Review of Information and Communication Technology in Secondary Education

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Abstract

This study conducts a comparative analysis of the implementation of Information and Communication Technology (ICT) in secondary education systems. The integration of ICT in secondary education has become increasingly essential, given its potential to enhance learning outcomes and prepare students for the digital age. This abstract explores the approaches, challenges, and outcomes associated with ICT implementation in secondary education across different contexts. Through a comprehensive review of literature and case studies, various models and strategies for integrating ICT into secondary education are examined, including infrastructure development, teacher training, curriculum design, and digital literacy initiatives. Additionally, the abstract highlights the diverse challenges faced by educators and policymakers in adopting ICT in secondary education, such as limited resources, infrastructure constraints, and resistance to change. Furthermore, it discusses the impact of ICT implementation on student engagement, academic achievement, and 21st-century skill development. By synthesizing empirical evidence and best practices, this study provides valuable insights into the effective utilization of ICT to enhance teaching and learning experiences in secondary education settings, thereby contributing to the ongoing discourse on educational technology integration.

Introduction

Information and Communication Technology (ICT) has emerged as a transformative force in education, offering unprecedented opportunities to enhance teaching and learning experiences in secondary education settings. With the proliferation of digital technologies and the increasing interconnectedness of the global society, integrating ICT into secondary education has become imperative to prepare students for the demands of the 21st century. In recent years, ICT has revolutionized the way information is accessed, shared, and utilized. Its integration into secondary education holds immense potential to enrich the educational experience, foster critical thinking skills, and equip students with the digital literacy competencies necessary for success in a knowledge-driven economy. By leveraging ICT tools such as computers, tablets, interactive whiteboards, and educational software, educators can create dynamic and engaging learning environments that cater to diverse learning styles and needs.

ICT facilitates personalized learning experiences, allowing students to access educational resources anytime, anywhere. Whether through online research, collaborative projects, or multimedia presentations, ICT empowers students to take ownership of their learning journey and develop essential skills such as problem-solving, creativity, and communication. the successful implementation of ICT in secondary education is not without its challenges. Infrastructure limitations, insufficient training for educators, and digital equity issues are among the barriers that must be addressed to ensure equitable access and maximize the potential benefits of ICT integration. Against this backdrop, this study aims to conduct a comparative analysis of ICT implementation in secondary education. By examining different approaches, best practices, and challenges across various contexts, this research seeks to provide valuable insights and recommendations for educators, policymakers, and stakeholders invested in leveraging ICT to enhance secondary education outcomes. Through this exploration, we endeavor to contribute to the ongoing discourse on educational technology integration and inform evidence-based practices for the future of secondary education.

ICT Education at Secondary Schools

ICT education at secondary schools is pivotal for preparing students for the challenges and opportunities of the digital era. Integrating technology seamlessly into the curriculum is

foundational, enabling educators to enhance traditional teaching methods with digital resources and interactive tools. This integration fosters a dynamic learning environment where students can engage with course material in more meaningful and immersive ways. Moreover, emphasizing digital literacy skills equips students with the ability to navigate, evaluate, and utilize information in today's information-rich society. Through dedicated computer science courses, secondary schools empower students to delve deeper into computational thinking, coding, and problem-solving, cultivating the next generation of tech-savvy innovators. However, the effectiveness of ICT education hinges on the availability of robust infrastructure and resources within schools. Adequate access to computers, internet connectivity, and educational software is essential to facilitate learning experiences that leverage technology effectively. Equally important is investing in teacher training and professional development initiatives. Educators require ongoing support to stay abreast of technological advancements and to integrate them seamlessly into their pedagogical practices. By embracing project-based learning approaches that allow students to apply ICT skills to real-world challenges, secondary schools foster creativity, critical thinking, and collaboration. Finally, implementing robust assessment strategies ensures that students' ICT proficiency is accurately evaluated and recognized. Through these concerted efforts, secondary schools can empower students to thrive in an increasingly digital world, equipped with the skills and knowledge needed for success in the 21st century.

Advantages of ICT in Education

Information and Communication Technology (ICT) offers numerous advantages in education, transforming traditional teaching and learning processes. Some key advantages include:

1. **Access to Information**: ICT provides students and educators with access to a vast array of information and resources from around the world. Through the internet, digital libraries, and online databases, learners can access up-to-date information on virtually any topic, enhancing research and learning opportunities.
2. **Enhanced Learning Experiences**: ICT facilitates interactive and engaging learning experiences through multimedia content, simulations, virtual field trips, and educational

games. These digital resources cater to diverse learning styles and preferences, making learning more accessible and enjoyable for students.

