IMPORTANCE OF ICT IN EDUCATION TO ENHANCE LEARNING

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ABSTRACT

We are living in a constantly evolving digital world. ICT has an impact on nearly every aspect of our lives - from working to socialising, learning to playing. The digital age has transformed the way young people communicate, network, seek help, access information and learn. We must recognise that young people are now an online population and access is through a variety of means such as computers, TV and mobile phones. The new paradigm of education incorporates primarily the requirement for modernisation of education as an important factor for institutional growth and to increase the competencies and skills of the students through effective and efficient learning environment. Academic leaders are recognising the importance of ICT for institutional growth. This paper provides an overview on the importance of ICT and the need for implementation of ICT at undergraduate level of education especially in traditional classrooms to enhance better way of learning among the learners.

ICT (information and communications technology - or technologies) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning.

The motive of the study is to understand the concept of ICT, to assess the need for the implementation of ICT at higher education and the Importance of ICT in enhancing the learning. Especially the impact of ICT in learning through visual effects

Key words: ICT (Information and Communication Technology), Learning, Higher education, technology, academic, digital, students.

INTRODUCTION

Information and Communication Technologies (ICT) have become one of the most important factors to the formation of society in the twenty-first century. The use of enormous integrated set of computer and internet tools and resources in the new learning environments allows us to achieve more efficient and effective teaching. The students are no longer passive consumers of the educational programs and services, but active participants in the educational process.

The increasing influence of globalization and the emerging information society, set new requirements for all areas of social life, including to higher education. ICT became an important instrument in the new Higher Educational Environment in the digital age which creates student-centered learning and educational practice, offering new more flexible learning methods. One of the most important aspects of ICT are Learning Objects and the various software tools that aid in their development, storage, use in teaching, and administration.

The modernization of education suggests that the students not only have to acquire skills and habits to work with the growing volume and more sophisticated information streams but have to possess ability to get new knowledge, independently to build the overall cognitive process in the surrounding IT environment.

In the education sector computers are revolutionary technology and you can't avoid its importance in schools and colleges. It offers interactive audio visual media that allow rendering information to students via animation software and Power Point Presentation in an interactive manner. Visual effects have made learning more interesting for students.

Welsh, Wanberg, Brown and Simmering (2003, p.246) define ICT as the use of computer network technology through the Internet to deliver information and instruction to learners.

ICT may be difficult to understand since it has a wide scope in its definition. Educational ICT tools can be divided into 3 categories: Input source, Output source and others.
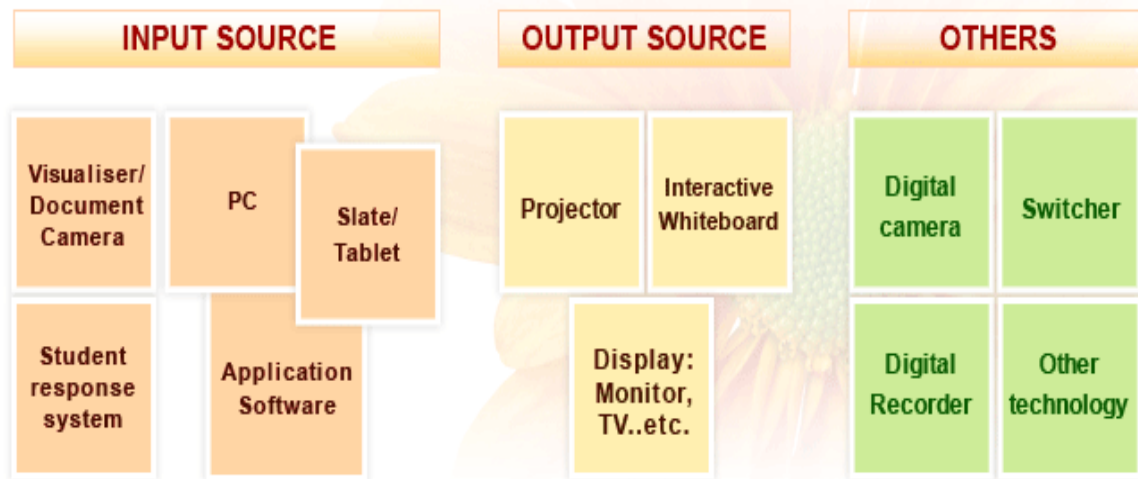
The narrow definition of ICT is a "technique to offer interactive audio visual media that allow rendering information to the students".

