Teachers' Perspectives on ICT Curriculum and Students' Learning Skills

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Abstract

Objectives: The role of technology in modern life is expanding rapidly. Educational technology has emerged as a crucial component in raising academic achievement worldwide. Teachers all over the world are now focusing on it. Therefore, this study examined the teachers' perspectives on the ICT curriculum and its effect on students' eLearning skills in the UAE. *Methods/Analysis:* Researchers used a questionnaire to gather the data to learn more about how technology is being used in UAE Model Schools. There were a total of 150 teachers (60 female and 90 male) from three different Abu Dhabi schools included in the study. In addition, the study used descriptive statistics for the analysis. *Findings:* The study's findings confirmed that teachers at both institutions use technology in the classroom. *Novelty /Improvement:* Practical implications for the United Arab Emirates support of technology are explored.

1- Introduction

The world has already been altered by "*technology*", much as it has been by globalization and industrialization. The exponential growth of information and communication technology (ICT) is an unstoppable force affecting every aspect of modern life, from economies to communities to cultures... and, eventually, everyday life itself [1]. Because of advancements in ICT, high-quality textbooks, videos, and online lectures are now more widely available to students at a fraction of their previous cost. As defined by academics [2], E-learning is the strategic application of computers and other electronic devices to the educational process. ICT-supported teaching and learning approaches are gaining popularity in educational institutions, and e-learning is one example of their utilization [3]. Adoption and usage of e-learning in schools have been demonstrated to encourage collaborative, active, and lifelong learning; increase student motivation; provide greater access to information and shared working tools; deepen comprehension; foster critical thinking and effective communication; and so on [4]. There has never been a more crucial time for the use of ICT in education, as the increased efficacy and versatility of such tools are causing a shift in the types of educational settings at students' disposal [5]. Moreover, ICT usage produces a rich learning environment and modifies the learning and teaching processes in which students deal with knowledge in an active, self-directed, and constructive manner [6]. ICT is not simply seen as something that may be added to or used in place of conventional pedagogical practices. Technological information and communication advances are vital resources for facilitating innovative pedagogical approaches. Students' teamwork, communication, problem-solving, and lifetime learning abilities can benefit from ICT exposure.

According to the research of Ramadhan & Daryati (2022) [7] and Mishiwo et al. (2022) [8], teachers need to have faith in the efficacy of the technology, expect minimal disruption from its use, and feel confident in their ability to direct

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its implementation in the classroom, as stated by Mshayisa & Ivala (2022) [9]. The term "online learning" describes a wide range of programs that use the Internet inside and outside of traditional classroom settings to give students and teachers access to course materials and promote collaboration. Students in an online classroom, as stated by Titcombe (2022) [10], have the freedom to study and collaborate from any location they want. Similar to other developing countries, the United Arab Emirates (UAE) use of ICT is restricted to pedagogical purposes, including the teaching of computer literacy [11]. Even more so, Shumba et al. (2022) [12] argue that the current ICT curriculum primarily deals with teaching about computers rather than how computers might be used to revolutionize teaching and learning in our schools. The literature review also revealed that the UAE's public universities were the first to initiate e-learning initiatives, albeit on a modest scale, with the majority still in the planning stages. The study also discovered that although there is a wealth of literature on the use of ICT in educational settings and several studies devoted to ICT integration, there is little actual research on online learning, particularly in middle and high schools. Therefore, this study aims to investigate the teachers' perspectives on the ICT curriculum and its effect on students' eLearning skills in the UAE.

2- Literature Review

2-1- How Information and Communication Technology Can Help Education

The adoption of technological tools into academic curricula is rapidly expanding across all levels of education, especially at the graduate and professional levels [13, 14]. Technology empowers students to take charge of their education and gives them instantaneous access to an ocean of data that teachers cannot curate [15]. More than two hundred and nineteen studies have looked at the impact of ICT on education, and they have all come to the same conclusion: students do better when they have access to more and better technology, regardless of the subject matter [16, 17]. According to research on teachers' preparation for ICT [18], teachers still have a long way to go before their schools can fully take advantage of the potential afforded by 21st-century technology. Many experts in the field of language education have studied how ICT might be used most effectively in classroom settings. The 700 secondary school teachers in Nigeria were studied by Nweke & Ajikere (2022) [19], who looked at how they used ICT in the classroom and what that meant to expand the use of technology in education. According to the findings, most teachers consider ICT a special tool for making lessons easier for their students. In addition, Tella et al. found a high correlation between teachers' stated goals for using ICTs and students' perceptions of the utility of those tools for learning. ICT use in the classroom should be adapted to meet the needs of all students. They should be conscious that ICT must be tailored to the specific requirements of students in order to discourage a "one-size-fits-all" approach and promote student-driven education [20].

