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**Investigating the Impact of Information and Communication
Technologies (ICTs) Usage on Enhancing EFL Learners'
Performance:
The Case of Some Secondary Schools in Tissemsilt**

A Dissertation Submitted to the Department of English in Partial Fulfilment for the
Requirements of a Master's Degree in Didactics of Foreign Languages

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DEDICATION 1

This work is wholeheartedly dedicated to my mother's soul, May she rest in peace.

I also dedicate this work to my beloved kids: **Nour El Islam, Nour El Yakine and Noursine**

who filled me up with love, hope and encouragement. To all my family members. To my best

friends who supported me all the time. Special thanks go to my friend Abdelouahab who

shared with me this work. To all whom I love.

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DEDICATION 2

This study is wholeheartedly dedicated to my beloved parents, who have been my source of inspiration and gave me strength when I thought of giving up, who continually provide their moral, spiritual, and emotional support. To my brothers, sisters, relatives, mentor, friends, and classmates who shared their words of advice and encouragement to finish this study.

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List of Acronyms and Abbreviations

CAI: Computer-Assisted Instruction

CALL: Computer-Assisted Language Learning

CD: Compact Disc

CERIST: Information and Communication Technologies Research Centre

DVD: Digital Video Disc

EFL: English as a Foreign Language

ELT: English Language Teaching

ELTAL: English language teaching and learning

HTML: Hyper Text Markup Language

IBM: International Business Machines

ICT: Information and Communication Technology

iOS: iPhone Operating System

IT: Information Technology

LL: Language Learning

MIT: Massachusetts Institute of Technology

MNE: Ministry of National Education

NIT: New Information Technologies

PC: Personal Computer

SLC: School Leaving Certificate

TPCK: Technological, Pedagogical, and Content Knowledge

WWW: World Wide Web

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Abstract

The research investigated the usage of information and communication technology (ICT) in Algerian secondary schools and its impact on enhancing the students' learning process. The primary objectives are firstly to identify the main challenges or barriers that arise during the implementation of ICTs in Algerian secondary schools, and secondly to determine the best practices for the effective integration of ICTs to improve learning outcomes. The study employed a descriptive research design to examine the application of ICTs in Algerian secondary school settings. Two key data collection methods were utilized; a questionnaire administered to 30 EFL (English as a Foreign Language) teachers from various schools in Tissemsilt, and classroom observations were made with three teachers from different secondary schools to assess and evaluate the EFL learners' performance. The findings reveal the key challenges that prevent teachers from successfully incorporating ICTs into their lesson plans and performances, as well as the most effective strategies for using ICTs to enhance the learners' learning experiences. The study concludes by providing recommendations and suggestions to help Algerian secondary school EFL teachers more successfully integrate ICTs in order to improve learners' learning outcomes.

Keywords: ICTs, EFL learners' performance, Algerian EFL teachers, Secondary school, outcomes enhancing

General Introduction

General Introduction

The integration of Information and Communication Technology (ICT) holds significant potential to transform teaching and learning processes within the rapidly evolving educational landscape of today. However, this potential is frequently accompanied by a unique set of challenges, particularly in the context of large English as a Foreign Language (EFL) classrooms. This study focuses on the specific setting of secondary education in Tissemsilt, Algeria, delving into the distinct environment of Algerian secondary schools. It examines the obstacles faced by educators in incorporating ICTs, as well as the approaches that can help them navigate these challenges effectively. Shedding light on these crucial facets, the study aims to advance the understanding of ICT's role in education and provide valuable insights that can assist both educators and policymakers, not only in Algeria but also in the broader international context.

Statement of the Problem

The integration of Information and Communication Technology (ICT) in the educational system holds immense potential to enhance teaching and learning processes. However, the implementation of ICT in Algerian secondary schools faces significant challenges that hinder its effective integration and utilization. Some of the key problems identified in the Algerian secondary education context include inadequate ICT infrastructure and resources: Many Algerian secondary schools lack the necessary technological equipment, such as computers, internet connectivity, and multimedia devices, to effectively integrate ICT into the learning environment. Gaps in teacher digital competencies also stand as a thorny issue. There is a shortage of comprehensive teacher training programs to equip them with the

necessary digital skills and pedagogical knowledge to effectively integrate ICTs into their teaching practices.

In many cases, teachers' resistance to change and lack of buy-in toward the integration of ICTs in the classroom can be a significant barrier to the effective implementation of technology-enabled teaching and learning practices in the educational system. In fact, some teachers and administrators in the Algerian secondary education system may exhibit reluctance or resistance to adopting and integrating ICT-enabled teaching and learning approaches, due to a lack of understanding or a preference for traditional methods. Above all these, the lack of systematic policies and clear, comprehensive, and well-implemented policies and guidelines for the integration of ICTs in Algerian secondary education hinders the consistent and effective deployment of these technologies across the education system. Besides, disparities in access to technology and digital literacy among students from different socio-economic backgrounds, as well as cultural perceptions and attitudes towards the role of technology in education, can pose significant challenges to the equitable integration of ICT in Algerian secondary schools. Addressing these multifaceted challenges is crucial to unlock the full potential of ICTs in enhancing teaching and learning outcomes in the Algerian secondary education system.

Research Significance

The current study on integrating ICTs in Algerian secondary schools is of paramount significance. The findings can inform policymakers and educators about the specific challenges and best practices, guiding the development of comprehensive strategies to support effective ICTs integration. Addressing these issues can help bridge the digital divide, empower teachers through targeted professional development, and contribute to the broader understanding of technology integration in developing educational systems. Ultimately,

enhancing ICTs integration in Algerian secondary schools aligns with the United Nations' Sustainable Development Goals, with the potential to improve teaching and learning outcomes for students.

Research Questions

To achieve the purpose and objectives of the study, the following research questions were posed:

RQ 1: What potential key barriers and challenges may hinder the effective integration of ICTs in Algerian secondary schools from the perspectives of teachers, administrators, and policymakers?

RQ 2: How can professional development programs and training initiatives may be designed and implemented to enhance the digital competencies and pedagogical skills of Algerian secondary school teachers in leveraging ICTs effectively in their teaching practices?

RQ 3: What policy frameworks, resource allocations, and institutional support mechanisms may be needed to facilitate the sustainable and equitable integration of ICT across the Algerian secondary education system?

These three research questions above are designed to provide a comprehensive and multi-faceted examination of the key issues and challenges surrounding the integration of ICTs in the Algerian secondary education system. Besides, they enable the generation of insights that can inform evidence-based policies, targeted interventions, and sustainable change within the education system.

The overall purpose of the study was to explore both the hurdles faced by teachers and learners when integrating ICTs and the strategies that can pave the way for its successful

incorporation to enhance the learners' learning process. More precisely, the objectives of the current study are three folds:

- 1) To explore the challenges faced by Algerian English teachers when integrating ICTs into their classrooms.
- 2) To uncover the best practices for the effective use of ICTs to enhance the learning process within Algerian Secondary schools.
- 3) To provide practical insights and recommendations for enhancing the integration of ICTs into Algerian Secondary school education.

