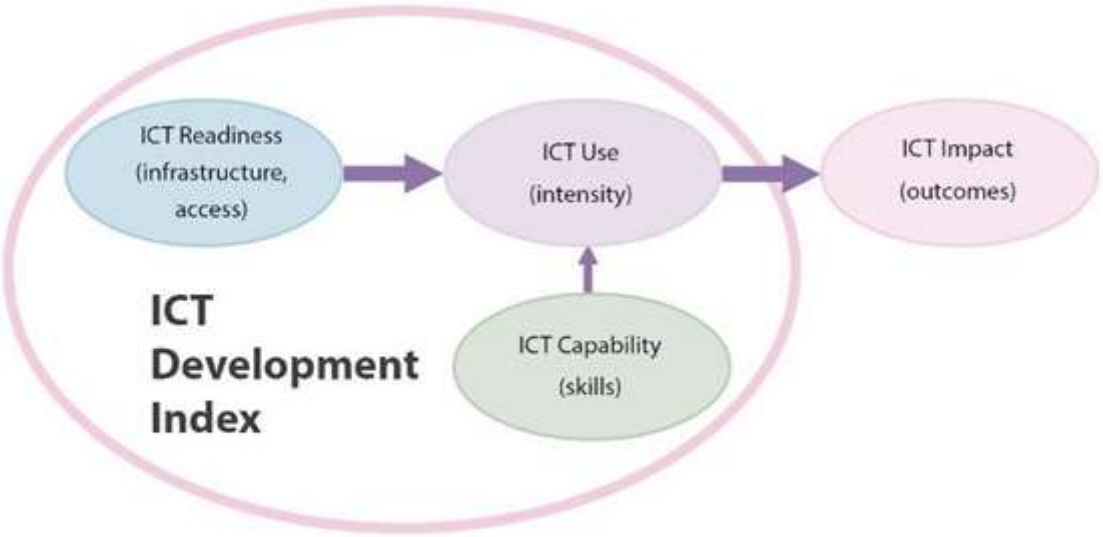

Figure 2.2. Theoretical Framework.

TECHNOLOGY SUPPORT

In this world of technological change, stakeholders play an important role in societies as they are responsible for inputting their views when syllabuses are being crafted. Dillon (2009) asserts that

…learner centered curriculum development because such an approach takes into account the modern technological advancement when developing the curriculum…

The availability open source software and its movement have helped fuel the adoption of technology in education and other sectors. The uses of Word processors, Spreadsheets and Power-point presentations in schools have made computers to be usable even if they are not connected to the internet since they enable the teachers to give instructions through the computer in class.

Nziramasanga Commission (1999) recommended the inclusion of ICT in the teacher education training programme. Zhou (2012) supported that if the recommendations are going to be implemented, it would help teachers to overcome their fear of the computer while making them familiar with the use of digital

materials. The challenge for teachers lies in the integration of ICT-based instruction in child-centric interactive teaching. ICT-based learning puts children at the center of the classroom process by expanding opportunities for self-learning (Bingimlas, 2009). Hence, teachers need to have basic understanding of child-centric interactive education. The use of e-books is now the order of the day during these days of technological change and gone were the days when student teachers were carrying huge load of books to and from school. E-books can be downloaded online and through the click of a button as comparing to buying a book. Time spend when going to the library to look for the book can be used for other things and also storage space for storing the book a simpler as it can be stored on a phone's memory card.

These great advancements in technology are the 'brain-child' of the greatest invention in the history of Information Communication Technology. The use of computer in schools has become widespread from primary education through the university level and even in some preschool programs Encyclopedia Britannica (2015). Oka (2014) posits that information and communication technologies enable man to timely and efficiently increase his speed of operation, interact in flexible ways, utilize his potentials to become innovative and creative. Students teachers are taught computer assisted teaching in their teacher education, the flexible way of interaction and abilities to become creative and innovative will therefore be found in the educational system.

Alumode (2002), views education as the aggregate of all the processes by which a child or young adult develops the abilities, attitudes and other forms of behavior which are of positive value to the society in which he lives. In the Zimbabwean society, our education system can be evaluated by determining the extent to which the use of computers is going to meet the needs of the society as well as its effectiveness to the society and the nation at large. The Encyclopedia Britannica (2014) posits that the use of computers in educational instruction provides one-to-one interaction with a student, as well as an instantaneous response to the answers elicited, and allows students to proceed at their own pace.