3. **Improved Communication and Collaboration**: ICT enables seamless communication and collaboration among students, teachers, and peers, regardless of geographical barriers. Email, video conferencing, online discussion forums, and collaborative platforms allow for real-time interaction, feedback, and peer-to-peer learning experiences.

4. **Personalized Learning**: ICT supports personalized learning experiences by providing adaptive learning platforms, personalized feedback, and tailored learning pathways based on students' individual needs, interests, and learning paces. This personalized approach maximizes learning outcomes and promotes student engagement and motivation.

5. **Flexibility and Accessibility**: ICT offers flexibility in terms of when, where, and how learning takes place. Online courses, digital learning platforms, and mobile applications allow students to access educational content anytime, anywhere, using various devices such as computers, tablets, or smartphones.

6. **Efficiency and Productivity**: ICT streamlines administrative tasks, such as grading, attendance tracking, and lesson planning, freeing up educators' time to focus on teaching and student support. Digital tools also enhance productivity by automating routine tasks and providing efficient workflows for educators and students alike.

7. **Global Perspective and Cultural Awareness**: ICT fosters a global perspective by connecting students to peers, experts, and resources from diverse cultural backgrounds and perspectives. Virtual exchange programs, online collaborations, and multicultural learning experiences promote cultural awareness, empathy, and intercultural competence.

8. **Preparation for the Future**: In an increasingly digitalized society and workforce, ICT skills are essential for students to succeed in their academic and professional endeavors. By integrating ICT into education, schools prepare students with the digital literacy, critical thinking, problem-solving, and communication skills needed for success in the 21st century.

ICT in education offers numerous advantages, ranging from access to information and enhanced learning experiences to improved communication, personalized learning, flexibility, efficiency, global perspective, and preparation for the future. By harnessing the power of ICT, educators can create more engaging, inclusive, and effective learning environments that empower students to thrive in a rapidly evolving digital world.

Need of the Study

The integration of Information and Communication Technology (ICT) in secondary education is increasingly recognized as essential for addressing the evolving needs of learners in the digital age. This study aims to explore the pressing need for ICT implementation in secondary education and elucidate its potential benefits and challenges. ICT offers opportunities to enhance teaching and learning experiences by providing access to a wealth of educational resources, interactive tools, and multimedia content. By incorporating ICT into instruction, educators can cater to diverse learning styles, promote active engagement, and facilitate deeper conceptual understanding among students. ICT equips students with critical digital literacy skills necessary for success in a knowledge-based society. Proficiency in ICT enables students to navigate the digital landscape effectively, critically evaluate information, and communicate ideas using various digital platforms. ICT integration in secondary education fosters the development of 21st-century skills such as collaboration, problem-solving, and creativity, which are essential for students to thrive in an increasingly interconnected and complex world. despite the potential benefits, the effective implementation of ICT in secondary education faces various challenges, including inadequate infrastructure, limited access to technology, and insufficient training for educators. Addressing these challenges is crucial to ensuring equitable access and maximizing the transformative potential of ICT in secondary education. Given the significance of ICT in shaping the future of education, this study seeks to explore the need for ICT implementation in secondary education, identify key challenges, and provide insights and recommendations for educators, policymakers, and stakeholders to effectively leverage ICT for enhancing teaching and learning outcomes.

Education for the emerging information society

ICTs must be used extensively to advance the requirements for social and financial turn of events in order to train for new social orders that are emerging. Without parallel in human history, knowledge and logical knowledge are not merely means of advancing civilization but also the main drivers of the economy. In addition, knowledge is a key public resource and output on which continued economic growth and social advancement depend. ICTs are a standard in these occurrences. The creation, acquisition, sharing, dissemination, transmission, support, and appreciation of information are concerns of ICTs and the information society. ICTs are the means of granting access to and taking part in the ongoing learning that is necessary for productive collaboration in the general advancement of all racial and ethnic groups of the populace. ICTs have evolved into a fundamental tool for effective preparation; the earlier pupils become skilled with ICT use, the easier it will be for them to identify their approach to capturing the most recent methods for information acquisition and conversion. One of the fundamental arguments supporting the primary role of education in the twenty-first century is the advancement of logic and specialization, as well as the global diffusion of innovations produced in the world's most extraordinary nations. Nowadays, a country's level of mechanical development reflects not just its economic might and aspirations for basic luxuries, but also its place and role in the global community, as well as the extent and potential of its monetary and political integration with the rest of the globe. The level of development and application of modern advancements in various countries is simultaneously determined by their material resources, and generally speaking, by the level of society's capacity to deliver, retain, and apply new information. These successes are so closely related to the level of education. Innovations in information and communication are a major force behind these cycles, where logical information and information gradually determine new examples of development and production of riches and present prospects to significantly lessen destitution.