Research Hypotheses

This research explores three interrelated hypotheses addressing the complex challenges of integrating ICTs in Algerian secondary schools. The hypotheses below examine the need to holistically address infrastructure, teacher capacity, and systemic support, as well as the requirements of comprehensive policy frameworks, sustainable funding, and dedicated institutional mechanisms. By delving into these key factors, the study seeks to identify viable pathways for empowering Algerian secondary school teachers and creating an enabling environment for the successful and equitable integration of ICTs in teaching and learning.

H1: Effective integration of ICTs in Algerian secondary schools may require addressing interrelated challenges of infrastructure, teacher capacity, and systemic support.

H2: Empowering Algerian secondary teachers through professional development, collaboration, and technical support may enhance their capacity and confidence to effectively integrate ICTs in the classroom.

H3: The successful and sustainable integration of ICTs in the Algerian secondary education system may require a comprehensive policy framework, adequate and sustained funding, and dedicated institutional support mechanisms.

The three hypotheses put forward in this research offer a comprehensive approach to addressing the multifaceted challenges of integrating ICTs in the Algerian secondary education system. In so doing, the Algerian education system can harness the transformative potential of ICTs and bridge the digital divide, ultimately preparing learners for the demands of the 21st century.

Research Methodology

This study is designed to provide an introduction to the process of conducting research in the social scientific paradigm which encompasses the impact of ICTs use on the learners' learning enhancement. Numerous studies will be discussed in different areas of the technological and educational environment to achieve dependability for this work, the current research will be based on a combination of two independent procedures, namely quantitative and qualitative approaches which means that this research will depend on the mixed method approach.

The Structure of the Study

The current endeavor encompasses three distinct yet complementary chapters that converge toward the issue's core under investigation. The first chapter provides a detailed review of concepts and trends relevant to the present study. It covers the history of ICTs in education, the types and roles of ICTs, and the use of ICTs in education. Specifically, this chapter examines the use of ICTs to enhance academic learning, the integration of ICTs in the Algerian educational system, the importance and benefits of using ICTs in education, the challenges and barriers to ICT use in the educational system, EFL teachers' attitudes and perceptions towards integrating ICTs in the teaching-learning process in Algeria, and the best ICT teaching practices for enhanced learning in schools.

The second chapter offers a detailed description of the study's research methodology. It begins by outlining the demographic and participant sample, providing information on the characteristics and background of the individuals involved in the research. The chapter then delves into the study design, explaining the overall approach and framework used to address the research questions. Finally, it describes the selected methods for data collection, which may include surveys, interviews, classroom observations, or other relevant techniques employed to gather the necessary information for the study.

The third chapter thoroughly analyzes the data collected, discussing the key findings in depth. It outlines the limitations encountered during the research process and provides a set of actionable recommendations based on the study's conclusions. The recommendations aim to inform and guide future efforts in effectively integrating ICTs into the Algerian secondary school classroom environment.

Delimitation

This study was carried out in various secondary schools located in Tissemsilt of Algeria. This location was chosen due to its alignment with the requirements of the investigation, considering factors such as accessibility and available time. The schools and participants were cooperative, enabling the researchers to gather the necessary data to provide solutions, suggestions, and recommendations for enhancing the use of information and communication technologies (ICTs) in Algerian secondary school classrooms.

Chapter one: Information and Communication Technology (ICT)

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Introduction

According to Daniels (2002), Information and communication technology (ICTs) is considered to be one of the basic building blocks of modern society. Many countries now regard understanding ICTs and mastering the basic skills and concepts of ICTs as part of the core of education. However, globalization has brought an immense change in every aspect of human life and education is no exception. The introduction of ICTs to education can help create a new way of learning and teaching where we are in a world where technology has reduced it into a small village. In the last two decades, the use of ICTs has changed the practices and procedures of nearly all forms of endeavor within business and governance. The use of ICTs in education lends itself to a more student-centered learning setting. But with the world moving rapidly into digital media and information, the role of ICTs in education is becoming more and more important and this importance will continue to grow and develop in the 21st century. Nowadays the use of ICTs in the teaching and learning process becomes very important. The teacher is expected to be both traditional and modern in his/her teaching-learning process. The teacher has to be prepared to have the capacity to include ICTs in the teaching process. In the 21st century technologies are interactive but still low in the language classroom. Recently, the internet has gained and still gaining immense popularity in second/foreign language teaching and more teachers and learners are embracing it. So, there is no doubt that ICTs has impacted the quantity and quality of teaching and learning in traditional and distance education institutions. Therefore, ICTs can enhance teaching and learning through their dynamic and interactive content and can provide real opportunities for individualized instruction.

1.1. Definition and Scope

The differing number of the word “communication” is significant in that the singular form is concerned with human interaction while the plural is generally taken to refer to the whole field of data communications infrastructure. At its simplest, the former or singular form is the process or outcome while the latter or plural is about the technology itself. The acronym ICT can also take a plural form (technologies) where it is understood to entail the specific devices or processes which collectively make up the “Technology.” This pluralized form (particularly in Queensland) is sometimes written as ICTs. The term ICT must be seen as an evolution from the antecedent and more narrowly defined term IT (information technology) which maintains its usage in government, business, industry and in relation to tertiary and other academic courses dealing with such areas as programming, database design and expert systems. In the United States, synonymous terms such as “technology” and “educational technology” are used. A useful definition of ICT is that it:

Generally relates to those technologies that are used for accessing, gathering, manipulating, and presenting or communicating information. The technologies could include hardware (e.g. computers and other devices); software applications; and connectivity (e.g. access to the Internet, local networking infrastructure, video conferencing). What is most significant about ICT is the increasing convergence of computer-based, multimedia, and communications technologies and the rapid rate of change that characterizes both the technologies and their use.
(Toomey, 2001)

The quote above highlights three key aspects that can be summed up as follows:

Technological Breadth: ICTs generally encompass a wide range of technologies used for accessing, gathering, manipulating, and presenting or communicating information. This includes hardware (e.g., computers, devices), software applications, and connectivity (e.g., internet, networking infrastructure, video conferencing).

Technological Convergence: What is most significant about ICTs is the increasing convergence of computer-based, multimedia, and communications technologies. This

convergence has led to the integration and interoperability of various technological components, enabling more comprehensive and seamless information processing and communication.