Igwe (2003) posits that science subjects cannot be practiced without equipping both the teacher and the students with the adequate knowledge on the resource materials to be used. The use of computer assisted teaching strategies provide this service to both the teacher and the students in a more fascinating and comprehensive manner. Computer Assisted Instruction (CAI) is a different and rapidly expanding continuum of computer technologies that assist the teaching and learning process in class. Examples of CAI applications include guided drill and practice exercises, computer visualization of complex objects, and computer-facilitated communication between students and teachers. According to Microsoft Encarta (2009) the number of computers in American schools has risen from one for every 125 students in 1981 to one for every nine students in 1996. While the United States leads the world in the number of computers per school student, Western European and Japanese schools are also highly computerized.

The trend is the same in developing nations. There is continual integration of computer in the teaching and learning process bringing about high level of achievement of students academically. Zimbabwe as a developing country should see to it that computer assisted teaching strategies are infused in the pre-service teacher's teacher education programme so that it can fully harness the benefits of technology in the education system. Information technologies have provided excellent opportunities to challenge problems and satisfy the expectations of society. These days everybody is talking and writing about computer. Computer technology can play an important role in enhancing the efficiency of the language teaching process, making students more creative and providing them with an individualized learning environment. Amongst all teaching strategies, Computer Assisted Teaching is perhaps the best because

it offers individualized instruction as it changes teacher-centered to teacher-student-centered or student-centered education and also providing teachers with more options to teach and more time to evaluate progress of activities (McDonald, 2001).

Advancement in the telecommunication and computer technology has brought a new expectation and hope for learners, organizations, universities, and society. Expectation of new generation of learners is much higher from higher education than the current generation of students. Computers provide content information in various forms text, visuals, audio, video and also provide instructional activities or interaction from learners, assess learner performance, give feedback and determine proper follow up activity because the learner is highly involved individually. A report entitled computer advantage: Tutoring individuals states: With computers as tutors, no student will be overwhelmed because he /she is missing fundamentals the computer will repeat materials until each lesson has been sufficiently mastered, (Bennett, 1999:3, cited in Gulley 2003).

Computer helps the learners to understand the language quickly. They can learn the language very easily with their own pace and independently without the help of their teachers. It provides the opportunity for self-learning as computers enable students to know the spelling and pronunciation of each word through the use of visual effects and sound. Based on Hennessy, Harrison and Wamakote (2010) report, there is substantial evidence that when used in the Education Sector, ICT can be an effective tool in supporting teaching and learning. Computers act as a relief from the mechanical aspects of the teacher's work. The computers' use in classroom is not to exclude the teacher from the classroom. They cannot replace the teachers because teachers act as guiders; instead the computer can assist the teacher for effective teaching and learning in classrooms for students to access more content when compared to traditional teaching (Cepni, Tas, & Kose, 2006). Typically students learn at the pace of the teacher or the pace of the classroom. Cepni, Tas, & Kose, (2006) identified the three dynamics of student achievement in classroom as high achievers, mainstream, and low achievers. These groups process information at different rates when education is integrated with CAI and each group is able to access the content depending on their achievement and ability level.

Yalın (1999) defined computer based teaching as using computers to control some activities of computer systems such as planning teaching, measuring learning, recording data related to the students, making statistical analysis on learning data Computer Assisted Teaching is concerned with transferring instructional content and activities to students via computers. Demirel (2003) described computers as tools which compete and strengthen the education system and they are not alternatives which replace teachers in teaching process. In computer assisted teaching, computers are used to support education and instruction. Classroom teacher is the main teacher or guider who teaches the subject, and determined objectives and attitudes. According to Keser (1998) teacher teaches the subject with traditional method in classroom and students who miss the lesson by any reason have an opportunity to learn the subject via computers. This blended approach allows students to access course materials and engage with the content at their own pace, thereby enhancing their understanding and retention of the subject matter. Recent studies support this notion, indicating that technology can effectively bridge learning gaps caused by absences. For example, research by Lim et al. (2013) demonstrates that online learning platforms provide flexible access to educational resources, enabling students to catch up on missed lessons and improve their academic performance. Additionally, a study by Johnson et al. (2021) highlights that integrating technology in education not only supports traditional teaching methods but also fosters a more inclusive learning environment for all students. In this scenario the computer will be acting as a

private teacher. Evaluations of studies are made in the classroom by means of computers. The role of computer assisted teaching in learning and teaching is beyond dispute that its contributions in educational and instructional process are so significant (Doğanay, 2002).