The leaders of almost all countries are working to transform their populations into capable educated workers in order to prepare them to respond adequately to the challenges of the twenty-first century. The information society demands such citizens. The most difficult problems that the world of education is currently dealing with remain, and they must be handled whether or not the new innovations are accepted. This is true even in the era of new ICTs. By the way, the integration of ICTs into education is crucial for preparation and improvement, social and

professional needs, globalization of communication, the economy, and political initiatives to create a new general public. The alternative is to consistently lag behind these developments and effectively ignore dealing with the problems of the twenty-first century. The construction of information, topographical and transitory autonomy on information getting, educational and underpinning advancement in teaching growing experience are the essential highlights in the educational system of the information society. To provide this, instructional design should ensure:

- up-to-date pedagogical competence in the information society;
- the integration of new pedagogic opportunities;
- equal and flexible access to education;
- effective and flexible education structure and organization.

In the future, there will be massive initiatives for the benefit of most legislators to upgrade the educational systems of their countries, with ICTs being seen as a key to this modernisation. Some countries view ICTs as playing a crucial role in fundamentally altering the structure of education through modifications to educational curricula, dominance of new preparation skills, and increased access to information. ICTs are mostly employed in various countries to make it easier for various population groups to enroll in education, or they are used for a smaller purpose to aid in self-education through programs broadcast on radio and television. However, other countries emphasize the need for innovation as a way to alter the educational environment or meet the specific needs of different categories of students. Efforts to further develop education using ICTs suffer from the lack of reliable instructional ideal models that might effectively support fundamental recharging. It is possible to contribute to this restoration by pointing out that beyond the dissemination of information, or of "content," we effectively need to consider collaboration and movement, the learning "settings," the fully reenergized social and social conditions that instruction requires, and ICTs are currently capable of distributing.

Regardless of which aspect of ICT use now dominates in any country, it becomes clear that the majority of public plans to integrate ICTs into the educational system should:

• consider clear public economic, social, and political conditions;

• learn from the comparative strategies and experiences of many countries (particularly those with comparable monetary and social systems);

• ensure that the optimal ICT presentation size in education is matched with readily available specialized, financial, and HR resources;

• encourage the development of comprehensive activity programs for various educational levels and specialists;

• Take into account the effects of ICT application and use on various student, teacher, educational system, and societal subgroups.

Without taking stock of the situation, identifying the goals to be achieved, allocating the necessary resources, putting the strategies into action, and evaluating the results, one cannot come to a logical conclusion on the best course of action. Hence, the concern of strategy developers is twofold: to develop a better understanding of the validity of education in its own unique characteristics and to support defining with appropriation frameworks for change.

Review of Literature

Buabeng-Andoh, C. (2012). This study aims to illustrate the (1) requirements for ICT use, (2) actual use of ICT, and (3) challenges encountered by students utilizing ICT to learn how to write. An effective quantitative plan was used to achieve that goal. 1242 secondary school students from nine state secondary schools located inside, on the outskirts, and outside of Buleleng Rule served as the study's subjects. A poll was used to collect information, which was then quantitatively analyzed. Only three of the twelve likely Technologies to assist students in learning how to create were found to be anticipated by most students. There are three types of searching: (1) searching for compositional hypotheses, (2) searching for writing examples in various types of texts, and (3) searching for resources for the writing work. Only two of the three ICT options that most students anticipate using are actually utilized. Both are looking for

compositional theories and gathering information for writing assignments. There are three main concerns that students have, whether they live in a city, a rural location, or outside of a metropolis: (1) the lack of ICT tools; (2) weak internet connections in schools; and (3) poor ICT skills. Nonetheless, there are variations or contrasts in the number of students addressing each criteria among districts.