Review of Literature

The role of ICT and new innovative approaches to teaching and learning based on the use of software applications, multimedia products and web-based information. The Tatania Shopova identifies that the improvement of digital literacy of the students can contribute to improving their outcomes because they are no longer passive consumers of the educational programs and services, but active participants in the educational process. Their learning and employability skills related to the effective use of information sources are important prerequisite for increasing student's responsibility for their own learning (Tatania Shopova).

The creative online activity for students involves not only seeking information, but also creating and sharing new content, provoking their participation in conversations fuelled by that content. According to this, the efforts of the teachers should be focused on supporting different appropriate ways to use interactive information and communication media which will increase the students' abilities for more effective approach to information suggesting its critical and competent assessment (Tatania Shopova).

Understanding the various roles involved in teaching and the possibility of task-specialization leads to a fuller understanding of the impact of learning objects on the future of higher education. The course designer may assemble a course from, for example, pre-existing learning objects that have been created by others. ICT needs to be understood in the broader context of using technology to meet society's needs for learning. It also requires us to understand that adult learners have psychological needs that ICT must address. (Eli B. Cohen & Malgorzata Nycz).

Higher education sector can take greatest advantage of the increased use of technology, especially the Internet, in delivering the educational product. (Cappelli, 2003). Usage of new technologies and internet in higher education especially in educational programs, can increase speed of development, and educate citizen familiar with ICT and needs of living in 21century.

The fast expansion of the Internet and related technological advancements, in conjunction with limited budgets and social demands for improved access to higher education, has produced a substantial incentive for universities to introduce ICT in teaching and learning (Volery).

The impact of eLearning initiatives will have direct effects on the future structure of universities on both strategic and tactical levels (Shaba).

Due to social demands for flexible learning, the business marketplace is now progressing on the more traditional realms of higher education (Teare), and if traditional institutions are to remain a dominant education provider and advance technically they must embrace the knowledge and experience of external clients in the latest distance learning revolution (Jones).

Wilson (2001) suggests that three characteristics of the lecturer will control the degree of learning; attitude towards technology, teaching style and the control of technology.

The role of the lecturer is predominant in the successful delivery of networked learning initiatives, as lecturers have the influence to eliminate student's technical frustrations, make students feel empowered and encourage students to interact with one another. (Gurmak Singh, John O'Donoghue, Harvey Worton).

Many commentators describe the relative benefits of ICT in higher education.

OBJECTIVES OF THE STUDY

1. To understand the concept of ICT.
2. To assess the need for the implementation of ICT at higher education level along with traditional classroom education.
3. Impact of ICT in learning through visual effects.
4. To find the benefits of ICT.

RESEARCH METHODOLOGY

I have conducted conceptual and analytical research. Data was collected from the various secondary sources to find the relevant information and an analysis had been done based on the collected data.

LIMITATIONS OF THE STUDY

1. Study gives only the conceptual framework in regard to ICT.
2. Only certain aspects of ICT are taken into consideration for the study.
3. Barriers for implementation of ICT in classroom education are not taken into consideration.

ICT in Education

What is ICT?

ICTs stand for information and communication technologies and are defined, for the purposes of this primer, as a "diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information." These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephony.

ICT (information and communications technology - or technologies) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as video conferencing and distance learning.
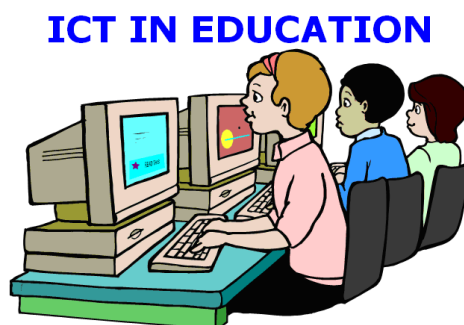
Types of ICTs are commonly used in education