Bagui (1998) asserts that if information is presented to the students in multi-environment, it will be easier to transfer it to the brain. In support of the above, Mayer (2020) posits that presenting information in a multi-modal context enhance cognitive processing and retention among students. This was corroborated by Hattie & Donoghue (2016), who found out that integrating various sensory modalities such as visual, auditory, and kinesthetic elements into learning environments significantly improves students' ability to transfer knowledge to long-term memory. In the same vein, Felder & Brent (2016), buttressed the same line of thinking when they pointed out that integrating technology with learning facilitates deeper understanding as well as accommodating diverse learning styles that would lead to effective educational outcomes. Using computers is one of the most efficient ways to make the lessons audio-visual, to supply a fluent and effective education, to keep the students from memorization, to obtain speed and permanence in perception.

Serin (2011) affirmed that education started from learning about computers to learning with computers and finally stretched to learning through computers. In support of Serin's affirmation, Owusu et al (2010) describes learning about computers saying it involves the knowledge of computers at various levels such as knowing the uses of the computer and the names of the various parts, knowing how to use the keyboard and computer packages and so on. According to Tabassum (2004), the knowledge of computers may be thought of as a continuum which ranges from skills in and awareness of computers at lower level to programming at higher level. Constructivist theory involves construction of knowledge and not only to wait for the tutor or teacher to dish out the knowledge. Roblyer and Edwards (2006) posit that learners construct knowledge themselves rather than simply receiving it from knowledgeable teachers. In this case, computer assisted learning programs are related to constructivism in that students are always at the centre of the learning process. In support of the assertion that knowledge is actively constructed and not simply acquired by the learner, Hogan (2005) said rather than being passive recipients of instruction, they are actively involved in constructing knowledge. Teacher's role is not only to observe and assess but to also interact with the students while they are doing activities, highlighting gray areas and posing questions to the students.

RESEARCH METHODOLOGY

This study was informed by positivistic philosophy in order to ascertain the computer assisted teaching strategies used by PGDE students for teacher training programmes in Hwange urban secondary schools, Zimbabwe. The philosophy adhere to the view that only factual knowledge gained through observation, including measurement is trust worthy (Cresswell, 2012). The philosophy notes that variables emphasize on quantitative data and that reality is objectively given. This study employed the descriptive survey research design. The study population was 40 respondents from ten secondary schools in Hwange urban district. Purposive sampling was used to sampled 4 secondary schools in which a sample of 20 respondents were selected comprising of four PGDE students per each secondary school and one head of department marking a total of 20 respondents. The research administered interviews to teachers whilst questionnaires were given to PGDE students. As noted by Fraenkel and Wallen (2003), the purpose of an interview is to find out what is in the mind of the respondent. Similarly, Kajornboon (2008) had to it that an interview is a way of collecting data as well as of gaining knowledge from respondents, a

systematic way of talking and listening to people so as to collect data from individuals through conversations, hence its use. Additionally, a questionnaire is a list of questions or statements to which the individual is asked to respond in working ranging from a check mark to an extensive written statement. PGDE students were given questionnaire with both closed-ended questions and open- ended questions. Questionnaires were chosen because they permitted wide coverage and convenience (Kumar, 2011).

RESULTS AND DISCUSSION

The study sought to examine computer assisted teaching strategies used by PGDE students for teacher training education. The age range of respondent was between 26 years to 40 years the significance of these ages was that the researcher would have an overview of people involved in the implementation of the computer assisted teaching strategies. PGDE student ages ranged from 26 years to 33 years while heads of departments ages ranged from 38 years to 46 years.

Of the 16 respondents, 5 (31.5%) in category of PGDE were holders of ICT qualifications at degree level. Eleven (11) were holders of other degrees not related to ICT but doing PGDE. All the four heads of departments in ICT were holders of other degrees but less qualified in ICT to supervise the PGDE students. Neither were they qualified to implement the computer assisted teaching strategy in their respective schools.

The degree of support of computer assisted teaching strategies by secondary schools in Hwange urban district for PGDE students.

