Impact of ICT on learning and achievement in higher education

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Abstract

The focus of this piece is on investigating how students' use of ICT affects their performance in higher education. The influence of Investments upon student attainment is still unclear, according to economic studies. Our paper aims to do just that by summarising the primary results of a literature and offering two theories that work together. In the first group of hypotheses, ICT is assumed to have a secondary effect on more conventional proxies for causality. ICT may influence the determinants of a child's performance, which include the child's qualities, the school's environment, and the teachers' personalities. This suggests that the varying effects of ICT on more conventional parameters are mostly responsible for the observed gaps in student achievement. Second, it is assumed that introducing ICTs into educational environments will necessitate some adjustment of existing systems. Even if investments in and adoption of ICT are on the rise across the European Union, complementary organisational concepts are being adopted at a far slower clip and with much more variation between institutions. That may be the cause of the varying levels of academic success among students. The unexpected shift to emergency virtual learning in during COVID-19 epidemic presented many obstacles for students, but it also gives the chance to investigate these issues. During the closing of Higher Education Institutions, this research study examines the relationships between the contextual challenges of disaster remote learning and future choice for e-learning, as well as the relative influence of academic achievement on potential choice for e-learning of undergraduates.

***Keywords**: student performance, organizational change, ICTuser, higher education institutions*

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1. INTRODUCTION

1.1 Overview of (ICT)

The major goal of this teaching is to integrate ICT equipment and tools into the teaching as a medium and methodology, as well as to familiarize students with how computers work. Technology instruments used for communication as well as creating, transmitting, storing, and managing data fall under the umbrella term of "information and communication technologies" (ICTs) as shown in figure1. Kaware, et al (2015) Because information sharing is at the center of the learning system, ICT has a rich history in education. In formal and non-formal contexts, in government programmers', numerous educational institutions, for-profit and non-profit organizations, and secular & religious communities, ICT has played an educational role. C. Blurton, 2002. The study of creating and using systems to process information and improve communication is known as information and communication (ICT). Using ICT, classroom hours may be rearranged and students can study anywhere in the world at any time. This means students will be more equipped for success in higher education and professional roles. It might boost productivity in the classroom and the economy as a whole.

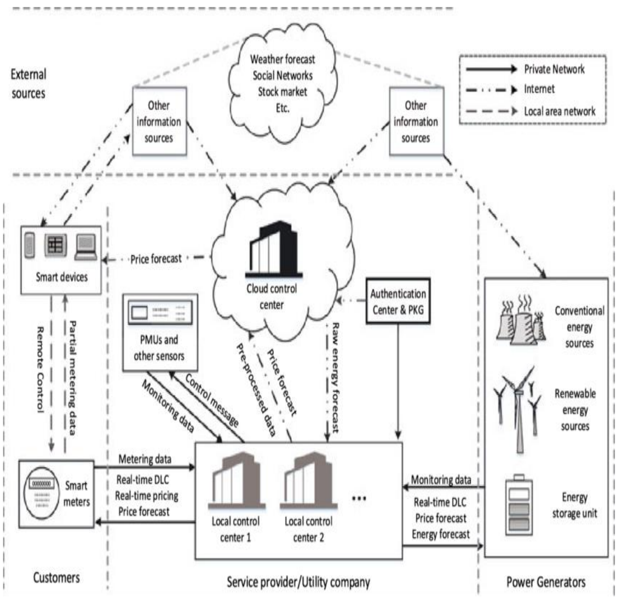

Figure1: An overview of the proposed information and communication technology (ICT) framework (Qian et. al., 2016)