Policies regarding information and communication technologies have been cited as a contributing element. The thesis here is that a school's capacity to implement an effective online learning program is influenced by the availability of an ICT policy. Using digital devices and ICT successfully to promote teaching and learning may also depend on schools' policies and practices, as argued by Hwang et al. (2022) [21] in the Framework. Gyamfi et al. (2022) [22] conclude that clear policy, strategy, and implementation instructions are necessary to facilitate effective e-learning in educational institutions and provide more support for this position. According to Siahaan & Natonis (2022) [23], a school's ICT policy substantially impacts students' capacity to adjust to e-learning. Takamatsu et al. (2022) [24] found that when teachers share the values articulated within the school policy and understand its implications, successful integration of ICT is considerably more likely. Previous research has argued that national ICT strategies serve as blueprints for local implementations of ICT in schools. According to Ahmaddien et al. (2022) [25], national information and communication technology policy can play several pivotal roles.

First, ICT policies serve students, teachers, parents, and a country's general populace by providing a reason, a set of goals, and a vision of how education systems will work if ICT is included in teaching and learning. Second, schools and classroom innovations are less likely to be maintained without the direction provided by ICT policy. Furthermore, without a clearly articulated shared vision in the policy, individuals' efforts are less reasonable to be felt across the country. Access to sufficient technology is necessary for ICT's widespread adoption and practical usage. Online content delivery to distant learners relies heavily on a stable information and communication infrastructure. Consistent with this approach is the conclusion drawn by Khamchai et al. (2022) [26], who discovered that having access to sufficient and suitable technological resources is crucial to implementing an eLearning solution successfully. Gyamfi et al. (2022) [27] found the same thing, stating that solid infrastructure is vital to successfully deploying eLearning programs and courses. Khamchai et al. (2022) [26] stress the importance of additional hardware and specialized software for creating online techniques, such as different servers and a course management system. Access for students calls for enough network resources, such as shared modems or connections through an ISP. The current technology condition in classrooms indicates the education system's preparedness. Hwang et al. (2022) [21] found that there are often considerable differences in life expectancy between people of different socioeconomic backgrounds. It was discovered that only people from affluent backgrounds have access to the internet at home, making online education unavailable to them. Due to electricity and phone line shortages, Arya et al. (2022) [28] found that few UAE residents own a personal computer.

2-2- Responsibilities of Teachers Concerning e-Learning

The provision of efficient support services is essential for delivering high-quality distance learning, according to Zacharis & Nikolopoulou (2022) [29]. There are two main categories of online education support services: those geared toward instructors and those aimed at students. As most teachers lack experience with either synchronous or asynchronous online teaching tools, they must make an effort to develop their online teaching skills. Abuhassna et al. (2022) [30] argued that to better comprehend and utilize technology in the classroom, learning designers and teachers must be assisted in matching learning tasks to learning technology. According to Lopes et al. (2022) [31] research, both students and teachers have described technological challenges as a significant barrier to adoption and a source of irritation. Wang et al. (2022) [32] found that teachers were less likely to use digital materials because they lacked the technical support they needed to use ICT. Teaching expertise is crucial to implementing educational reforms, claim Cabanillas-García et al. (2022) [33]. Li et al. (2022) [34] confirmed that many secondary school teachers and trainers tasked with delivering e-learning do so despite a lack of competence in applying e-learning and a consequent animosity towards ICT-based education. Successful integration of ICT into teaching and learning is strongly influenced by instructors' level of computer expertise [35, 36].

According to Schmitz (2022) [37], this is because teachers with the necessary competencies have more experience using computers and are more comfortable using them in the classroom. Habes et al. (2022) [38] argued that although many teachers consider computers to be an integral part of their students' education, they often lack the expertise and experience necessary to feel comfortable using them in their lessons. According to Guy (2007) [39], the advent of online education has sparked a sea change in pedagogy. Instead of the traditional model of teacher-centered, lecture-based instruction, which assumes that students will sit passively through class, there is a growing trend toward classroom models in which students and teachers work together to co-create the learning experience. Correspondingly, Ali et al. (2022) [40] research concluded that insufficient training in digital literacy, inadequate pedagogical and didactic training in how to use ICT in the classroom, and insufficient training concerning the use of technologies were barriers to the implementation of new technologies in classroom practice. The topic of pedagogical training for teachers, as opposed to just preparing them to use ICT technologies, is crucial. Teacher training should center on pedagogical concerns, according to Şahin et al. (2022) [41]. Teachers may learn to use ICT by experimenting with it in their classrooms, and that's precisely what pre-service programs are designed to facilitate. They would therefore feel more comfortable utilizing digital tools. To get the most out of technology in the classroom, Konstantakis et al. (2022) [42] observed that it's important to employ both cutting-edge gadgets and innovative approaches to instruction that make the most of digital tools to boost students' knowledge and skills.

