

The Benefits of ICT Application on the Successful Implementation of Formal Education

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ABSTRACT; This study discussed the problem of the advantages of ICT applications for the successful application of formal learning. We have carefully reviewed some kinds of literature involving a chronological approach, which includes analyzing data, testing data, evaluating and interpreting it until we get some crucial points, which include we get several technological applications, including argumentative reality, adaptive learning, artificial intelligence, robotic and automation, utilization of 5G advances in learning, and learning analytics. It is hoped that these findings will be helpful for further studies.

Keywords: *Benefits, ICT Application, Implementation, Formal Education.*

INTRODUCTION

The 21st century is often considered the era of modern technology. The development of technology that continues to increase every year is intended to facilitate the activities of human life. Starting from work, home activities, shopping, entertainment, and many others, including the education sector (Chen et al., 2020; (Putra et al., 2020; Suroso et al., 2021). Especially during a pandemic like now, which requires everyone to stay at home. That way, technology is essential in supporting people's lives to be more easily accessible and smooth. Of the many digital technologies, some products from digital technology are trending because people use them a lot. What kind of digital technology is trending in the 21st Century (Holmes et al., n.d.)? Several major educational problems, including; 1) education has lost its objectivity and is still far from the reality faced by students in society; 2) student education is immature; 3) education does not foster critical thinking patterns; 4) it has not yet produced humans.

To answer educational problems, electronic-based learning, video-based learning, blockchain technology, Big Data, Artificial Intelligence, Learning Analytics, and gamification (Wu et al., 2021).

In addition, technology development will continue to increase, especially in the entertainment world, including video games and virtual tours. Plus, the science and technology field utilizes digital technology for data visualization needs such as molecular, weather modeling simulations, architecture, driving and flight training, education, sports, martial arts training, psychological therapy, and many more. Because technology, nowadays, plays a vital role in our life. This is seen as the basis for economic growth. A technology-poor economy can never grow in today's scenario (Knox, 2020; Sudarmo et al., 2021). This is because technology makes our work more accessible and less time-consuming. The impact of technology can be felt in all fields, one of which is the field of education. Artificial intelligence (AI) as a digital technology product is hotly discussed. Where AI is the ability of computer machines to replicate human thinking and logic, this concept itself has been formulated by humans since 1950. While now, its development has covered all lines of human life, from the gadgets used to automatic control systems for vehicles, electronic devices, and industry. AI has made human life more manageable. The AI engine can store information through reading and the ability to process and pour information into written text (Jaiswal & Arun, 2021).

Electronic development in preparation is unquestionably no more issue in current tutoring. The latest information shows how present-day students favor development and what their realization means if they use it. It was revealed that the learning and insight of students work with present-day equipment, advancement, and instruments (Hashim, 2018). They also find it more instinctive and stacked with empowering districts when helped by development. The trading of data is straightforward, worthwhile, and sober-minded. This infers that our minds will by and large work faster when assisted with current advancement, be it any piece of life; here, we talk about guidance. The reliance and dependence on such an improvement that makes life an open, smooth journey is evident these days, even in schools, schools, and colleges (Nikou & Aavakare, 2021).

Top establishments currently rely upon using fantastic Power Point acquaintances and projections to keep the learning shrewd and empowering. Like projectors inside schools and colleges, creative use can also foster associations, interest levels, and motivation (Behera et al., 2018). Students like to see drawing in visuals and something that entices them to consider instead of figuring out words. The propelling part similarly ends up being useful for development. Mechanized impression in the tutoring region Accepting we talk about cutting edge and preparing, the entry of cutting edge media inside the tutoring region has created. This entry has achieved a constant organization with students and different conversations open for different sorts of undertakings or help. As the power of automation increases, more applications will help students create and learn. Online degrees using development have transformed into an all-over eccentricity. People wish to take electronic courses for learning and affirmation (Xu et al., 2014). Top associations offer superb electronic projects using various applications and the web. This thought will continue to climb as it gets more assistance and care. The electronic degree circumstance all around the planet is prestigious among students who work and quest for versatile focusing on programs.