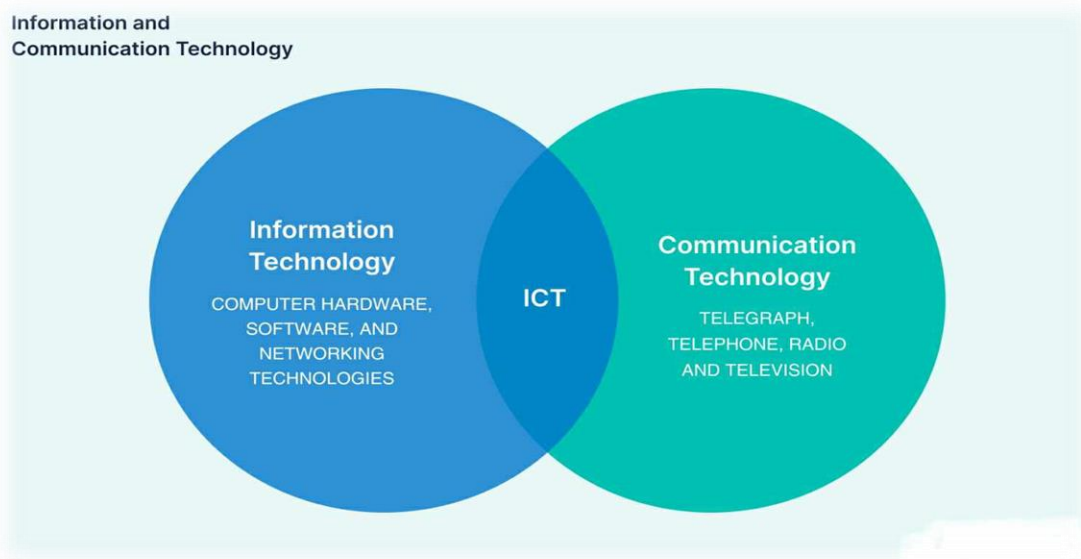
Rapid Technological Change: The quote also emphasizes the rapid rate of change that characterizes both the ICT technologies themselves and their usage patterns. This dynamic nature of ICTs reflects the constant evolution and innovation in the field, which presents both challenges and opportunities for their effective deployment and utilization.

The multifaceted nature of ICTs, as described in the quote, underscores the importance of understanding the diverse range of technologies, their convergence, and the fast-paced changes that define the ICT landscape. This knowledge is crucial for effectively integrating and leveraging ICTs in various domains, such as education, to enhance learning, communication, and knowledge sharing.

In order to render the meaning of what was defined previously, we use the following figure provided by Margaret Rouse.

Figure 1.1. Information and Communication Technology

(ICT updated from Margaret Rouse 2023)



1.2. ICTs History Overview in Education

The integration of information and communication technologies (ICTs) in education has a rich and dynamic history, marked by significant advancements and a growing recognition of their transformative potential. In the early days of computing, the introduction of mainframe computers and mainframes in academic institutions laid the foundation for the integration of technology in the educational realm.

As personal computers became more accessible in the 1980s and 1990s, the adoption of ICTs in schools and universities accelerated. The emergence of productivity software, educational programs, and early attempts at computer-assisted instruction opened up new avenues for technology-enhanced learning. The advent of the Internet and the World Wide Web in the 1990s further revolutionized the educational landscape, enabling access to a vast array of digital resources, online collaboration, and distance learning opportunities.

The 21st century has witnessed exponential growth in the variety and capabilities of ICTs utilized in education. The widespread availability of smartphones, tablets, and laptops, coupled with the proliferation of cloud computing, digital content, and interactive whiteboards, has transformed the way students learn and teachers deliver instruction. The integration of learning management systems, educational apps, and virtual learning environments has empowered educators to create more engaging, personalized, and collaborative learning experiences.

Today, the educational landscape continues to evolve, with emerging technologies such as artificial intelligence, augmented reality, and virtual reality further expanding the possibilities for technology-driven pedagogy and innovative learning experiences. The history of ICTs in education reflects a journey of continuous innovation, adaptation, and the pursuit of leveraging technological advancements to enhance the quality, accessibility, and effectiveness of the educational process.

When discussing the history of ICTs in education, educators and researchers tend to divide it into several periods. Based on Roblyer and Doering (2013), the evolution of ICTs in school can be divided into three eras: the pre-microcomputer era –the microcomputer era, and the internet era.

1.2.1. The Pre-computer Era and its Impacts on Education

Based on Roblyer and Doering (2013,p,8), the pre-computer era spanned from 1950 to 1970. At that time, computers were recognized as being sizable, high priced, and required expertise to operate. The Massachusetts Institute of Technology (MIT) employed this first computer during this timeframe for training purposes. The computer-assisted instruction (CAI) movement emerged at the start of the 1970s, prompting the American government to seize the opportunity to fund a bigger minicomputer system in schools (Roblyer & Doering, 2013).

By the end of the 1970s, a campaign was launched to promote computer literacy since it was necessary to program software tools. This initiative was seen to have the potential to enhance teaching and learning (Maddux, Johnson&Willis,1997).

1.2.2. The Micro-computer Era and the Changes Accompanying it

The emergence of microcomputers in the late 1970s and early 1980s marked a significant turning point in the integration of information and communication technologies (ICTs) into the educational realm. The introduction of personal computers, such as the Apple II, Commodore PET, and IBM PC, revolutionized the ways in which technology could be utilized in classrooms and educational settings (Cuban, 1986; Molnar, 1997).

Prior to the microcomputer era, the use of technology in education was largely limited to mainframe computers, which were often centralized and inaccessible to the majority of

students and teachers (Atkinson, 1969). The advent of affordable and user-friendly microcomputers paved the way for a more widespread adoption of technology in schools and universities. Educators began to explore the potential of these devices for educational purposes, from computer-assisted instruction and educational software to programming and coding activities (Molnar, 1997; Papert, 1980).

The microcomputer era ushered in a wave of educational reform, with the integration of technology becoming a key priority in many school systems. Governments and educational institutions invested in computer labs, trained teachers on the use of these technologies and incorporated computer literacy as a core component of the curriculum (Cuban, 1986; Molnar, 1997). This period laid the foundation for the subsequent advancements in educational technology, setting the stage for the further integration of ICTs in the decades that followed. The computer era began in 1977 with the invention of small desktop computers (Roblyer&Doering,2013).

1.3. Historical background of ICTs in Algeria

Technology and English language education are related to each other according to Singhal. In Algeria, during the seventies, eighties, and nineties of the last century English language learning laboratories were being used in various educational institutions, particularly at universities. The traditional laboratory consisted of many small cabinets provided with a cassette deck, a microphone and a headphone for each one. Teachers use a central control panel to monitor their students' interactions. The main advantage of that type of technology was that verbal behaviour of students would help them to quickly learn the second language. The students' skills can be enhanced by encountering more practical drill problems. Although the language laboratory was a positive step in linking technology and language education, this technique was actually tedious and boring for learners as Singhal said. In addition to this, there were minimal interactions between the teacher and his

students. Computer assisted language learning (CALL) software has provided another teaching tool for second language education.

The use of computers in English language classrooms is useful for both teachers and learners. Currently, there are numerous software application programs available such as vocabulary, grammar and pronunciation programs, electronic workbooks, reading and writing programs and different learning packages to assist instructors in creating tutorial exercises to enhance the students' or the learners' English language courses.

In Algeria, the school year 2003 was the year of the bow on the school reform. Many national and international seminars took place to have an idea and opinions from valuable experts who had the opportunity to reform the educational system in their countries before us. These seminars were done to take benefit from the experienced countries which were in advance compared to our country.

The opening on the world in education matter is the antidote to the curling up on oneself. All the experts either the Algerian ones or the guests were completely convinced that to enhance the learners' level, there is only one possibility which is the introduction of ICTs in our schools. Many efforts are needed to gather all the indispensable elements necessary for the implementation of the recommendations of the seminarists. These efforts do not concern only the material aspect but also the political will of the Algerian authorities to realise this objective. To come back to the recommendations, the seminarists liked very much the relevance of the workshop synthesis reports. The most important points on which the Algerian project " TARBIANET" will have to be based have been identified. I'll cite particularly:

- The need to make school curriculum flexible and modular.
- The partnership Ministry of National Education (MNE) CERIST and between Algeria and France.