3- Research Methodology

3-1- Data

There were 150 teachers representing three different model institutions: Abu Dhabi International School, Abu Dhabi Model School, and Al Nahda National Schools. There were 60 female and 90 male teachers in the study. In both schools, the average number of years of teaching experience among teachers was between 2 and 9. Students at model schools were all familiar with technology in the classroom. Both schools provide teachers with access to high-quality technological resources.

3-2- Data Collection

In this study, questionnaires were used to collect the data. These resources aim to examine the teachers' perspectives on the ICT curriculum and its effect on students' eLearning skills. Researchers used these instruments to validate their findings and ensure the reliability of their research. In order to gauge teachers' opinions on ICT, a survey was designed. Several perspectives explored how teachers feel about their technological competence and adoption, how students use technology in their own lives, what barriers exist to implementing ICT, and what kinds of incentives exist to encourage Teachers to do so. Refereeing by a group of university academics specializing in several fields, including educational technology, confirmed the questionnaire's face validity.

3-3- Data Analysis

Using Cronbach's Alpha, the reliability of the questionnaire was 0.86. The survey had respondents rate their agreement on a scale from 10 (strongly agree) to 1 (strongly disagree). All instructors at the involved schools were given a copy of the survey. We got a roughly 60% response rate. SPSS 25.0 was used to analyze the data collected from the questionnaires. The study used descriptive statistics to analyze the data. To further their knowledge of the survey's findings, the researchers employed an "Item Analysis" technique on these items.

Figure 1. Flowchart of the research methodology

4- Results and Discussion

The findings showed that Teachers have a high opinion of their educational technology skills. Table 1 displayed that the mean ratings fell between 9.0 and 9.7 on a 1–10 scale. Instructors may have a positive impression of technology integration since it's used as a criterion for evaluation at model schools. After digging into the data, we found that teachers had the highest mean scores on items that assessed their familiarity with hardware and software; their capacity to use technology to locate, evaluate, and collect information from various sources; and their familiarity with content-specific tools. These findings are consistent with those of Bauer & Kenton (2005) [43], who showed that teachers possessed the technological expertise and pedagogical knowledge necessary for effective technology integration. In addition, Bariham (2022) [1] found support for them in his research on the attitudes and impressions of 17 social studies instructors who had received training in integrating technology. Participants' interactions with technology fell into four broad categories: those focused on the teacher; those focused on the students; those focused on a negotiation between the teacher and students; and those focused on the students themselves. Most Teachers were open to incorporating technological tools into their lessons, had favorable reactions to technology integration workshops, expanded their use of technology in the classroom, and found novel ways to put it to use.

Table 1. The Perceptions of the Teachers' Capabilities concerning ICT

Capabilities assessed	Mean	Standard Deviation
I can utilize typical input and output devices, address hardware and software issues, and make educated decisions regarding technology systems, resources, and services.	9.7	0.66
I can find, assess, and obtain information using technology.	9.5	0.71
I can utilize technology to boost efficiency, inspiration, and educational knowledge.	9.4	0.78
I may employ content-specific tools (e.g., software, simulation, probes, graphing calculators, exploratory settings, Web tools) to study and research.	9.4	0.78
Productivity tools allow me to work with others on building technologically advanced models, writing articles, and creating other works of art.	9.4	0.78
I can analyze data and provide findings with the use of technological resources.	9.3	0.79
I have a deep comprehension of how technological systems function.	9.2	0.82
I am well-versed in the technological, legal, ethical, cultural, and sociological concerns that arise.	9.1	0.84
I get to decide what tools and methods of study I use.	9.1	0.84
I can use digital tools to foster higher-order and more complex cognitive processes, including analysis, evaluation, deliberation, and innovation.	9.0	0.89
I can handle typical computer issues	9.0	0.89
I can employ technological tools to aid in creating plans for dealing with real-world issues.	9.0	0.89
I am well-versed in the medical and ethical concerns raised by technological advancements.	9.0	0.89
I am competent in the use of technological means for data management and dissemination	9.0	0.89
I can analyze and pick new information resources and technological advancements based on their applicability to specific jobs	9.0	0.89
I can work with others, disseminate my findings, and engage with experts and laypeople using various media and channels, including the smartphone.	9.0	0.89
I may explore various concerns regarding technological communication.	9.0	0.89