Subsequently, these advancements increase the educators' arrangement needs. Ertmer & Ottenbreit-Leftwich, (2010) proclaimed that teachers' mindsets toward computers are crucial in executing ICT preparation. They pointed out the way that teachers do not really, for each situation, have elevating standpoints toward computers, and their appalling viewpoints could incite the failure of PC-based projects. In like manner, the most normally alluded to as obstacles are v shortfall of time, nonappearance of access, v shortfall of resources, v shortfall of expertise, and v shortfall of help. Constancy is another limit given by Ertmer & Ottenbreit-Leftwich, (2010) and Metin et al., (2012). Unflinching quality integrates gear disillusionments, inconsistent programming among home and school, poor or slow web accessibility, and outdated programming available by and large at school. At the same time, the understudy and educators have more outstanding programming at home.

Declining forming capacities among understudies is another issue to look for an answer to (Collins et al., 1989). As a result of the excessive utilization of web talking and open courses, the making skills out of the present energetic age have declined enormously. These days, adolescents rely more upon automated correspondence than they have neglected, further fostering their making skills. They do not even have the remotest clue about spelling different words, using sentence structure properly, or doing the cursive piece. Growing Episodes of Cheating: Mechanical enhancements like graphical calculators, significantly progressed watches, more modest than regular cameras, and similar stuff have become elemental wellsprings of test tricking. It is direct for students to create conditions and notes on graphing smaller than expected PCs with the most insignificant conceivable outcomes (Córdoba Zúñiga, 2016).

Nonappearance of fixation; SMS or text illuminating has become the most cherished interruption of various understudies. They continually play with their cells and iPhones, driving, and even between addresses (Dietz & Henrich, 2014). Being ever-related with the online world has reduced fixation and concentration in scholastics and, relatively, even games and extracurricular activities. Benefits make understudies more restless to learn-assist understudies with definite plans and entryways to work at home freely. Train understudies to overwhelm headway limits they can utilize later in the working environment. Reducing paper and copying costs, moving the chance of a "green stunner." Harms Different prepared experts and experienced individuals express that because of such improvement in coaching, understudies' creative mind is impacted, and their reasoning mastery is lessened. From time to time, it is tedious, according to the instructor's perspective. Introducing such advancement is over the top (Kuznekoff et al., 2015).

METHOD

In this method section, the study will explain the steps for implementing this literature review study, whose aim is to understand the benefits of implementing ITC in the success of formal education learning and teaching programs in schools and universities (Ochoa & Merceron, 2018). To include the discussion of this theme, some

books and articles that have been published we examine under the phenomenological approach, which is an action method that seeks to gain understanding from several data obtained. We searched electronically, reviewed the data, and got definite answers by interpreting and drawing conclusions (Alam, 2021). This study limits it to publications released between 2010 and 2022, considering that the year's range has changed and the progress of various applications that are trends in learning, especially in the formal education path. After our data has been studied, answered, and further discussed, we will report how this study emphasizes understanding the problems we discuss in a descriptive qualitative design. Thus, the explanation of the steps of implementing the ITC tuning study will begin with problem identification, preliminary elaboration of data search and analysis, and end with the submission of the final report (Blikstein et al., 2014).

RESULT AND DISCUSSION

In this results section, we will present the results of a review of several publications in the form of books and academic work, which are scientific evidence of the benefits of ICT applications to succeed in implementing formal education. In this section, we will also describe a discussion in the form of several ICT applications that we associate with the achievement of learning outcomes in the context of formal education, where the existence of technology innovates and transforms learning strategies and approaches in the modern age.

Augmented reality technology

Augmented reality technology and simulation systems in modern education are augmented, and this simulation has left a mark on visualization, which has contributed to the advancement of education. This learning application has controlled the learner to work together between the learner and the teacher (Wang et al., 2014; Putra, Liriwati, et al., 2020; Aslan et al., 2020). Augmented reality so far has contributed to the progress of education that continues to grow, which was initiated by this technology, considered one of the most modern technologies in the world of education. Many studies that have proven this art and practical education have shown that this technology will significantly impact how educational projects will be in the future. Many claims that we are the best application to answer human dreams and hopes in the next century (Ibáñez et al., 2016). Moreover, this year 2022, this application has been proven to help students capture such shadows with the goal of improving the learning process that will determine the outcome. Likewise, Hendriarto et al., (2021) that educational applications have been used in many industries, one of which is the world of education. A very systematic understanding of how Ir has contributed many thoughts to the development of education in different contents so that the impact on education is still powerful. Analysis of how this technology significantly impacts the indicators used through various publications has seen various scientific studies examining the type of content presented to provide optimal learning outcomes. Finally, electronic-based education can be said to have a reasonably significant role along with the gratification system and human online interaction, which has an

impact on the development of education to solve problems and develop science (Huang et al., 2018).