The setting up of proximity interfaces for the benefit of users (teachers, inspectors). In light of these seminars, it cannot be said that Algeria has taken lightly the introduction of ICT in its educational system. The implementation of the project remains another matter.

The development of ICTs in Algeria can be traced back to the country's post-independence era in the 1960s. After gaining independence from France in 1962, the Algerian government recognized the strategic importance of telecommunications and information technologies for national development (Hammouda, 2007). In the early years, the state-owned Algérie Télécom was established to oversee the deployment of telephone networks and other communication infrastructure across the country (Daoudi & Hassani, 2015). During the 1970s and 1980s, Algeria made significant investments in satellite communications, digital switching, and other ICT technologies to modernize its telecommunication system (Abdelwahab, 2013). However, progress was hindered by economic challenges and political instability during this period.

In the 1990s, Algeria initiated market liberalization and privatization reforms, leading to the gradual opening of the telecommunications sector (Masmoudi, 2016). This paved the way for the introduction of mobile networks, the internet, and other emerging ICTs. Over the past two decades, the Algerian government has continued to prioritize the development of a robust ICT infrastructure and has sought to position the country as a regional hub for digital innovation (Cheriet, 2019).

1.4. ICT Common Digital Tools

ICT tools encompass a wide range of digital technologies that enable the creation, storage, processing, and exchange of information and data. These tools have become essential components of modern society, transforming how we communicate, collaborate, access information, and conduct business. Some of the key ICT tools include computers,

smartphones, tablets, internet-based applications, enterprise software, communication platforms, cloud computing services, and various types of digital media. These tools leverage advancements in areas such as microprocessors, networking, software development, and data storage to enhance productivity, enable remote work, facilitate global collaboration, and provide access to a wealth of information and entertainment. As technology continues to evolve, the landscape of ICT tools is constantly expanding, offering new opportunities and challenges for individuals, organizations, and societies to navigate. Understanding the capabilities and applications of these tools is crucial for thriving in the digital age.

1.4.1. Desktop and its Evolving Role in the Classroom

The desktop computer has been a ubiquitous ICT tool since the personal computing revolution of the 1970s and 1980s. Typically comprising a tower unit, a display monitor, a keyboard, and a mouse, the desktop computer has evolved from the bulky, monochrome machines of the past to sleek, high-performance systems capable of a wide range of tasks (Ceruzzi, 2003). Desktops offer several advantages, including greater processing power, larger storage capacities, and the ability to accommodate powerful graphics cards and specialized peripherals (Zaidi & Ribiere, 2019). They have become indispensable for office work, content creation, gaming, and a host of other applications. As computing power has increased and prices have become more affordable, desktop computers have become a staple in homes, schools, and businesses around the world (Riordan & Hoddeson, 1997). While the rise of mobile devices has somewhat diminished the desktop's prominence, it remains a crucial tool for tasks requiring extensive computational resources, complex software, or specialized hardware (Guo, 2012).

1.4.2. The Portable Revolution: Laptops Transforming Teaching and Learning

The laptop computer, also known as a notebook, has emerged as a highly portable and versatile ICT tool. Characterized by its compact, all-in-one design, the laptop combines the processing power, storage, and functionality of a desktop computer into a mobile, battery-powered device (Lunt, 1999). Laptops revolutionized personal computing by offering users the ability to work, communicate, and access information on-the-go (Shao & Sellers, 2022). With advancements in miniaturization, battery life, and display technology, laptops have become increasingly powerful, lightweight, and energy-efficient (Greenberg, 2016). They are widely used for tasks such as document processing, web browsing, video conferencing, multimedia consumption, and even specialized applications like engineering, design, and programming (Teo & Becker, 2021). The rise of remote work and online learning has further solidified the laptop's role as a crucial tool for productivity, collaboration, and access to digital resources (Lau et al., 2020). As technology continues to evolve, laptops are expected to maintain their prominence as a go-to ICT solution for both personal and professional use.

1.4.3. Illuminating Presentations: The Integral Role of Projectors in 21st Century

Education

The data projector, or data show, is an essential ICT tool for visual presentations and collaborative learning. Serving as a bridge between digital content and large-screen display, the datashow allows users to project images, videos, and multimedia presentations onto a screen or wall, enabling effective communication and knowledge sharing (MacKenzie & Wajcman, 1999). Datashows have become ubiquitous in classrooms, conference rooms, and other professional settings, facilitating interactive discussions and enhancing the engagement of audiences (Taw, 2014). Technological advancements have led to the development of more compact, energy-efficient, and high-resolution datashow models, improving image quality

and reducing setup complexities (Wick & Bates, 2017). Additionally, the integration of wireless connectivity and mirroring capabilities has further enhanced the versatility of data shows, allowing users to seamlessly share content from their laptops, tablets, or smartphones (Casner & Deering, 2002). As the demand for effective visual communication and collaboration continues to grow, the data show remains a crucial ICT tool for educators, presenters, and professionals across various industries.

1.4.4. Tablets for Revolutionizing the Modern Classroom

By definition, a tablet is a highly portable PC whose primary interface is a touch screen that occupies the full length/width of the device but whose speaker and microphone are not positioned for hand-held calling. In popular perception, however, tablets simply combine the best aspects of smartphones and laptop PCs, creating what tablet lovers consider the ultimate mobile computing experience:

- Compatible with home/office wireless and cellular data networks.
- Portable, but with larger, clearer displays than earlier mobile devices.
- Powerful, but lighter and easier to carry than traditional laptops.

Tablet computers have emerged as a versatile and portable ICT tool, bridging the gap between laptops and smartphones. Characterized by their touch-enabled, slate-like design, tablets offer a unique user experience, allowing for intuitive interaction through gestures and digital inputs (Witt, 2011). Powered by mobile operating systems and equipped with features such as high-resolution displays, advanced processors, and long-lasting batteries, tablets have become popular for a wide range of applications, from content consumption and digital note-taking to mobile productivity and creative endeavors (Harman et al., 2012). The introduction of tablet-optimized software and the proliferation of tablet-specific apps have further expanded the capabilities of these devices, making them valuable tools for education,

entertainment, and professional use (Boud & Molloy, 2013). The portability and connectivity of tablets have also enabled new modes of learning, collaboration, and remote work, particularly during the COVID-19 pandemic (Prestridge, 2017). As technology continues to evolve, tablets are poised to play an increasingly important role in the digital landscape, providing users with a unique blend of mobility, functionality, and user-friendly interaction.

1.4.5. Pen Drives as Catalysts for Classroom Collaboration and Innovation

The USB flash drive, commonly referred to as a pen drive, has become a ubiquitous portable storage solution in the digital age. Characterized by its compact, lightweight design and plug-and-play functionality, the pen drive has revolutionized the way users store, transport, and share digital files (Grunwald & Dunlop, 2004). Offering large storage capacities in a small form factor, pen drives have replaced bulkier and less convenient storage media, such as floppy disks and optical discs (Haidar & Taha, 2020). The widespread adoption of USB technology has further contributed to the convenience and accessibility of pen drives, allowing users to seamlessly connect and transfer data between a wide range of devices, including computers, laptops, and even some smartphones and tablets (Gasior & Mazur, 2013). Additionally, the portability and ease of use of pen drives have made them invaluable tools for backup, data transportation, and file sharing, particularly in educational and professional settings (Nguyen et al., 2015). As technology continues to evolve, the pen drive remains a reliable and versatile storage solution, adapting to the changing digital landscape and user needs.