Table 2 also reveals that Teachers have a favorable impression of their students' technological literacy. They relied heavily on it for social connection and communication, autonomy in their education, interest in and comprehension of their assignments, and a general understanding of the material presented. On a scale from 1 to 10, the mean rating for these things was 9. Ramadhan & Daryati (2022) [7], who investigated the Online learning innovation at vocational schools in Indonesia during the Covid-19 pandemic, found results consistent with those shown here. The study's findings demonstrated an increase in performance at all levels of education.

Table 2. The Perspectives of Teachers Towards the Technological Use of Their Students

Output of technology use by students	Mean	Standard Deviation
The use of technology has changed how students interact with one and communicate with one another.	9.0	0.89
As a result of using technology, students develop into more self-sufficient students.	9.0	0.89
Technology has increased students' interest in learning.	9.0	0.89
The use of technology has increased students' interest in educational subjects.	9.0	0.89
Computer programs help students develop essential skills.	8.6	0.93
Students are strengthening their expertise in conducting research online.	8.6	0.93
Students work more outside of school.	8.6	0.93
Students primarily use technology to learn how to use it.	8.5	0.96
Schools generally have had more excellent grades and test scores since embracing technology.	8.5	0.96
In many of their regular curricula, students use technology.	8.3	0.98
Schools claim higher attendance on tech-use days.	8.1	1.10
Computer labs are the only places where students are allowed to use computers.	7.9	1.18
Schools say that technology reduces student dropout rates.	7.9	1.18
E-learning is popular among students.	5.2	1.96

5- Conclusion

Findings from this study indicate that teachers at UAE Model Schools, male or female, have a positive view of their abilities and competencies when effectively implementing technology into their lessons. As the findings also showed, teachers use technology in their classrooms to varying degrees of effectiveness despite obstacles to its widespread adoption. Both male and female teachers agree that the following strategies would improve the degree to which technology is integrated into the classroom: providing consistent opportunities for professional development; incorporating media like CDs and videos into lesson plans; fostering greater cooperation between schools in different parts of the country; and allowing teachers considerable leeway in deciding what to teach and how to teach it. When they first opened in the UAE, model schools offered some advantages over traditional schools, including better facilities and more significant opportunities for teachers to further their careers. As a result of the positive results seen at these institutions, other public schools around the country began adopting similar policies. This has resulted in public schools closing the gap with model schools regarding access to technology and teacher training.

Regarding resources (such as computers and trained teachers), public schools in Abu Dhabi, mainly, are on par with model schools nationwide. As a result of this modification, the findings of this study are directly applicable to other UAE public schools spanning the same grade levels as the model schools. Similar findings from other studies that looked into the same topics were found (Mishiwo et al. (2022) [8]; Zhang et al. (2022) [14]; Fuadi (2022) [16]; and Arya et al. (2022) [28]). As a result of their findings, the researchers propose the following strategies for improving teachers' abilities to integrate technology in the classroom: Deliver workshops on effective technology integration to enhance teachers' knowledge and skills in incorporating technology into their lessons. Donate cutting-edge computers, tablets, and other devices to teachers. Teachers should be recognized and rewarded for their innovative use of technology in the classroom. It is essential to give teachers time to strategize how to incorporate technology into the school best; thus, doing so will benefit both students and their teachers. Examine how public, private, and home schools employ technology in the classroom. Determine how incorporating technology into the classroom affects students' motivation and performance. Focus your research on how adopting technology into the curriculum can help you achieve your educational goals.

6- Declarations

6-1- Author Contributions

Conceptualization, H.L. and H.Y.A.; methodology, H.L., H.Y.A., and H.A.; validation, H.Y.A. and H.A; writing—original draft preparation, H.A. and H.L.; writing—review and editing, H.L.; visualization, S.A.A.; supervision, H.L. All authors have read and agreed to the published version of the manuscript.

6-2- Data Availability Statement

The data presented in this study are available in the article.

6-3- Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

6-4-Institutional Review Board Statement

Not applicable.

6-5-Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

6-6-Conflicts of Interest

The authors declare that there is no conflict of interests regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

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