Adaptive learning

Following the definition, active learning is a learning approach that allows students to learn according to their wishes. Students can learn and develop according to their learning abilities and desires (Mirata et al., 2020). So as the name implies, adaptive learning here is an application of technology that allows student learning activities to be carried out based on the ability, needs, and learning styles according to students' wishes. There is active consideration of this part of the application of technology tailored to each individual's needs, whether they can afford it faster or not. This adaptive technology helps students learn to adapt to a unique educational path that previously was based on student's interests and their ability to learn, whether fast or any studies have been carried out that prove adaptive learning has an essential role in the education system in many countries (Battou, 2017). So through adaptive learning, the system can be designed according to computer algorithms that regulate relationships with students. Even though adaptive learning is designed based on the application of artificial intelligence, this system actively allows resources to adapt to teaching program activities to meet educational needs. In other words, adaptive learning through applications in technology-based education is also built to support business people in carrying out resource upgrading effectively (Pavlasek, 2014).

Now seeing the success of the growth in this application, it will be widely used even in the coming year, according to a study by Morze et al., (2021). They said that implementing this addictive-based learning system in many universities through various applications, namely the LMS model, where learning is very well known for imparting knowledge to students at various universities. As a technology that is very effective in helping their learning, researchers note that several benefits can be taken from this adaptive learning application, for example, mastering material that can be repeated how many times as well as being able to share material with other friends and take advantage of information through various types of educational materials delivered through applications such as infographics, presentations, checks, audio quizzes and. Most students have made this method a personalized subject matter where they get their wish fulfillment and have various options according to their abilities (Smyrnova-Trybulska et al., 2022).

Productive learning animal republican trendy young Taylor learning tremendous and the system face to face. By combining online and offline learning, the learning journey and implementation of the method will play an essential role in achieving the learning outcomes needed by students while introducing adaptive that are very practical for use in the world of tall trees where learning is different from the system at the school level. In other words, this adaptive system, especially the LMS model, is a solution to adaptive learning with an administrative system. Supervisors have various tools for learning, conveying information, and evaluating learning outcomes (Dziuban et al., 2018).

Artificial Intelligence and education progress

Artificial intelligence is one of the world's most talked about innovation patterns. Due to its clever way of dealing with different frameworks, the world has trusted its innovation in its turn of events (Chen et al., 2020). Although used in various fields, computer-based intelligence is not limited to education and training. In more detail, his presence has helped the world with creation; Fortunately, in 2022, the school will face many additional developmental phases from it. In 2022, simulated intelligence will reshape teaching. Doing this by supporting the distribution of individual viewpoints first is the best option. This can be helpful when students need to deal with expositions, research projects, or exam papers about a particular field of study (Knox, 2020). For example, Google and most pursuits will try to peruse a web-based search summary. However, the ideal situation includes sharing stories from direct sources. Moreover, this is what simulation intelligence aims to achieve.

Barakina et al., (2021) stated that the phase of sustainable regional progress is closely related to digitalization in all parts of an individual's life, apart from it. Such training should be the initial stage or reason for the capable and conscious use of advances in artificial consciousness (simulated intelligence), brain organization, and other digital actual frameworks based on computer-based intelligence, as well as robots and mechanical articles. Digitization in training is driven by monetary, social, and fundamental requirements. The presentation of this artificial intelligence innovation provides new opportunities to work on instructive educational interactions (van der Niet & Bleakley, 2021).

However, at the same time, the use of this technology faces several dangers, and the unfavorable result ID is suspended. This artificial intelligence-assisted education project plans to provide an avenue for advancing legitimate educational guidelines of artificial intelligence, robotics, and mechanical technology items in training. This technology considers the meeting of various countries in implementing computer-based intelligence innovations in the education cycle. UNESCO specialists worldwide assess the fundamental aspects of the relationship between advances in artificial intelligence innovation and recognized instruction. Computer-based intelligence innovation helps prepare logical and feasible exploration of artificial intelligence and its progress (Smyrnova-Trybulska et al., 2022). Experts qualified to work with artificial intelligence during the time spent acquiring additional and further education (Luan et al., 2020).