In recent years there has been a groundswell of interest in how computers and the Internet can best be harnessed to improve the efficiency and effectiveness of education at all levels and in both formal and non-formal settings. But ICTs are more than just these technologies; older technologies such as the telephone, radio and television. Moreover, different technologies are typically used in combination rather than as the sole delivery mechanism.
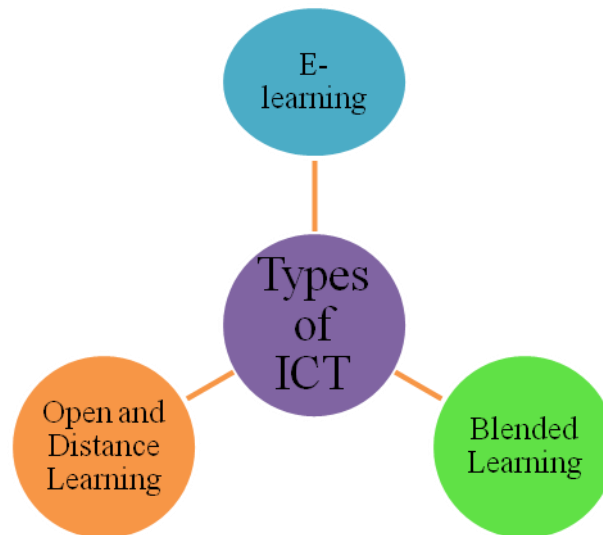
1. E-learning

E-learning encompasses learning at all levels, both formal and non-formal, that uses an information network—the Internet, an intranet (LAN) or extranet (WAN)—whether wholly or in part, for course delivery, interaction and/or facilitation. Others prefer the term online learning. Web-based learning is a subset of e-learning and refers to learning using an Internet browser.

2. blended learning

This refers to learning models that combine traditional classroom practice with e-learning solutions.

3. Open and distance learning

Open and distance learning is defined by the Commonwealth of Learning as "a way of providing learning opportunities that is characterized by the separation of teacher and learner in time or place, or both time and place; learning that is certified in some way by an institution or agency; the use of a variety of media, including print and electronic; two-way communications that allow learners and tutors to interact; the possibility of occasional face-to-face meetings; and a specialized division of labour in the production and delivery of courses.

Importance of ICT in classroom education

How can the use of ICTs help improve the quality of education?

Improving the quality of education and training is a critical issue, particularly at a time of educational expansion. ICTs can enhance the quality of education in several ways: by increasing learner motivation and engagement, by facilitating the acquisition of basic skills, and by enhancing teacher training. ICTs are also transformational tools which, when used appropriately, can promote the shift to a learner-centered environment.

Motivating to learn

Facilitating the acquisition of basic skills

Enhancing teacher training

1. **Motivating to learn.** ICTs such as videos, television and multimedia computer software that combine text, sound, and colourful, moving images can be used to provide challenging and authentic content that will engage the student in the learning process. Interactive radio likewise makes use of sound effects, songs, dramatizations, comic skits, and other performance conventions to compel the students to listen and become involved in the lessons being delivered. More so than any other type of ICT, networked computers with Internet connectivity can increase learner motivation as it combines the media richness and interactivity of other ICTs with the opportunity to connect with real people and to participate in real world events. Especially visual effects help the learner to understand the concept faster than the verbal effects.

2. **Facilitating the acquisition of basic skills.** The transmission of basic skills and concepts that are the foundation of higher order thinking skills and creativity can be facilitated by ICTs through drill and practice. Educational television programs such as Sesame Street use repetition and reinforcement to teach the alphabet, numbers, colours, shapes and other basic concepts. Most of the early uses of computers were for computer-based learning (also called computer-assisted instruction) that focused on mastery of skills and content through repetition and reinforcement.

3. **Enhancing teacher training.** ICTs have also been used to improve access to and the quality of teacher training. For example, institutions like the Cyber Teacher Training Centre (CTTC) in South Korea are taking advantage of the Internet to provide better teacher professional development opportunities to in service teachers. The government-funded CTTC, established in 1997, offers self-directed, self-paced Web-based courses for primary and secondary school teachers. Courses include "Computers in the Information Society,""Education Reform," and "Future Society and Education." Online tutorials are also offered, with some courses requiring occasional face-to-face meetings. In China, large-scale radio and television-based teacher education has for many years been conducted by the China Central Radio and TV University, the Shanghai Radio and TV University and many other RTVUs in the country.