While most schools got computers from, the government, the computers were stored in the store-rooms due to lack of qualified teachers and they have out lived their life span, hence the PGDE student cannot use them for computer assisted teaching strategies (Cuban, 2001; Ertmer & Ottenbreit-Leftwich, 2010). Inadequacy of computer knowledge by PGDE student teachers and their heads of department hindered the effective implementation of computer assisted teaching strategies. The non-working computers cannot be re-serviced in most schools as the School Development Association (SDA) are in capacitated financially, hence the PGDE students could not implement computer assisted teaching strategies (Mugweni & Chireshe, 2015; ZIMSEC, 2018). The few working computers are inadequate to service the whole school and also pupils cannot afford to buy tablets to argument the limited schools resources (ZIMSEC, 2018). This therefore making it extremely difficult for PGDE student teachers to implement computer assisted teaching strategies. Strong leadership commitment is crucial for fostering a culture that values technology-enhanced learning, ensuring that necessary resources and support are allocated effectively (Fullan, 2013). This dedication can lead to more successful implementation of computer-assisted teaching strategies, ultimately improving educational outcomes for students. The **Table 1** below shows number of computer distribution at the four secondary schools:

Table 1. Number of computers at Secondary Schools

No.	**Name of school**	**No. Computers**
1	School A	20
2	School B.	3
3	School C	2
4	School D.	3

	Total	**28**

This implies that PGDE student teachers at School A were able to share the computers with students whereas those for other schools like School B, School C and School D could hardly share the computers. As a result, PGDE student teachers in these schools could not implement computer assisted teaching strategies because of scarcity of resources. The results indicated that secondary schools in Hwange urban district provide moderate support for computer-assisted teaching strategies for PGDE students. While some institutions have integrated technology into their curricula, others lack adequate resources and training for effective implementation (Munyati, 2019). Feedback from students highlights a disparity in access to digital tools and instructional support. Overall, enhancing infrastructure and training could significantly improve the effectiveness of these teaching strategies. However, challenges for adopting computer assisted strategies were noted by respondents as show in table 2 below:

Table 2.Computer Challenges Faced By PGDE Students

No.	**Computer Challenges Faced By PGDE Students**
1	Inadequate computer knowledge.
2	No internet service providers in the area.
3	Inadequate computer resources to use.
4	No funds to service non-working computers.
5	None compatibility of both software and hardware.
6	Lack of technical knowhow.
7	Unavailability of peripherals like micro phone, printers and projectors.
8	Shortage of computer (high student-computer ratio).
9	No electricity or load shading.

These finding suggested that addressing these technological barriers is essential for the consistent implementation of computer-assisted teaching strategies. Additionally, the expressed need for training indicates that professional development must be prioritized to equip teachers with the skills needed to effectively utilize these tools. Despite the obstacles, the positive impact of technology-enhanced learning on student understanding highlights its potential when resources are adequately provided. Ultimately, ensuring better access and targeted training can significantly enhance the effectiveness of computer-assisted teaching strategies in fostering student learning.

PGDE student teachers struggled to effectively implement computer-assisted teaching strategies, as many lacked basic digital literacy. Additionally, those who own tablets often cannot use them due to limited internet access in most schools in Hwange Urban district. Furthermore, the School Development Association (SDA) faced financial constraints that prevented them from covering the monthly costs of internet services (Chikoko & Ndlovu, 2012). More so, lack of computer laboratories in most schools limited the implementation of computer-assisted teaching strategies, highlighting a significant resource gap. Additionally, the reliance on a single NGO-funded school emphasizes the need for qualified educators to maximize the potential of available technology.

The effectiveness of the use of computer assisted teaching strategies by PGDE students in Hwange urban District Secondary schools.

The findings reveal that computer-assisted teaching strategies have a positive impact on the learning experiences of PGDE students in Hwange urban district secondary schools. The increased engagement and motivation reported by PGDE students when technology is integrated into lessons suggests that incorporating computer-assisted teaching strategies can enhance the effectiveness of teacher training programs (Fullan, 2013). These finding implies that educational institutions should prioritize technology integration in their curricula to foster a more dynamic learning environment. Additionally, it highlights the need for ongoing professional development for educators to effectively utilize these tools. The use of computer assisted strategies resulted in improved educational outcomes and better prepared PGDE students for their future teaching careers (Mugweni & Chireshe, 2015). More so, the study underscored the importance of adapting teaching methods to align with modern technological advancements.