Utilization of 5G Advances in learning

5G is the fifth era of remote innovation. Through its superior improvements, almost anybody utilizing it can get high velocity and low idleness remote innovation. Understudies are bound to profit from this extraordinary advancement, as this commitment them fast downloads of understudy documents and assets and all the more impressive organizations (Afaq et al., 2021). Ideas have been made concerning the unique elements 5G can bring to instruction by 2022. One of many remembers a holographic educator who could lead conversations on specific points. Another idea is that

understudies can connect better in far-off gaining and gain better commitment from augmented reality encounters.

Yu & Nazir, (2021) said that we live in a forefront, mechanical society that shows intelligent and human-like machines and systems. This results from the types of progress in the field of counterfeit thinking. The machines are clearly or indirectly used in different regions like clinical benefits, customized vehicles, complex bearings, and comparably enlightening establishments (Liu et al., 2022). Utilizing mimicked knowledge-based systems and the web has brought different informational advancements for the two educators and students. With the electronic learning stages grounded on computerized reasoning methods, 5G has changed the teaching and learning techniques by smooth and faster permission to educational substance. Students of obscure vernaculars, especially English understudies, can now use chatbots and wise training structures to learn and practice their disengaged talking and abilities to listen on the web (Arends, 2008).

Robotization in education

Robotization drives a colossal region of the planet we live on. Business and monetary areas give mechanization to give quicker encounters as commitment develops more readily. By 2022, the training area will profit from the highlights of computerization. With robotization, understudies can better get addresses naturally at exact times (Chen et al., 2020). Talks can be carefully planned. Also, a superior method for utilizing artificial consciousness is very much helped through computerization. When applied to schooling, mechanical technology, and test systems can impact how understudies learn and make a more proficient and balanced understudy.

Advanced mechanics and robots can be accustomed to carrying understudies into the study hall that, in any case, probably will not have the option to join in. Instructive robots permit understudies to get abilities in the scope of Science, Innovation, Designing, and Math (STEM) disciplines, which are progressively significant in a world where innovation is progressing quickly (Bernstein et al., 2022). The robots work with learning and acquaint understudies with mechanical technology very early in life. Instructive mechanical technology fortifies and upholds understudies' abilities, fostering their insight through robots' creation, plan, get-together, and activity. Kids and youthful understudies track it entertaining and drawing in because they go ahead and communicate straightforwardly with both electrical and mechanical cycles and methods (Romero et al., 2020).

Rahm, (2021) stated that the connection between specialized improvement and schooling is complimentary, where training generally remains comparable to abilities, capabilities, and strategies that are expected as fundamental in a mechanical future. Simultaneously, abilities and skills are essential to driving advancement and technological improvement for the dynamic production of advantageous fates. Hopping back to the 1950s, this article shows how robotization and artificial intelligence have been expected as the two issues and arrangements in the public eye and how training has been utilized to take care of these issues or understand these arrangements. Computerization discussions have focused on developing open doors and the rising

dangers, but quite often likewise on the requirement for related schooling. The article utilizes a genealogical way to show how, from the 1950s and up until the present, training has been prepared as a significant device for the administration of PC strategies (Ganem, 2018).

Ability-Based technology in education

In 2022, individuals ought to anticipate that capability-based training should be crucial in schooling arrangements. Through this extraordinary innovation, understudies become coordinated with learning exercises intended for their degree of learning capacity. In more detail, capability-based training gives way to understudies to propel their opportunity for growth, given their capacity to dominate expertise. This permits understudies to learn at their speed, regardless of climate. Through ability-based training, understudies can proficiently give improved results. It assists with estimating results founded on an understudy's objective of showing skill in a given region (Xiao, 2021).