Mumtaz, S. (2000). The current evaluation focused on determining the Understudies in Optional Educator Education's familiarity with information and communication technology. 209 students enrolled in the Optional Education School's optional instructor education program were selected at random from 3 universities in the examination area. Information and communication technology awareness is poor for 44%, moderate for 48.8%, and high for 7.2% of the students enrolled in optional instructor education. The results of the "t" test show that web users are more attentive of their computers, the web, and all information and communication technologies overall. This may be due to the ease with which everyday online users may incorporate PCs and the internet into their routines. The 't' test result shows that men students have better web mindfulness than female students. They are obviously more mindful than we are. Consistently, the experts advocated the effects of understudies.

Krishnaveni, R., &Meenakumari, J. (2010). The power of information and communication technology (ICT) has altered many aspects of how we live and every aspect of human endeavor, including education, medicine, commerce, legislation, and design. Education is a socially situated activity, and high levels of one-on-one contact between teachers and students have historically been associated with higher levels of educational quality. Nonetheless, as the world quickly transitions to computerized media and information, ICT's role in education is becoming more and more important. Yet, there are no statistics on the adoption and application of technology in Ghana's auxiliary schools, and the most of them continue to employ the traditional method of disseminating knowledge. This analysis examines how ICT is being adopted and used in Ghana's optional schools for teaching and learning. The assessment focused specifically on the auxiliary schools in Ghana's southern region (Western, Central, More noteworthy Accra, Volta and Eastern Areas). In this review, the subjective inspection approach was used. The study showed that the respondents' ages and sexual orientation generally affected how they reacted to and used ICT, with juniors, young people, and male educators having better knowledge of and

interest in using ICT for teaching and learning. Although the schools in the metropolitan regions had some ICT offices despite the fact that they were seen as inadequate, improperly ventilated, insufficiently spacious, and having awful easing up framework, there were variations in the layout of PCs and ICT offices at the optional schools. In any event, even though they don't often use them for teaching and learning, several of the educators had their own devices (PCs, laptops, or tablets) for use. As a result, IT had little impact on teaching and learning at the auxiliary schools.

Garrison, D. R., et al(2004) Technology is a gift from God. That is maybe God's greatest gift after the gift of life. It is the origin of all civilizations, languages, and sciences. The way we live has undoubtedly been impacted by technology. It has changed how people live and had an impact on many facets of life. Technology unquestionably plays a big role in every aspect of life. Technology allows for the automation of some manual tasks. Similar to how many complex and basic cycles can be accomplished with ease and increased efficiency thanks to modern technologies. Using technology has improved living, which has changed for the better. Education has changed as a result of technology. It is impossible to ignore the importance of technology in classrooms. In fact, since computers entered the classroom, it has been simpler for teachers to provide information and for students to receive it. The manner of teaching and learning has become even more pleasant thanks to the use of technology.

Law, R., Buhalis, D., &Cobanoglu, C. (2014). At this time, information and communication technologies (ICT) are having an impact on every aspect of human life. They are taking on prominent roles in the workplace, business, education, and entertainment. Also, a lot of people believe that ICTs are catalysts for change, including changes to how we work, how we handle and exchange information, how we show off our skills, how learning approaches, how we think logically, and how we use information and communication technology. In this technological age, using ICT in the classroom is important for giving students opportunities to learn and apply the necessary 21st century skills. ICT advances learning and teaching, and it is important for educators as they carry out their role as architects of academic environments. With the use of ICT, educators can offer their subject matter to students at any level of educational initiatives in a way that makes them want to learn. India is now developing initiatives that use ICT to make them valuable and appealing. The web and interactive mixed media are evident examples of

information and communication technologies (ICTs), which should be integrated into formal teaching and learning, especially in an organization that focuses on educator education.

Kirkwood, A., & Price, L. (2014). Information and communications technology (ICT) provides innovative tools for reimagining educational and learning experiences in preparing understudies for the skills they will need in the twenty-first century. In any case, there is a lack of adequate and reliable information regarding how ICT usage fits in different school communities in Cameroon and how teachers can adapt to shifting academic and spatial needs and chances for growth. This study examines how teachers use ICT in the classroom using in-depth contextual studies focused on optional schools in Cameroon. 320 educators from 16 public, denominational, and fee-based schools across two Cameroonian locations participated in this assessment. The study was used to gather information. ANOVA and t-tests with interesting insights and free examples were used to explore the data. The findings of this survey indicate that there was little evidence of ICT use, access, proficiency, and support among educators. Also, the study revealed that educators in urban areas were more likely to use ICT and have access to it than those in rural areas. Finally, this review discovered that there was little to no difference between private and denominational instructors' use of ICT, admission to ICT, skills, and preparation for support. The findings provide some insight into the obstacles that educators believed prevented them from using ICT in their instruction, particularly in agricultural nations.