PGDE students reported that interactive tools made learning more enjoyable and accessible. This implies that integrating such technologies significantly enhanced the learning experience for PGDE students (Zheng, Warschauer & Farkas, 2015). This finding suggested that educational programs should prioritize the adoption of interactive resources to cater to diverse learning styles and inclusivity. It also indicated the potential for increased retention of knowledge and skills among PGDE students, as enjoyment often correlates with deeper engagement (Mugweni & Chireshe, 2015). Above all, this study highlighted the necessity for secondary schools to invest in interactive technologies to improve the overall effectiveness of teacher training programs, as well as enriching educational outcomes for secondary school students as well.

Findings had to it that computer-assisted tools can be adapted to individual learning paces and styles. This implies that personalized education significantly enhanced the effectiveness of teacher training at one of the school (Tomlinson, 2014; Pane, Steiner & Baird, 2017). This suggested that PGDE programs should incorporate adaptive technologies to meet the diverse needs of their students. Furthermore, it highlighted the potential for improved academic performance, as tailored experiences can help address specific learning gaps (Hattie, 2009). The study underscores the importance of integrating adaptive learning technologies into educational frameworks to foster a more inclusive and effective learning environment.

The competence skills of PGDE students in the use of computer assisted teaching strategies.

The competence skills of PGDE students in using computer-assisted teaching strategies reveal a mixed landscape of strengths and areas for improvement. Many students demonstrate proficiency in basic software applications and online resources, allowing them to effectively integrate technology into their lesson plans (Chisango, & Mlambo, 2017). However, some students express a lack of confidence in utilizing more advanced tools, such as interactive simulations or data analytics platforms, which can limit their teaching effectiveness. The mixed competence skills of PGDE students indicate a need for targeted training programs that focus on advanced computer-assisted teaching tools to enhance their overall effectiveness (Munyati, 2019). The findings suggested that integrating comprehensive professional development into the curriculum could better prepare PGDE students for technology-driven teaching environments in their teaching profession.

More so, effectiveness of hands-on training and workshops is paramount as practical experience is crucial for developing competence in computer-assisted teaching strategies among PGDE students

(ZIMSEC, 2018, Mugwenhi & Chireshe, 2015). The findings suggested that educational programs should prioritize these experiential learning opportunities to build confidence and proficiency. Incorporating structured training sessions in their calendars can lead to more effective future educators who are well-equipped to utilize technology in their classrooms (MoPSE.2015; Munyati, 2019).). Furthermore, the role of peer collaboration in fostering a supportive learning environment highlighted the importance of collaborative learning in PGDE programs. The findings suggested the integration of group activities and peer-led workshops to enhanced students' skills in using computer-assisted teaching strategies (MoPSE, 2016). Finally, promoting a culture of collaboration envisaged leading to a richer educational experience and a better prepared future educators for teamwork in their professional environments.

CONCLUSION

The study concludes from the findings that poor computer assisted teaching strategies by PGDE student teachers for teachers training education programme is attributed lack of expertise in ICT expertise by student teachers and their supervisors. It is also as a result of incapacitation by schools financially as the SDA which are running the schools cannot fund raise the acquisition of computer parts and accessories through school levies.

The study also concludes that where schools had functional computer laboratory, there were no ICT technicians to service the gadgets as a results of this, the gadgets become unusable as a result of lack on updates and internet connection, hence PGDE student teachers could not effectively. Implement computer assisted teaching strategies during the education teacher training programme.

RECOMMENDATIONS

The teacher training department should make sure that they emphasise the use of these strategies during teaching practice.

Schools through the SDA should infuse in their budget a certain amount of money for repairing at least three computers a term to supplement on the few available so as to accord every teacher and pupils the opportunity to use computers and increase on user computer ratio.. In certain schools where there are no computers, it is recommended that they should buy at least one computer per term as this will translate to three computers per year, as this will assist in the establishment of computer laboratory in the long run.

It was recommended that ICT heads of department without adequate ICT qualifications, should be in-serviced through staff development programmes.

The government should initiate the recruitment of ICT technicians in schools in order to service the computer gadgets. It is also recommended that the schools without electricity be electrified to enable the schools to use computers donated by the former President of Zimbabwe, Cde. R.G Mugabe.

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