At Indira Gandhi National Open University, satellite-based one-way video- and two-way audio-conferencing was held in 1996, supplemented by print-materials and recorded video, to

train 910 primary school teachers and facilitators from 20 district training institutes in Karnataka State. The teachers interacted with remote lecturers by telephone and fax.

How can ICTs help transform the learning environment into one that is learner-centered?

Research has shown that the appropriate use of ICTs can catalyze the paradigmatic shift in both content and pedagogy that is at the heart of education reform in the 21st century. If designed and implemented properly, ICT-supported education can promote the acquisition of the knowledge and skills that will empower students for lifelong learning.

When used appropriately, ICTs especially computers and Internet technologies enable new ways of teaching and learning rather than simply allow teachers and students to do what they have done before in a better way. These new ways of teaching and learning are underpinned by constructivist theories of learning and constitute a shift from a teacher-centered pedagogy in its worst form characterized by memorization and rote learning—to one that is learner-centered.
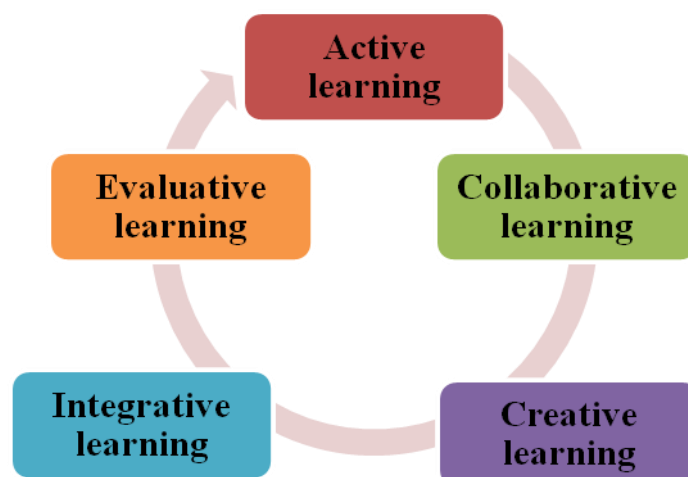
• **Active learning.** ICT-enhanced learning mobilizes tools for examination, calculation and analysis of information, thus providing a platform for student inquiry, analysis and construction of new information. Learners therefore learn as they do and, whenever appropriate, work on real-life problems in-depth, making learning less abstract and more relevant to the learner's life situation. In this way, and in contrast to memorization-based or rote learning, ICT-enhanced learning promotes increased learner engagement. ICT-enhanced learning is also "just-in-time" learning in which learners can choose what to learn when they need to learn it.

• **Collaborative learning.** ICT-supported learning encourages interaction and cooperation among students, teachers, and experts regardless of where they are. Apart from modeling real-world interactions, ICT-supported learning provides learners the opportunity to work with people from different cultures, thereby helping to enhance learners' teaming and communicative skills as well as their global awareness. It models learning done throughout the learner's lifetime by expanding the learning space to include not just peers but also mentors and experts from different fields.

• **Creative Learning.** ICT-supported learning promotes the manipulation of existing information and the creation of real-world products rather than the regurgitation of received information.

• **Integrative learning**. ICT-enhanced learning promotes an integrative approach to teaching and learning. This approach eliminates the artificial separation between the different disciplines and between theory and practice that characterizes the traditional classroom approach.

• **Evaluative learning.** ICT-enhanced learning is student-directed and diagnostic. Unlike static, text- or print-based educational technologies, ICT-enhanced learning recognizes that there are many different learning pathways and many different articulations of knowledge. ICTs allow learners to explore and discover rather than merely listen and remember.


Goals of ICT programme

Authors of the SITES report on South Africa (Howie, Muller, & Patterson, 2005) noted that secondary school principals reported the following goals for their ICT programs:

  ➢ To prepare students for future jobs.
  ➢ To improve student achievement.
  ➢ To promote active learning strategies.
  ➢ To individualize student learning experiences.
  ➢ To encourage more co-operative and project-based learning.
  ➢ To develop student independence and responsibility for own learning.
  ➢ To give students drill and practice exercise.
  ➢ To make the learning process more interesting and engaging.