ICT makes education freely available at any period and in any location. This enables students to make all learning materials publicly available. This has the potential to lead to continuous improvement. Students might create a learning habit by using the Internet. This will have a direct impact on the country's economic growth and development. Multimedia (ICT) is often seen as a tool of achieving effective educational transformation, which will lead to enhanced economic development Heap, et al (2004).The impact of an ICT-supported education system on the nation's economic growth is direct or indirect. Information and communication technology can have a substantial and positive impact on the country's educational and economic environments today. Nowadays, digitalization (ICT) is the most advanced technology. It is technology that allows information to be exchanged more quickly and easily. Because of this technology, the distance between nations has shrunk, and the globe has become a global village. Technology has a bigger role in the growth of a country as India, it has a fusion of lively culture and diverse languages. The focus of this research is on the paradigm for developing computer technology and its function in boosting rural education in Rajasthan. This work will provide an up-to-date overview of the rapidly growing field of Information and Communication Devices in Urban Education, as well as its application in the field of structured advances for rural development.

1.2 ICT's role in education

ICT is becoming an increasingly effective instrument for economic growthJaffer, et al (2007).The primary objective of Education is the integration of ICT equipment and tools into the lesson planning as a medium and technique. ICT has also facilitated multiple intelligence learning with the introduction of simulations; this enables teaching methods through all senses.

ICT in Education can serve the following purposes:

1. Reforming the Education Systems,
2. Experimenting with new approaches to education,
3. Including all parties interested in education, moving quickly to accommodate social and environmental shifts, and
4. Optimizing educational outputs in terms of efficiency, effectiveness, or productivity.

Singh, 2009 identifies three major investment drivers for sustained economic expansion. She believes that:

(a) Continual economic expansion is a direct result of investments in knowledge,
(b) Structure for the Knowledge Economy, and
(c) Skills-based education reforms.

ICT in Education has three main goals:

a) Growth as an Individual,
b) Reforming the educational system and
c) Progress in Society and the Economy

1.3 Impact and factors of ICT on teaching and learning

Communication and information technologies are used as a tool for education. This applies to ICT simply as a medium for education, a means by which teachers may convey information and students can learn. There are four parts to a complete process: the intake, the output, the outcome, and the impact. Money to pay teachers' salaries and fund the acquisition and construction of computers and computer laboratories at different schools in different locations is one form of input (Kistan, 2002). The result is the number of classrooms with access to the web or the number of computers per student. ICT investment has many outcomes, one of which is the increased use of ICT in the classroom. The success of a treatment can be measured by how much it improves teaching and learning in schools as a whole. Spending heavily on education may also affect GDP and national progress. ICT investment is better to non-ICT material in stimulating the economy: a better degree of ICT supply of money per capita enables a conventional economy to attain a better rate of growth for given lab our and capital input growth rates. Vu, K. (2004).It is also feasible to argue that it is not always the amount of capital invested those matters, but rather how it is invested. The use of ICT in schools is a key factor in any country's economic and social progress.

1.3.1Effects of ICT on Scholar

The direct causal effects of ICT are not readily discernible. In addition, it is difficult to draw definite conclusions about the effects of ICT based on the variety of research evidence. The reliability of comparisons is compromised by a number of factors, such as differences in sample sizes, methods, and outcomes, and pedagogical approaches. It has been shown that Generally speaking, the amount to which ICT may raise academic performance is the main point of interest when assessing its impact on teaching and learning. The usage of information and communication technologies (ICT) has been linked to positive outcomes in terms of improved learning across a range of disciplines. Having kids use computers for longer periods of time has been shown to improve their academic outcomes. Current educators and students were interviewed to gauge their impressions of how ICT has changed the educational experience. Students, teachers, and parents all believe that technological advancements have a positive impact on their children's education. When asked if information and communication technology (ICT) helps student performance, eight of ten teachers said their students' specific topic performance or basic skills like computation, reading, or writing have improved. Teachers also tend to assume that students who already have a strong academic background benefit the most from ICT. Both the parents and the students confirmed the data. There are many factors that can influence whether or not teachers utilise ICT in the classroom, but rules, availability of technology, provision of suitable software, instructor time, full support, & information about ICT use are all crucial.