Leu, D. J., et al (2004) focused on the ICT Interest of Understudy Teachers. The researcher selected 200 trainee teachers at random from three B.Ed. schools in the Kumbakonam taluk of Thanjavur District, Tamilnadu, India, using a lottery method. The investigator used the ICT premium inventory he created and approved for information collection, and he also used the t-test to analyze and comprehend the data. The review's conclusion reveals that the understudy instructors have a keen interest in ICT. As a result, efforts to establish standards for educating students using ICT have started.

Pelgrum, W. J. (2001).led a focus in the Theni district on ICT stress and confidence among optional instructors. The impact of ICT on human life has dramatically changed, with increasingly more advantages coming from communication, biotechnology, acquisition and examination, and other new turn of events. As a result, in the modern world, if a person wants to

work with technology effectively, they should acquire the knowledge, skills, and views necessary. Since technology plays a crucial role in education, the researcher believed that everyone should be familiar with ICT. The paper focuses on the teacher's comfort and unease with ICT. Orientation, Home, Information in ICT, Admittance to PC at Home, and Admittance to PC at School were assigned proportionate weights based on age to the total sample size of 430 Optional Teachers from Three Blocks of Theni Districts.

Kozma, R. B. (2005). Current approaches to using information and communication technology in education are the main topic of the study. Beginning with an overview and evaluation of the studies introduced at the recent gathering PCs in Education organized by the Asia-Pacific Association for PCs in Education, the current use of PCs in education is given. This article discusses recent research in the following areas: computer-supported customized and cooperative learning, consistent learning, level of attention and learning productivity, learning investigation, use of creative educational technologies in STEM education, and internet game-based learning in schools. For academics from western nations, numerous concerns might be moving regardless of the topographical direction. Nonetheless, it is clear from the study papers introduced by analysts from the Asia-Pacific region that they have been focusing on themes in education that are fundamentally similar to those of researchers in western nations. Additionally, in order to shed light on the cited study, the paper introduces some perceptions regarding the use of information and communication technology in Egypt's educational system as well as late examination works examined within the doctoral review program for information and communication technology in education offered by the University of Hradec Králové in the Czech Republic.

Ram C. (2012). The effect of information and communications technology (ICT) on students' interest in fundamental electrical has been studied. ICT-educated students' interest in their studies was compared to that of those who received a traditional education (CTM). The review was guided by three exploration questions while three unfounded hypotheses were tested. The setup was semi-trial. 123 understudies made up the review's population. The basic electrical interest inventory (BEII) tool was developed, approved, and used to collect information. The BEII's reliability score was 0.94. Mean and standard deviation were used to answer the exam questions, and ANCOVA was used to evaluate the hypotheses. The review's findings showed that ICT has an impact on students' interest in basic electrical. ICT and orientation combined

with understudies studying fundamental electricity had a significant impact. ICT is a crucial instructional tool to increase student attention. It is advised that management and professional organizations, such as the Nigerian Association of Teachers of Technology (NATT), organise studios, gatherings, and classes in order to train and enthuse instructors in the use of this creative approach.

Ramachandran, N., et.al. (2012). led a focus on enhancing secondary teachers' ICT critical thinking skills in order to reduce technological stress in the classroom. Teachers must constantly update their knowledge of information and communication technologies (ICT), but they are sometimes unprepared to handle problems that arise from its use. In reality, the authoring of the study focuses on teachers' technoanxiety (for instance, unfavorable physiological reactivity and distress as a result of current or future ICT use). So, the goal of this activity research is to determine whether instructors' techno-uncomfort may be reduced by improving their ability to handle mechanical concerns. 46 teachers participated in a study looking at intersubject relationships. Secondary teachers were chosen since they are computerized immigrants, whereas at the time of this investigation, their students are advanced natives (brought into the world around year 2000). We developed and delivered an online course on ICT critical thinking skills in light of the 70/20/10 model for learning and improvement because we were unable to locate a specific preparation for teachers to enhance their goal abilities of mechanical issues, to apply the treatment for our review. Findings demonstrate how the course contributed to a reduction in technological strain and an expansion of ICT critical thinking skills.