Benefits of ICT

ICTs are a potentially powerful tool for extending educational opportunities, both formal and non-formal, to previously underserved constituencies—scattered and rural populations, groups traditionally excluded from education due to cultural or social reasons such as ethnic minorities, girls and women, persons with disabilities, and the elderly, as well as all others who for reasons of cost or because of time constraints are unable to enroll on campus.
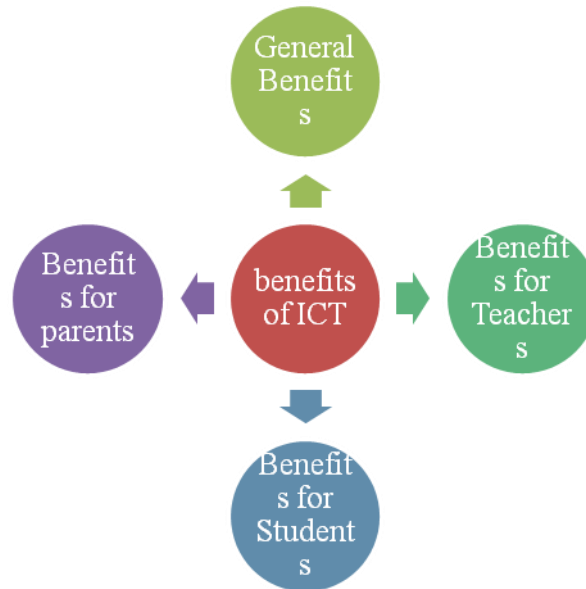
General benefits

- Greater efficiency throughout the educational institute.
- Communication channels are increased through email, discussion groups and chat rooms
- Regular use of ICT across different curriculum subjects can have a beneficial motivational influence on students' learning.

Benefits for teachers

- ICT facilitates sharing of resources, expertise and advice.
- Greater flexibility in when and where tasks are carried out. (knowledge pro for attendance entry)
- Gains in ICT literacy skills, confidence and enthusiasm.
- Better planning and preparation of lessons and designing materials. (PPTs, clip art, pictures)
- Access to up-to-date pupil and school data, anytime and anywhere. (intra net)
- Enhancement of professional image projected to colleagues.

- Students are generally more 'on task' and express more positive feelings when they use computers than when they are given other tasks to do.
- Computer use during lessons motivated students to continue using learning outside school hours.
- Enhance students' understanding – Traditional teaching methods such as interaction, lectures and group discussions, when combined with interactive videos and simulations, lead to a better classroom experience. Teachers can use adaptive learning techniques which determine students' learning needs by assessing their responses in the classroom and accordingly present questions.
- Freedom to move around in the classroom – A digital classroom setup can be controlled using a one-touch, custom-made remote controls. It allows teachers to freely move around, observe what the students are doing and watch them carry out experiments.
- Less student distraction – A child's attention span is just about a couple of seconds. To keep him engaged in the classroom a teacher needs to do more than mere lecturing. Here's where ICT tools help. Life-like projections and virtual learning environments keep the students engrossed in the world of learning. The possibility of a child getting distracted in a digitally-enabled classroom is very low.
- Simplified testing and assessment procedures – Teachers can issue live tests to students via tablets and conduct live assessments. She can also easily monitor the success of her teaching.

Benefits for students
- Higher quality lessons through greater collaboration between teachers in planning and preparing resources.
- More focused teaching, tailored to students' strengths and weaknesses, through better analysis of attainment data.
- Improved pastoral care and behaviour management through better tracking of students.
- Gains in understanding and analytical skills, including improvements in reading
- Comprehension.
- Development of writing skills (including spelling, grammar, punctuation, editing and re-drafting), also fluency, originality and elaboration.
- Encouragement of independent and active learning, and self-responsibility for learning.
- Flexibility of 'anytime, anywhere' access.

- Development of higher level learning styles.

- Students who used educational technology in school felt more successful in school, were more motivated to learn and have increased self-confidence and self-esteem

- Students found learning in a technology-enhanced setting more stimulating and student-centred than in a traditional classroom

- Broadband technology supports the reliable and uninterrupted downloading of web-hosted educational multimedia resources

- Opportunities to address their work to an external audience

- Opportunities to collaborate on assignments with people outside or inside school

- Active learning atmosphere – Passive classroom listening and reading are passé (which means, out of date). They do not create the learning most teachers aspire to create in their classrooms. Using technology-enabled tools such as tablets and e-books, teachers can partner with students in proactive learning.