Gender can also influence educational access, participation, retention, and completion, according to the UNESCO Institute of Statistics (2010). The knowledge, skills, and attitudes that can be gained through the use of ICT-assisted instruction, however, are not guaranteed, are also necessary for girls to graduate from school ready to participate equally inside the information economy. The gender gap in access to technology is a topic that has been studied extensively. I. Hilbert, M. (2012). There have been a lot of research looking over how girls and boys learn from and interact with technology differently. At work, women are more likely to access the internet than men are, but household statistics suggests the opposite, and in casual contexts across the developed and developing worlds (Volman, M., E. van Eck, I. Heemskerk, & E. Kuiper, 2005), the ITU reports that girls are more able to use the Internet in informal contexts. On the basis of these viewpoints, it is essential to evaluate gender inequality in access to Technology in teaching at both the institutional and enrollment levels. Hafkin, N. and S. Huyer (2008).

1.4 Factors affecting the implementation of computers in university

(1) Enthusiasm of a teacher to learn and teach: - Time for education, practise, and reflection. Time is an essential aspect in the use of Education. Period of time spent by a teacher in professional development activities, such as, and discussing the efficient use of computers in education with other instructors are all elements that influence the application of Ict in teaching. Frenzel, et al (2019). Even when undertaken intensively throughout the summer or intersession, short-term training cannot induce change on its own. Mart, C. T. (2013). Teachers should be able to express their concerns, ask any questions, or receive feedback as part of the ongoing maintenance plan that should accompany the training. By seeing the implementation as a progressive process, schools may provide teachers with sufficient time and resources to deploy technology efficiently. The amount of time available for teachers to become familiar with ICT is contingent upon decisions at the societal level, decisions taken at the university level, and decisions made by the instructors themselves.

(2) Assistance from the head teacher may speed ICT implementation in education Concerns regarding the gradual acceptance of new technologies by educators are not new. Numerous academics have examined the issue from a variety of perspectives, ranging from case studies to historical analysis, utilising a variety of methodologies. To big surveys, Cuban, L. (2001). They provide a variety of explanations for why teachers rarely employ software to its true ability perhaps in innovative ways that could actually result in qualitatively distinct lessons Ghavifekr, et al (2016).One of the projects overall that, on general, school principals are positive about the use of online learning.

(3) School's policy and management's attitude towards the use of ICT in school Observable characteristics include: whether or not laptops will be given a higher priority in the classroom; if the school will mandate specific devices or applications; and if it is mandatory for students to learn how to use computers Child, J. (2015). Selection and delivery of instructor training.

- ❖ Budget allocation
- ❖ Internal support provision
- ❖ Selection and delivery of instructor training
- ❖ Budget allocation
- ❖ Internal support provision

(4) Availability of sufficient hardware

Inevitably, hardware accessibility is a crucial factor in the implementation of ICT in the classroom. Nevertheless, accessibility alone is insufficient. More room is needed for computers, desks, and study areas as a result of incorporating technology into the classroom. Maholwana-Sotashe, N. L. (2007). A school's availability of computer lab space is a prerequisite for the modern education of its students. This allows for full-class education to take place and ensures that all students had access to the internet.

(5) The availability of adequate software

A variety of local circumstances influence the accessibility of curriculum-aligned software. A. B. M. Abubakar (2010). However, the allocation of funds for the purchase for courseware and the implementation of a policy for the purchasing of software are both crucial factors in ensuring that students have access to market-ready applications.