1.4.6. iPads to Unlock a New Frontier of Digital Learning

The iPad has firmly established itself as a prominent tablet device, redefining the user experience and capabilities of mobile computing. Introduced by Apple in 2010, the iPad

combines a large, high-resolution touchscreen display with a lightweight, portable design, offering a unique blend of content consumption, creativity, and productivity (Cochrane & Bateman, 2010). Powered by Apple's custom-designed processors and the intuitive iOS operating system, the iPad has evolved over the years, incorporating advancements in display technology, battery life, and peripheral support, making it a versatile tool for a wide range of applications (Traxler, 2010). The iPad's seamless integration with the Apple ecosystem, including services like iCloud and the App Store, has further enhanced its appeal, providing users with a cohesive and user-friendly experience (Murray & Pérez, 2014). The iPad's portability, long battery life, and touch-based interface have made it a popular choice in education, healthcare, and various professional settings, enabling new modes of learning, collaboration, and mobile productivity (Harman et al., 2012). As a result, the iPad has become a leading tablet device, shaping the future of mobile computing and redefining the way users interact with digital content on the go.

1.4.7. iPods as to Integrate 21st Century Education

The iPod has revolutionized the way people experience and interact with digital media, becoming a cultural icon and a defining product in the history of personal electronics. Introduced by Apple in 2001, the iPod initially gained widespread popularity for its compact design, intuitive click-wheel interface, and unparalleled music playback capabilities, allowing users to carry thousands of songs in their pockets (Lindholm et al., 2003). Over the years, the iPod family has expanded to include various models, such as the iPod Classic, iPod Nano, and iPod Touch, each catering to different user needs and preferences (Kahney, 2004). The integration of the iPod with Apple's iTunes software and the iTunes Store further solidified the device's position as a central hub for content acquisition, management, and synchronization (Gasser & Palfrey, 2007). Beyond music, the iPod's capabilities have

evolved to include features like video playback, photo storage, and even the ability to run iOS applications, making it a versatile portable entertainment and productivity device (Levy, 2006). The iPod's iconic design, ease of use, and seamless integration with the Apple ecosystem have contributed to its widespread adoption and cultural significance, firmly establishing it as a landmark product in the history of consumer electronics.

1.4.8. Scanners to Transform Learners Research and Learning

Scanners have become an indispensable tool in the digital age, enabling the conversion of physical documents, images, and media into electronic formats for various applications. These devices employ optical scanning technologies to capture and digitize analog content, allowing users to create digital copies that can be easily stored, shared, and manipulated (Gelsinger, 1988). Scanners come in a wide range of models, catering to different needs and environments, from compact, portable units for home and office use to high-resolution, professional-grade scanners for specialized applications, such as document archiving, art reproduction, and large-format scanning (Kenney & Chapman, 1995). The advancement of scanning technologies has led to improved image quality, faster scanning speeds, and enhanced connectivity, with many modern scanners offering direct integration with computers, mobile devices, and cloud-based storage services (Sipl, 1994). The versatility of scanners has made them invaluable in diverse sectors, including education, healthcare, law, and business, facilitating the digitization and management of critical information, the preservation of historical documents, and the seamless integration of physical and digital workflows (McGarry, 1993).

1.4.9. Microphones to Elevate Learners' Voice and Empower Learning

Microphones are essential audio capture devices that have transformed the way we record, communicate, and interact with digital technology. These transducers convert acoustic sound waves into electrical signals, enabling the conversion of analog audio into a digital format that can be processed, stored, and transmitted (Eargle, 2005). Microphones come in a variety of types, including dynamic, condenser, and ribbon microphones, each with its own unique characteristics and applications, catering to the needs of musicians, podcasters, videographers, and a wide range of professional and consumer users (Rumsey & McCormick, 2014). The advancements in microphone technology have led to improved sound quality, increased sensitivity, and better noise rejection, allowing for more accurate and precise audio capture in various environments (Borwick, 2012). Wireless microphone systems have further expanded the versatility of these devices, enabling untethered performance and mobility, while digital microphones have integrated seamlessly with computer-based audio workflows, facilitating direct digital recording and processing (Ballou, 2015). Microphones have become ubiquitous in modern communication, entertainment, and media production, serving as essential tools for capturing and preserving the richness of the auditory world around us.

1.4.10. From Chalkboards to CDs/DVDs: Evolving Multimedia in the Classroom

CDs (Compact Discs) and DVDs (Digital Versatile Discs) have revolutionized the way digital information is stored, distributed, and accessed. Introduced in the 1980s and 1990s respectively, these optical disc formats have become ubiquitous in the storage and playback of music, video, software, and data (Pohlmann, 2005). CDs, with their superior sound quality and compact size, quickly replaced traditional cassette tapes as the preferred medium for

music distribution, while DVDs, with their larger storage capacity and higher video resolution, became the standard for home entertainment and data storage (Watkinson, 2001).

The development of recordable and rewritable versions of these formats, such as CD-R, CD-RW, DVD-R, and DVD-RW, further expanded their applications, enabling users to create their own custom discs for backup, archiving, and content distribution (Nakajima & Ogawa, 1999). The widespread adoption of CDs and DVDs was driven by their ease of use, durability, and compatibility with a wide range of playback devices, from standalone players to computer drives (Philips & Sony, 1980). Despite the rise of digital downloads and streaming, CDs and DVDs continue to play a significant role in various industries, from music and film to software distribution and data archiving, remaining an important part of the digital media landscape.

1.4.11. Interactive Whiteboards to Redefine the 21st Century Education

An interactive whiteboard is a piece of hardware that looks much like a standard whiteboard, but it connects to a computer and projector in the classroom to make a very powerful tool when connected, the interactive whiteboard becomes a giant, touch-sensitive version of a computer screen.

1.4.12. Photocopiers to Amplify Educational Resources in the Classroom

Photocopiers have had a profound impact on the field of education, revolutionizing the way teaching materials, handouts, and educational resources are produced, distributed, and accessed. The introduction of affordable and reliable photocopying technology in the mid-20th century enabled educators to easily create and disseminate multiple copies of educational content, such as lecture notes, worksheets, and supplementary materials, without the need for time-consuming and labor-intensive manual duplication (Howarth, 1982). This

accessibility of information has significantly enhanced the learning experience for students, allowing them to have ready access to course materials and reducing the burden on instructors to provide individual copies (Kouhler, 1994). Furthermore, the integration of photocopiers into educational institutions has facilitated the preservation and distribution of reference materials, library resources, and archival documents, making them more widely available for research and study (Heyworth, 1990). The ease and efficiency of photocopying have also enabled educators to customize and adapt educational content to better suit the needs of diverse learners, fostering personalized learning opportunities (Bowen, 2017). As technology has continued to evolve, modern multifunction devices that combine printing, scanning, and copying capabilities have further streamlined the production, distribution, and digitization of educational materials, solidifying the role of photocopiers as indispensable tools in the modern classroom.