Competency-based education and core competencies in universities are to critically reflect on the nature of core competencies and competency-based education, a hot topic among universities due to the upcoming nationwide evaluation of universities in 2021 called the university essential competency diagnosis (Mulenga & Kabombwe, 2019). Five experts focused on the organization and operation of the liberal arts curriculum, which was designed to enhance core competencies, and conducted a group discussion. The main agendas of the group discussion were the concept of core competencies, the context of competency-based education, the design of a competency-based curriculum in higher education, and the possibilities of competency-based education in university liberal education (Banerjee et al., 2019).

The limitations and possibilities are inherent in the competency discourse that affect university education. The emphasis on competencies in university education reflects that universities are not free from state and market forces within a neoliberal market economy. Nevertheless, it is possible to establish an appropriate relationship between core competencies and liberal education (Surr & Redding, 2017). Core competencies about the overall university education framework should be established and consist of sub-elements representing its features. For successful adoption of competency-based education in liberal education, evaluation of the learning outcomes based on the liberal education, mapping of the curriculum, and liberal subjects based on basic studies are recommendable. There is a need for a quality management system that connects educational goals and educational evaluation. We propose that despite how incompatible the concepts of competency education and liberal education appear to be, the more faithful we are to the spirit of liberal education, which cultivates general competence, the more synergy it will bring to the development of competencies of universities and its members (AR, 2014).

Learning analytics trend in education

Learning is an extensive interaction and requires effective following and examining to figure out results more readily. As an arising innovation, learning investigation is presently being utilized by educators to more likely record understudies' learning ways of behaving (Leitner et al., 2017). One more special advantage of monitoring understudy learning rates and ways of behaving is that most instructors will have the possibility of giving designated upgrades to courses. In training, improvement is a vital element that helps the growth opportunity of every understudy. This learning examination can assist instructors with conveying to their understudies. Fortunately, by 2022, this will turn into a significantly utilized innovation (Guzmán-Valenzuela et al., 2021). In a setting where learning intervened by innovation has acquired noticeable quality in advanced education, learning examination has turned into a valuable asset to gather and break down information fully intent on working on understudies' learning. Notwithstanding, learning examination is essential for a youthful local area, and its improvements merit further investigation. A few basic positions guarantee that learning investigation will underplay the intricacy of educating growing experiences. Through both a bibliometric and a substance examination, this paper looks at the distribution designs on learning examination in advanced education and their principal challenges. Three hundred eighty-five papers distributed in WoScc and SciELO records in 2013 and 2019 were distinguished and broken down. Learning investigation is a dynamic and quick creation local area. In any case, it keeps confronting various complex difficulties, particularly concerning understudies' learning and suggestions. The paper closes by recognizing a training-based, board-situated local area of learning examination and a scholarly situated local area. Inside the two networks, however, it appears to be that the emphasis is more on examination than on learning (Zhong, 2015).

CONCLUSION

From a series of literature reviews to answer the problem of this study, namely to get in-depth resilience, what are the advantages of implementing formal education applications? After searching the data and we conducted a series of studies and conducted a discussion, we finally concluded that this study had answered the problem validly by presenting findings that we can conclude, among others, that the advantages of using information and communication technology, among others, are to make the implementation of formal education learning successful. Another is that there are several applications of augmented reality technology applications. This application is used in modern education where he can present visualizations that are part of formal teaching to provide various objects in the form of accessories that will help to learn. Furthermore, we also got an adaptive learning application. This application allows students to learn to develop their potential and practical competencies according to their abilities and absorption, which is the uniqueness of each student.

On the other hand, we also found that learning acceleration can be done with an artificial intelligence application. This application is a technology pattern that is widely used throughout the world. Its ability to carry out human tasks in learning and work where

this application is well known and provides accelerated learning. Likewise, learning is famous for the latest innovations that enrich distance learning materials. Furthermore, there is also what is called automation and robotization in educational services. This application can carry out tasks where the implementation of education and other projects to develop is more ready than ordinary human abilities.

Furthermore, we also found technology based on the best technology where individuals can use this application to get education governance that adapts to technology-based learning. In the end, we also get a learning analytic strange in education where this is an application that can be used in learning that can provide students and teachers with technology that can accelerate and facilitate how learning is carried out based on analysis and development towards optimal educational outcomes following with the expectations of policymakers. We believe that this finding certainly has limitations and weaknesses. Therefore we hope for input and support for the improvement of further studies.

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