1.5 Challenges in implementing ICT

There are two main categories that may be used to classify the obstacles found in the research: individual (teacher-level barriers) or institutional (school-level barriers) Vu, K. 2004

A. Teacher-level barriers

1. Due to a lack of time to formal instruction and investigation on their own, and producing ICT resources for the classroom.
2. insufficient faith in adopting ICT
3. previous negative encounters with ICT
4. apprehension of humiliation in front of students and coworkers
5. classroom management challenges when utilising ICT, particularly when the ratio of students to computers is low.
6. lack of expertise required for teachers to tackle technological issues as they arise
7. view of computers as difficult to operate and complex

B. School-level barriers

1. Lack of access to ICT infrastructure and the high cost of acquiring, implementing, and maintaining such infrastructure.
2. Organizational factors, like the placement of computers in ICT labs as opposed to regular classrooms; Software/Hardware obsolescence
3. absence of technical assistance
4. absence of administrative assistance
5. lack of support and funding thru the leadership, planning, and teacher and manager participation in change implementation
6. absence of training tailored to teachers' present ICT proficiency levels
7. Lack of training focusing emphasises using technology to teach rather than just teaching the basics.

➢ **Possible implications for schools and teachers for the integration of ICT into education**

a. Providing ICT resources including hardware and software

- ❖ Making use of the opportunities presented by educational institutions
- ❖ Domestic ICT access

b. Resistance to change

- Reformatting of teaching methods training
- adopting a flexible attitude toward other pedagogical methods

c. Lack of time

- Increasing daily lesson time or decreasing the number of classes per week can help provide enough time for instruction.
- Mastering the art of time management and organisation is a must.

d. Lack of training

- offering classes on how to use various new gadgets and educational methods
- Making use of pre-service time for individual training
- Participating in educational institutions' training programmes
- Access to resources and the knowledge to use them Ignorance of technical
- Delivering on-going technical support

2. REVIEW OF LITERATURE

Hossain, et al (2022) the purpose of this study is to discuss the impact of trajectories movements from awareness of environmental point of view in the better educational sector. This research endeavours to answer the question, "How does a student's trajectory migration between many academic venues of interest damage that results academic achievement?" First, we used surveys done by real people, and then we had a discussion in a group setting to see what we could learn. The results showed that there are infinite differences in the career mobility of undergraduate students learning a second language, but that most participants cared only about a few popular training venues, such as classrooms and laboratories. Nevertheless, further changes in trajectory undermine steady academic achievement. The results of this study show that both students and faculty are aware of the various paths within and outside of campus that might have a negative impact on long-term academic performance, not only the more common ones like going to class, using the lab, or reading a book in the library. The purpose of this study is to examine the relationship between the trajectory movement trends of high school dropouts and green innovation throughout higher education as a means to achieve sustainable development goals, as well as to examine the impact of these trends on students' educational attainment at various levels in order to develop more effective products and methods for sustainable agriculture.

Tleuken,et al (2022), conducted on the covid-19 pandemic has abruptly shifted the majority of schools from face-to-face to remote, compelling millions of students to use their homes as study areas. However, the geographical, social, cultural, or technological features of their homes are distinct from one another. These shifts should have an impact on student achievement and satisfaction; studying and tracking the results of this hypothesis is essential. This investigation during the pandemic aims to learn how the household urban fabric influences student happiness and performance in school. An extensive online survey was used to compile the data. The relationships between safety, security, and privacy were investigated empirically using a geometric equation model, and cleanliness among student resources and students' overall achievement. Our research shows that students' happiness and success in distant learning are both affected by the physical space they learn in. Researchers have found that rural areas are significantly less prepared for distance learning than urban areas. Two main trends emerge from this data: (1) the role of health and safety amenities appears to grow in tandem with the degree of urbanisation of respondents' living environments, and (2) the supply of comfort amenities takes precedence for non-urban populations. Meanwhile, a "by area" analysis discovered that even in Central Asia, wellness amenities in homes are more crucial for distant learning than Internet access. People studying away in Northern Europe, in contrast, place a greater emphasis on the comfort elements of their houses (NO). These findings provide insight that could aid in enhancing remote schooling and preparing dwelling regions for pandemics.