1.4.13. Printers to Transform the Educational Landscape

Printers have become an integral part of the digital landscape, transforming the way we create, share, and archive information. These ubiquitous devices have revolutionized the printing process, enabling the seamless conversion of digital content into physical form (Blatner et al., 2004). The evolution of printing technologies, from the early dot-matrix and daisy-wheel printers to the modern laser, inkjet, and 3D printers, has expanded the capabilities and applications of these tools (Gessler, 1996). In the educational realm, printers have become indispensable, facilitating the production of teaching materials, handouts, and student assignments, allowing educators to efficiently distribute course content and personalize learning experiences (Dusenbery, 2019). In the business world, printers have streamlined document workflows, enabled on-demand printing, and supported the production of professional-quality marketing materials and reports (Spence, 2002). The introduction of

networked and wireless printers has further enhanced their versatility, enabling seamless integration with computers, mobile devices, and cloud-based storage services (Baxes, 1994). As technology continues to advance, printers are poised to play an even more significant role in the digital transformation, with the emergence of features like secure printing, mobile printing, and the increasing adoption of 3D printing for rapid prototyping and personalized manufacturing (Barnatt, 2013).

1.4.14. The Internet's Transformative Impact on Education

The advent of the internet has revolutionized the landscape of education, providing unprecedented access to information, resources, and learning opportunities on a global scale. The internet has transformed the way knowledge is acquired, shared, and disseminated, empowering both educators and students (Harasim, 2017). Online educational platforms, such as virtual classrooms, distance learning programs, and massive open online courses (MOOCs), have expanded the reach of education, allowing learners to access top-quality instructional content from leading institutions and experts, regardless of their geographic location (Bonk, 2009). The internet has also enabled the seamless integration of multimedia resources, interactive simulations, and collaborative tools into the learning process, fostering more engaging and immersive educational experiences (Oblinger & Oblinger, 2005). Furthermore, the internet has facilitated the creation of dynamic, up-to-date educational materials, enabling educators to continuously update and refine their curricula in response to the rapidly evolving knowledge landscape (Garrison & Vaughan, 2008). The accessibility and flexibility provided by the internet have also empowered students to take a more active role in their learning, encouraging self-directed exploration, peer-to-peer collaboration, and the development of critical thinking and research skills (Dabbagh & Kitsantas, 2012). As the

internet continues to evolve, it is poised to play an increasingly pivotal role in shaping the future of education, transforming the way we teach, learn, and engage with knowledge.

To become popular in educational policy making during the 1980's driven by the declining cost of computers and their increasing availability in the consumer market (Pelgrum & Law, 2003). The apprehension of lagging behind in the technological race, combined with government encouragement, motivated several countries to develop their own brand of micro-computers and distribute them to schools. This time period witnessed a fierce competition between well-known computer firms such as Apple, Hewlett-Packard, and IBM to integrate computers into American classrooms.

Integrating computer technology in education has been a challenge for educational institutions worldwide since the 1980s. The terminology used to describe these technologies evolved rapidly, transitioning from microcomputers to NIT (New Information Technologies), IT (Information Technologies), and eventually ICT (Information and Communication Technologies). This shift reflected a change from a focus on technology to emphasizing the functional characteristics of these technologies (Pelgrum & Law, 2003).

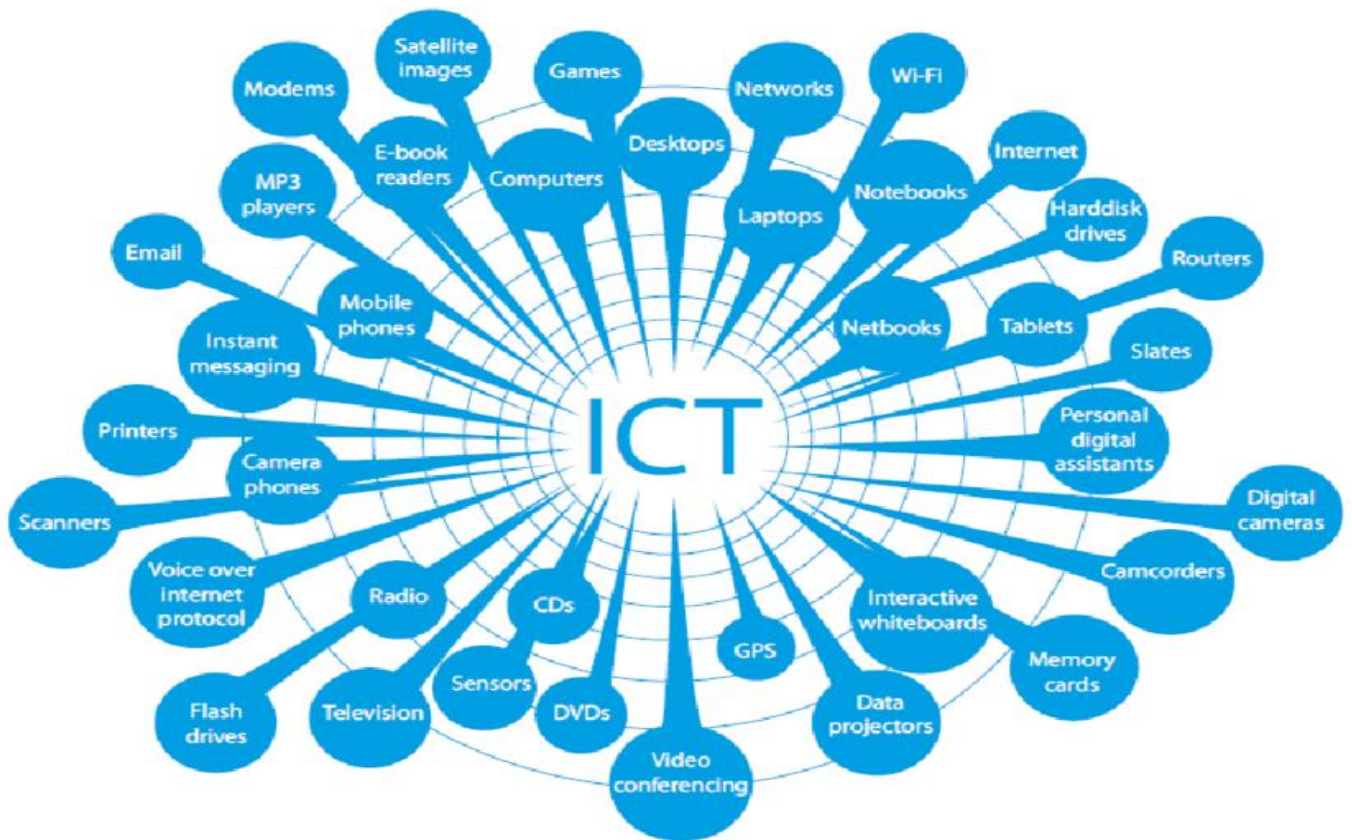
Initially, ICT in education meant that students were learning about computers. However, by the mid-1990s, it became a driver of societal change and a facilitator of educational reforms promoting lifelong learning (Pelgrum, 2001).