- Personalized learning experiences – Digital classrooms can be customized to suit each student's unique learning needs. This allows students to learn at their own pace. They can choose the learning apps they feel will help them absorb better and thereby build a personalized learning environment for themselves.

- Collaborative environment for learning – Simple applications such as Google Docs and Google Forms help in real-time collaboration among peers. Students can work in groups on a document at the same time, share ideas and collaborate with ease.

- Learner-centered teaching – Digital tools keep the students engaged and at the center of the learning process. The modes of instruction are designed to cater to the learning needs of each child.

Benefits for parents
- Easier communication with teachers.

- Higher quality student reports – more legible, more detailed, better presented

- Greater importance of ICT in classroom education at present senerio.docx access to more accurate attendance and attainment information.

- Increased involvement in education for parents and, in some cases, improved self-esteem

- Increased knowledge of children's learning and capabilities, owing to increase in learning activity being situated in the home

- Parents are more likely to be engaged in the school community

Examples of ICT-based activities

What kinds of classroom activities are suited to the use of ICT? How these above benefits could be availed to enhance learning among the students?
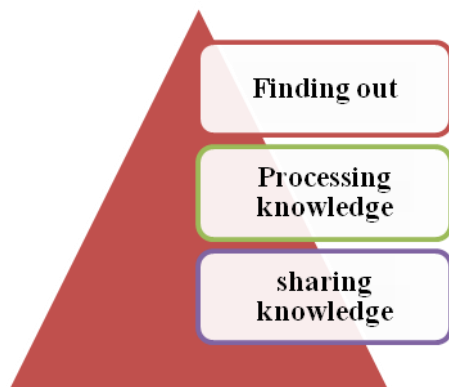
Finding out

Students can use ICT to find out information and to gain new knowledge in several ways. They may find information on the Internet or by using an ICT-based encyclopedia such as Microsoft Encarta. They may find information by extracting it from a document prepared by the teacher and made available to them via ICT, such as document created using Microsoft Word or a Microsoft PowerPoint slideshow. They may find out information by communicating with people elsewhere using email, such as students in a different school or even in a different country.

Processing knowledge

Students can use ICT as part of a creative process where they have to consider more carefully the information which they have about a given subject. They may need to carry out calculations (e.g. by using Microsoft Excel), or to check grammar and spelling in a piece of writing (perhaps using Microsoft Word), or they may need to re-sequence a series of events (for example by re-ordering a series of Microsoft PowerPoint slides).

Sharing knowledge

Students can use ICT to present their work in a highly professional format. They can create documents and slideshows to demonstrate what they have learned, and then share this with other students, with their teacher, and even via email with people all around the world.

Conclusion

Higher education sector can take greatest advantage of the increased use of technology, especially the Internet, in delivering the educational product. (Cappelli, 2003). Usage of new technologies and internet in higher education especially in educational programs, can increase speed of development, and educate citizen familiar with ICT and needs of living in 21century.

The role of ICTs in the education is recurring and unavoidable. Rapid changes in the technologies are indicating that the role of ICT in future will grow tremendously in the education.

The computer allows students to have access to more comprehensive sources of information. They learn basic skills related to information retrieval. In class, the teacher and the manual are not the only sources of information. Several choices are available to them. Moreover, the integration of tics in the classroom can allow us, as a future teacher, to instruct students and to socialize more with respect to websites.

There are many advantages to integrate information technology into the classroom. It is essential to make good use in our classes, because the technologies are the next generation. According to researchers, they improve the motivation and the pleasure of learning from some things they know well.

In addition, information technology and communication can exploit the websites that are accessible to all. I think students enjoy learning from what interests them and that's why they come to better understand what is explained by the teacher. Access to sources of information helps the learner to realize their potential for learning and creating. This is an advantage of technology integration in classrooms.

Several studies show us that, ICTs promote increased student achievement because this tool allows them to progress at their pace and needs. With the help of access to sources of information, learners are also able to update their learning potential and creativity.

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