Shohel, et al (2022) Based just on game-based pedagogy employ games to achieve learning goals by taking learners through specific tasks, which may be digital and/or non-digital, and also can promote deep, meaningful learning. Therefore, students are more likely to actively participate in the learning process and the construction of meaning when using a game-based approach. As the boundaries between online and face-to-face education continue to blur, game-based learning can help digital natives develop the skills they'll need to become productive members of the workforce in the emerging knowledge economy. In this chapter, we'll look at how games can be used as digital learning materials by analysing existing content to demonstrate how technology can help teachers and students escape stale pedagogical routines. Also, the potential of game-based pedagogies using learning design frameworks to get students involved, work together, and broaden their understanding of the world's cultures is investigated.

Dubey et al. (2022), studied the area of higher education having long been acknowledged as one of the most influential sectors in assessing the final trajectory of national development. In the process of legal growth in the new millennium, higher education was provided greater priority. There are efforts to develop the educational infrastructure of colleges, hospitals, and other institutes of national significance, as well as to develop the staff, students, and infrastructure for excellent education. The rising utilisation of ICT infrastructure at all levels of colleges has led to innovations in teaching that have enhanced the student customer experience.

Chau, K. G. (2021) investigated on the advancement and modernization of human prosperity are attributable to the ongoing science and technology. The development of modern technology is a fantastic step forward in elevating the standard of language instruction and better prepares students for success in the workforce and further study. Information and communications technology (ICT) in this case plays a significant role in exposing the students to multiple sources of up-to-date learning resources with authentic inputs. Several studies have been conducted to better understand the impact of technology on language learning and how it might be used to help students become more confident public speakers. The purpose of this paper is to examine several related studies in terms of their methodologies, participants, and findings.

Yunus, et al (2021) researched aims to investigate the effect of internet project-based tutoring or motivation on citizenship-related problem skills. This article utilizes a semi design. The essay test is being used to collect data on problem-solving abilities, whereas a survey is used to obtain information on accomplishment motivation and a spreadsheet is used for descriptive statistics (Analysis of Variance). The outcomes of the study suggest that online cooperative endeavor learning has a positive impact on civic dilemma skills. In their abilities to solve civic problems, there is a disparity between students with high success desire and those with depressive moods. The interaction between such a participatory online learning strategy and an achievement reward affects students' abilities to tackle civic concerns. It is recommended that more research corroborate this finding by getting tested the efficacy of adopting a web-based collaborative technique for a similar issue in a related field of study.

Li, C., et al (2021). studied on the premise of a extended technology acceptance, This study looks into why some college freshmen are more likely to adopt an online English course than others. The proposed hypotheses and the value of the augmented model are evaluated using structural equation modelling. Students' intentions to use e-learning for English study can be predicted by factors other than perceived utility and convenience of use. These other factors are perceived enjoyment and social power. Perceived usefulness and usability are also heavily influenced by how much people enjoyed using the feature. However, user pleasure is not substantially correlated with desire, and the perceived ease of the use has a direct and substantial impact on the perceived utility. The predictive validity of the augmented model is established. These findings add to our understanding of Chinese undergraduates' intentions to use e-learning in English instruction and can serve as a conceptual basis for future study inside an educational setting. The study also makes a number of suggestions to schools and educators for boosting e-learning for ESL programmes and inspiring students to use it to better their English skills.

Das, K. (2019). proposed on the role of technological tools (ICT) in Teaching is uncontested. ICT have the potential to be a significant instrument for expanding educational opportunities. ICT have the ability to increase Education's accessibility and improve its relevance and quality. The effect of Ict on the teaching - learning activities is now significant. Relevant because it enhances teaching and learning, creates a favorable learning atmosphere, and assists students. Develop your imaginative thinking and self-assurance. ICT has introduced additional obstacles to quality education. It has altered numerous facets of their lives. In this study, we'll take a closer look at how Information and Communication Technology (ICT) may enhance classroom instruction and student learning. Learning is one of the most important ways to improve it. It highlights the positive outcomes and benefits of ICT use in the classroom.