During the 1980s, large-scale technological efforts largely overlooked classroom instructors (Harper, 1987). Teachers were seldom involved in decision-making processes that significantly impacted their profession, leading to their disengagement and skepticism toward new technologies (Bush & Terry, 1997). Many teachers expressed disinterest, doubting the necessity of change, and voicing displeasure.

This lack of enthusiasm prompted educational theorists to advocate for educators' active involvement in ensuring effective computer use (Harper, 1987). The question for

educators is how to use ICT to complement the role of the teacher in the teaching and learning process. Teachers who lack opportunities for professional development in emerging technologies and current computer literacy are at risk of falling behind.

Figure 1.2. The types of Information and Communication Technology (ICT) ICT updated from, Zarouri (2013, p.8)



1.1. Education Reimagined: Navigating the Transformative Potential of the Internet Era

The mid-1990s marked a watershed moment in the evolution of computer systems. The emergence of the World Wide Web (www) in 1993, thanks to Tim Berners-Lee, gave birth to the Internet era and instilled a newfound optimism in the educational realm regarding technology. This optimism is based on the tremendous potential of networked computers and

related technologies to provide a variety of learning possibilities. Access to enormous information, worldwide communication, and involvement in transnational joint research initiatives were among these options. As a result, computer technologies came to be recognized as important instruments in education, and supporters claimed that learners should be prepared for the future rather than rely on obsolete approaches (Thornburg, 1999). As a result, a good digital-age school should provide pupils with the skills they need to succeed outside of the classroom. Initially dubbed "Web 1.0," the web was intended primarily as an information source and a medium for online publishing. For publishing, creating a web page required a grasp of HTML (Hyper Text Markup Language) (Rosen & Nelson, p. 2008). Web 1.0 had one-way communication, causing most students to use the Internet primarily for information collection (Albion, 2008). This phase lasted almost a decade until 2004, when it gave way to what is now known as "Web 2.0," allowing for more dynamic and participatory web experiences.

The conversion from a "read Web" to a "read/write Web" spurred teachers to take novel techniques to engage technologically adept students who want to contribute their work in a growing online arena (Solomon & Schrum, 2007). This move encouraged students to polish their work when writing or speaking for a larger international audience, promoting deeper thought about the content they create and more deliberate consideration of cultural standards (Ramirez, 2010).

Web 2.0 is more than just a static source of information; it is an interactive tool that allows instructors and students to contribute to website content, encouraging information exchange, collaboration, and engagement. (McAfee, 2006). Pegrum (2009), Web 2.0 marks a shift from largely informative tools to relational ones, changing the web into a social platform.

Web 2.0 technologies are becoming more common in society, with applications expanding beyond personal life into educational and professional contexts. Learners may use

these tools to improve their grammar, punctuation, speaking, and listening abilities, among other things. Language learning may now transcend beyond the classroom and into real-world contexts, allowing for collaborative learning and natural language use.

As a result, it is critical for EFL teachers to become acquainted with these tools in order to improve their students' educations.

1.6. Integrating ICTs to Enhance English Language Teaching and Learning

Teaching and learning of the English language is one of the main concerns of many educational institutions because English is not only an international language and a lingua-franca of the world's citizens, but it is also the storehouse of knowledge (Bhattarai, 1995; Harmer, 2007). Therefore, attempts have been made to enhance English language teaching (ELT) and make it more advanced. Many research scholars (Acevedo, 2016; Ince 2014; Liu, 2012) in their research studies have concluded that English language teaching and learning (ELTAL) is effective and more successful with the integration of ICTs. According to Adams and Brindley (2007), "English is a subject ready to think about new ways of constructing reading and writing, and about the pedagogical value of collective work and the possibilities afforded by the renaissance of learning made possible through ICT" (p. vii). Likewise, Rank et al. (2011) discuss that the web 2.0 applications can be exploited to the advantages of the students learning English language and literature, which create several possibilities of learning opportunities such as exploring and investigating, composing and creating, reflecting and evaluating, presenting and performing; and communicating and collaborating.

ICTs, the digital technologies, are powerful educational tools; and their use has a significant role in the transfiguration of the pedagogy of teaching and learning (Ludvigsen&Morch, 2010; Sutherland et al., 2009). Angeli et al. (2015) view that a good combination of technology and pedagogy is very important to ensure that the learners are able

to take advantage of technology inclusion for the opportunities of learning integrated skills of language. According to Davis (2007), the incorporation of the technologies into English classroom can help achieve: cognitive gain by providing visual images, motivational gain providing fun, and interactional gain by providing convenience sharing. ICTs provide opportunities for exploring the communicative power of the English learner by engaging them in exploring literary texts and several other interactive activities in exciting ways (Richards, 2007). Likewise, computer-based activities enhance interaction and collaboration and provide unique opportunities for the development of the learners' spoken and written language capabilities (Andrew, 2007). A variety of technology-enhanced gadgets can create an interactive learning environment to develop learners' autonomy and meaningful learning, which provides a huge amount of exposure to language (Acevedo, 2016).

The spreading innovations in ICTs such as personal computers, Internet, mobile phones, and many other ICT tools, have caused a 'paradigm shift' in teaching and learning of all subjects; and the traditional model of teaching and learning has been replaced by transformed pedagogy (Juceviciene, 2008; Somekh, 2007). A paradigm shift in education is a change in the concept and procedures of teaching and learning. For example, the activity of encouraging learners for creative learning instead of rote learning is a good example of transformed pedagogy. Likewise, different types of paradigm shifts such as a shift from behaviorism/habit formation-based teaching to rationalism/cognitive-based teaching, a shift from teacher centered approach to learner centered approach and a shift from psychometric-structuralist testing to psycholinguistic-sociolinguistic testing , are being practiced in the field of education. (Li et al,2012). Consequently, various language learning on line/offline software, language learning platforms ;and the methodological innovations like computer-assisted language learning (CALL) have made language learning easier and more effective (DINA & Ciorni, 2013) . All this advancements that improve the quality of education make

wide exploitation of ICT's. English is taught and learned as a foreign language in Nepal. It is one of the core subjects both in the college level curriculum (up to bachelor level) and school level curriculum; and as equal weight age as other compulsory subjects has been given to English (CDC, 2007). However, the analysis of the results shows that the quality of English education is relatively less satisfactory; and teaching-learning of English is one of the more difficult jobs in both secondary school education and higher education in Nepal (Bista, 2011; Budhathoki et al., 2014; Mathema & Bista, 2006). Budhathoki et al. (2014, p. 17) point out that students are very weak especially in English, Maths and Science and that the overall fail percentage in English in SLC (school leaving certificate) is increasing (it was respectively 26.28, 32.23 and 35.21 percent in the academic years 2009, 2010, and 2011). Therefore, it is essential to find out the ways to enhance the educational quality of such subjects in both school and higher education in Nepal. As several research studies (Acevedo, 2016; Davis, 2007; Dina & Ciornai, 2013; Somekh, 2007) have concluded that ICTs are useful educational tools, and they contribute a lot in ELTAL; the government of Nepal has considered the need for ICT integration for the improvement of quality of education of all subjects recently. However, the integration of ICTs in education in the developing countries is rather slow; and particularly, ICT integration in higher education in Nepal in teaching and learning of different subjects including English is at its initial stage. Therefore, it is essential to explore the opportunities and challenges in ICT integration in teaching and learning of English, based on the context of higher education in Nepal because the knowledge gained from research studies is very important for tailoring the teaching-learning activities. Moreover, though multimedia and/or ICTs have been perceived as effective tools, ICT integration has 'a long way to go and attain to maturity' (Liu, 2012, p. 2334). Therefore, research and investigation on integration and use of ICTs in education and in ELT are becoming worthwhile day-by-day in order to achieve the full advantages of such technologies.