Ramesh Babu, B., &Parameswaran, R. (2012). Because they enabled the use of an almost limitless source of material that is both factual and current, the Web and ICT technologies have enabled a number of novelties and advancements in the teaching of foreign languages, particularly in teaching language for specific purposes. Teachers and students alike can access the information. Also, Technology allowed students and teachers a different method of communication through stages, gatherings, informal groups, Skype, and other platforms. The fact that course chaperons are no longer restricted by time and study hall requirements is a fantastic benefit of online language learning. Overall, they are free to organize their study time based on their anticipated outcomes and interests. This is especially useful for students learning a foreign language because it enables them to develop their language skills in line with their obligations in

the workplace. The advantages of using this mechanically advanced method to learn a new dialect are numerous and outweigh the potential drawbacks. For this reason, we acknowledge that ICT in language learning has undergone significant advancements and additions focusing on essence, as well as in communication and the exchange of information globally. Professors' work and professional development will be accelerated by information technology innovation, but it will also promote fair and open exchange of knowledge on specialized terminology among representatives and experts from various sectors.

Research Problem

The implementation of Information and Communication Technology (ICT) in secondary education presents both opportunities and challenges. However, there is a lack of comprehensive understanding regarding its effectiveness, impact, and the factors influencing its success across diverse educational contexts. This knowledge gap hinders evidence-based decision-making, policy formulation, and the development of effective strategies to maximize the benefits of ICT for secondary students. Additionally, disparities in access to technology, variations in technological readiness, and socio-economic factors further complicate ICT implementation efforts. Therefore, there is a pressing need for a comparative study to systematically investigate and analyze the implementation of ICT in secondary education across different regions, educational systems, and socio-economic contexts. By addressing this need, the study aims to identify common challenges, best practices, and contextual factors influencing ICT integration, ultimately informing the development of tailored strategies to enhance educational outcomes and bridge the digital divide in secondary education.

Conclusion

The integration of Information and Communication Technology (ICT) in secondary education holds immense promise for transforming teaching and learning experiences and preparing students for success in the digital era. Throughout this study, we have explored the importance of ICT implementation in secondary education and its potential to enhance educational outcomes.ICT offers opportunities to create dynamic and interactive learning environments, where students can access a vast array of resources, collaborate with peers, and develop essential digital literacy skills. Moreover, ICT facilitates personalized learning experiences, catering to the

diverse needs and learning styles of students.the effective implementation of ICT in secondary education requires addressing various challenges, including inadequate infrastructure, limited access to technology, and the need for ongoing professional development for educators. Overcoming these challenges is essential to ensure equitable access and maximize the transformative potential of ICT.it is imperative for educators, policymakers, and stakeholders to collaborate in fostering a supportive environment for ICT integration in secondary education. This includes investing in infrastructure, providing training and support for educators, and developing policies that promote equitable access to technology.secondary education can evolve to meet the needs of 21st-century learners, empowering them with the skills and competencies necessary to thrive in an increasingly digital and interconnected world. In doing so, we can unlock new possibilities for education and empower students to realize their full potential.

Future Work

There is a need for continued research into effective pedagogical strategies that leverage ICT tools to enhance learning outcomes. This includes investigating the optimal balance between traditional teaching methods and technology-mediated instruction, as well as exploring how emerging technologies such as virtual reality, artificial intelligence, and adaptive learning systems can be effectively integrated into the classroom. Efforts should be directed towards addressing the digital divide to ensure equitable access to ICT resources and opportunities for all students, regardless of socio-economic background or geographic location. This may involve initiatives such as providing subsidies for internet connectivity and devices, implementing community-based digital literacy programs, and partnering with industry stakeholders to donate technology resources to underserved schools.there is a need for ongoing professional development and training for educators to build their capacity to effectively integrate ICT into their teaching practice. This includes not only technical training on how to use specific tools and platforms but also pedagogical training on how to design engaging and effective ICT-enabled learning experiences. Future work in this area should aim to foster a culture of innovation and collaboration, where educators, policymakers, industry partners, and other stakeholders work

together to harness the potential of ICT to transform secondary education and better prepare students for the challenges of the 21st century.

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