Sahni, J. (2019) studied about the current technological breakthroughs have a significant impact on teaching. The purpose of the present study is to respond to the research questions of whether the usage of technology would aid and encourage autonomous learning as well as increase student involvement. A blended learning strategy was used in a programme of study to evaluate this. The term "blended learning" refers to the combination of in-person and online learning. This study presents a comprehensive overview of the most recent findings from an investigation into how blended learning affects student participation and comprehension in a management course. It also helps pupils concentrate on the blended learning approach. Over the course of a semester, the Organizational Behavior class made extensive use of the online technology known as LMS (Learning Management System) to facilitate flipped classroom discussions and other initiatives (16 weeks). The collected data came from multiple sources, there is evidence for the positive results of blended learning; it promotes student engagement and leads to improved student accomplishment. Based on analysis, the research adds to the literature on blended learning with its rewarding findings. Strong ramifications can be derived for both instructors and institutions wishing to employ a mixed learning strategy. Therefore, significant improvements in higher education may be a future objective for the government.

Costello et al. (2018) proposed that the use of Twitter in the context of online courses is not yet accounted for, notably in the literature, despite the fact that the use of Twitter to support teaching and learning is a well-established topic of research. Deny that the type of study was becoming established; this is the case.As a result, the objective of this paper is to map exhaustively the current literature to help fulfil a series of identified gaps in the scholarly interaction involving Twitter and MOOCs. To do this, the study explores the design of research using the following means: procedures for the gathering and analysis of data; the sheer breadth of previously researched projects; and theoretical approaches and foundations discovered in empirical papers published throughout 2011 and 2017. The conclusions serve to illustrate the diversity of such a field of study, particularly in terms of the depth and breadth of the research and the approaches used. The lack of qualitative data on how students and instructors use Twitter in MOOCs was demonstrated by summarising the study and using a critical appraisal technique. The technique was used to demonstrate that qualitative data is scarce. In addition, the published online survey research undertaken on the connection between Youtube and MOOCs contains a number of technical flaws. These methodological weaknesses include concerns with the reliability of results reporting and an insufficient consideration of the gathering of tweets and tweet meta-data. In addition, the study suggests areas of scientific "recommended practice" in the examination around such challenges and in other vast areas, such as large-scale hashtag studies of the usage of Twitter in MOOCs.

Bovill et al. (2016) conducted research on how technological advances in digital media affect teaching methods in higher education and student learning**.** Recent opportunities for education necessitate a more efficient and expedient use of technologies in education. Accepting this change and using technology to create more learner-centered classrooms is crucial for moving forward. It's no longer the norm for teachers to stand in the centre of the classroom and provide material to students by way of a projector. Since relying on just one method of distribution could limit access, engagement, learning, and performance, it's important to use a variety of channels to get the message across. To make sure students do well in college, curriculum development must include different ways of learning and teaching.

Sarkar 2012, conducted the disparity and inadequate access to technology continue to harm India's education system. The application of ICT in the classroom, on the other hand, has not only helped to increase the diversity of university education but also created new opportunities for the globalisation of students who wish to pursue traditional and nontraditional educational pathways. Even though it is universally understood that advancements in communication and information technologies have the opportunity to significantly alter the instructive landscape, schools and colleges must ensure that such advancements meet a range of problems and perform a number of functions to maximise their value to all related personnel. This sense of urgency, along with the continuous incorporation of ICT into secondary education, has prompted numerous educational institutions, such as schools and colleges, to adopt a somewhat more task-oriented and adaptable strategy. argues that the emphasis is frequently too much on the final product rather than the foundations and processes that enable effective ICT curriculum integration.Higher education's incorporation of telemedicine in preparing for the 21st. In particular, the study hypothesises that mobile phones (ICTs) have had a relatively minor influence on educational practise thus far, but that this consequence will grow during the forecast period and that ICT will become an effective advocate for change in many teaching situations. According to the study's findings, the implementation of ICT in school environments is expanding at a rapid rate in a number of Indian states. Among the most prominent challenges that arise is the proclivity to base decisions about the use of technological tools (ICTs) in the school on the capabilities of the technology rather than the curriculum needs.

Choy et al. (2009) conducted an evaluation of future educators' goals in a technology-based training programme. They then discussed their respective strategies and methods for incorporating technology into the classroom. This study confirms the significance of incorporating information about the advantages of student-centered learning as well as technology integration strategies into teacher education programmes and of raising awareness of the advantages of incorporating technology into active learning in the classroom, as has been shown in previous research. In addition to the impact of preservice education on beliefs and values,

Tinio, V.L. (2002) discusses the potential for ICTs to increase access and enhance the quality and relevance of education in poor nations. ICTs considerably lead to the acquisition and transformation of information, providing developing nations with an unparalleled opportunity to improve educational systems and policy design and implementation, expanding the options available to businesses and the needy. As one of the main adversities faced by the impoverished, ICTs can alleviate the sense of isolation felt by those who reside in the world's poorest nations, as well as by a large number of other people, in previously inconceivable ways.

Watson, D.M. (2001) studied how ICTs have revolutionised how people work today and therefore are currently transforming educational institutions. Therefore, if schools teach students the skills and technologies of the past, they may not be effective and adaptable in the world of the future. This is sufficient justification for ICTs to receive worldwide attention and interest. The completion of early schools, for example, is one of the Development Goals (MDGs) of the United Nations that can be supported by ICT. Kofi Hani, Secretary of the Un, says that in order to accomplish education, we must ensure that cell phones (information and communications technology) are integrated into all education systems. This indicates the increasing importance and demand for ICTs inside the education industry. ICTs make learning more flexible for both students and teachers. Because of this, society is putting pressure on schools to adapt to this technological revolution.

3. DISCUSSION

In this paper, we have attempted to summarise the key results of economic research regarding the relationship between ICT usage and pupil accomplishment. ICT appears to have a significant impact on the learning process in higher education, providing new opportunities for students and instructors. These opportunities may affect student accomplishment. There are contradictory findings in this field's empirical literature. This absence of empirical data can be explained using three basic explanations. First, because ICT is a kind of GPT that is immature by nature, there must be a lengthy process of ownership and research of its potential by colleges prior to detecting major change. This has also been the case in many other economic sectors, including higher education. Second, we believe the lack of organisational reform in higher education is the primary cause. While colleges have invested substantially in equipment and both students and faculty are increasingly utilising new technologies, there's been little organisational change. Student performance and accomplishment are substantially influenced by the adoption of complementing organisational changes. Thirdly, the benefits of adopting ICT in education are shifting. Students are developing new skills and capabilities—greater cooperation, team building, and project management—that are more closely aligned with the needs of the lab and our market, but at the expense of curriculum achievement. When looking at how well students do in school, teachers should focus more on these things and less on how well they understand each subject and curriculum.

4. CONCLUSION

Technologies of information and communication ICT has a significant impact on all disciplines, including education. It has an impact on everything related to schooling, from curriculum development to student evaluations. It improves the efficiency of the educational process. Literacy programmes can use this to their advantage. By boosting opportunities for mobile learning and edtech, it enlarges the field of study. It is helpful for scholarly discussions and the sharing of information. The effects and potential of ICT on classroom instruction are manifold. As a result, it has a positive effect on everyone involved in the field of education. The current publications look at both this and the problems brought up by information and communication technologies. These challenges originate from societal, institutional, and individual sources. There are many factors that contribute to the widespread use of instruction in schools, including the quality of its content, design, and functioning. The challenges and possible solutions are briefly discussed in this study. Using information and communication technology (ICT) in the classroom has been shown to have promising results, which are summarised in this article. In particular, it looks at studies that have focused on the benefits of integration, the difficulties of using ICT, and the factors that influence effective ICT integration, in addition to or even before, teachers' perceptions, perceptions, as well as confidence in using ICT, and the relevance of college culture in the utilisation of ICT. In this article, we will look at the voids in the existing literature and the potential ways to fill them.

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