1.7. The Pivotal Role of ICTs in Education

There are many reasons why ICTs are being adopted in education. We now live in a knowledge-based society with information at our fingertips using ICTs. Today's students need to be empowered with the skills to effectively use ICTs as a good foundation for future learning and workplace experience. Offering ICTs in education provides a vehicle for students to acquire and develop the technological skills that are becoming increasingly important in the workforce. For instance, ICTs are said to have a potentially broad impact that can have economic benefits as it will facilitate greater efficiency in the use of time and resources. This, in turn, has the potential to make teaching more cost-effective practices and moves administration more directly into the delivery of services and classroom support. With emphasis on student-centred constructivist learning, ICTs can have a profound impact on the way learning is constructed.

ICTs have become commonplace entities in all aspects of life. They are playing salient roles in workplaces, business, education, and entertainment. In education, ICTs have the potential for improving the quality of learning and teaching in many ways. ICTs are pedagogically-driven with the aim of enhancing and enriching student learning outcomes. Hence, the integration of ICTs in the teaching and learning process has emerged as the crucial focus of current educational reform for meaningful learning. ICTs are also transformational tools that are capable of making the teaching and learning process more efficient and effective. They can act as catalysts for change in the ways learners learn and teachers teach. To this end, ICTs have the potential for developing greater teacher and student engagement in learning, promoting a shift in the students' role from passive recipient to active participant, and building autonomous, independent learners. This is in contrast to traditional chalk-and-talk teaching, which generally does not engage students in the learning process.

The integration of Information and Communication Technologies (ICTs) has become increasingly integral to the modern education landscape. Research has demonstrated the myriad benefits of leveraging digital tools and platforms in the classroom (UNESCO, 2021; OECD, 2019). ICTs can enhance teaching and learning by facilitating interactive, multimedia-rich content; enabling personalized and adaptive instruction; supporting collaborative learning; and providing real-time assessment and feedback (Greenhow et al., 2020). Moreover, the proliferation of open educational resources, online courses, and virtual learning environments has expanded access to education, particularly in underserved communities (Ritzhaupt & Kumar, 2021). As the education sector continues to evolve, effectively harnessing the transformative potential of ICTs remains crucial to fostering 21st-century skills, promoting inclusive learning, and preparing students for success in an increasingly digital world (Selwyn, 2017).

1.7.1. The Paramount Importance of ICTs in Education

In recent years, several research studies have shown the positive impact of ICT on learning outcomes. For instance, a study conducted by Machteld S. van den Bel, Eveline W. Profit, and Paul P.M. Leseman researched an intervention using a particular computer game aimed at enhancing linguistic skills. Findings suggested that the intervention had a positive effect on both expressive and receptive oral language skills and that playing the computer game contributed to the performance on both language skill measures. Another research conducted by Means, B and others to examine the relationship between ICT and student achievement found that ICTs contributed to an average increase of around 15 percentile points in student achievement.

ICTs have the potential to accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices, create economic viability

for tomorrow's workers, as well as strengthen teaching and helping schools change (Davis and Tearle, Ch 4 Engaging Schools: ICT).

With the help of ICT, walking along with the world is certainly possible. It makes our work easy. ICT has become an integral part of everyday life for many people. It increases its importance in people's lives and it is expected that this trend will continue, to the extent that ICT literacy will become a functional requirement for people wanting to work, learn and engage in everyday activities; it will be a prerequisite for active citizenship. ICT is a tool that can be used to help our students to be successful. In education, it is very necessary for students to learn using ICT as the world become very competitive and everything is done using ICT now. It is up to date. So if our students do not learn to use ICT, they will find later that it is hard to catch up with the world. As far as what we learnt, ICT can improve student learning as ICT can provide an interactive multimedia to learn. By using ICT, it can help students to understand more about the knowledge. Gonul (2016) states that ICT has the potential to innovate teaching and learning and it is the most important today. Students use ICT as multimedia tools during technology for certain concepts where it can be presented in a colorful, visual and interesting way in order to increase more understanding to students.

Stephanie Levitt (2016) highlights that our workforce depends on it since ICT is becoming an integral part of society. It is quite impossible to avoid using ICTs and it makes ICTs become the most important tools for today. According to the Ministry of Education Malaysia (2002), the use of ICTs can provide a new and effective dimension in teaching and learning. It is providing various tools and software to increase more understanding in certain knowledge by using visual. This can enhance student access to information and knowledge.

The integration of Information and Communication Technologies (ICTs) has become increasingly vital to the modern education system. Numerous studies have highlighted the

significant benefits that ICTs can bring to teaching and learning (Tondeur et al., 2017; Voogt & Knezek, 2018). ICTs can enhance student engagement and motivation by providing interactive, multimedia-rich learning experiences tailored to individual needs (Karsenti & Fievez, 2013). They also facilitate collaboration, creativity, and critical thinking skills essential for success in the 21st century (Lim & Khine, 2006). Moreover, ICTs have the potential to expand access to education, particularly for underserved populations, through online courses, open educational resources, and virtual learning environments (Bates, 2015). As the digital transformation continues to reshape the education landscape, the strategic deployment of ICTs remains crucial for preparing students with the skills and knowledge required to thrive in an increasingly technology-driven world (Spector, 2015).

1.7.2. The Transformative Benefits of Integrating ICTs in the Classroom

The integration of ICTs in the classroom can bring about a wide range of benefits for both students and teachers. Numerous studies have demonstrated that the strategic use of digital tools and platforms can significantly enhance the teaching and learning process (Hew & Brush, 2007; Tondeur et al., 2017). ICTs can foster greater student engagement and motivation by providing interactive, multimedia-rich learning experiences that cater to diverse learning styles (Higgins et al., 2012). They also enable personalized and adaptive instruction, allowing students to learn at their own pace and receive immediate feedback (Hwang & Tsai, 2011). Moreover, ICTs facilitate collaborative learning, enabling students to work together on projects, share ideas, and develop critical 21st-century skills such as communication, problem-solving, and digital literacy (Uerz et al., 2018). For teachers, ICTs can streamline administrative tasks, provide access to a wealth of digital resources, and enable more efficient assessment and data-driven decision-making (Voogt & Knezek, 2018).

As the education sector continues to evolve, the integration of ICTs remains a crucial component of delivering engaging, effective, and inclusive learning experiences.

1.8. Leveraging ICTs to Elevate Learning Outcomes

The integration of Information and Communication Technologies (ICTs) in the classroom has been shown to significantly enhance students' academic learning and achievement. Numerous studies have demonstrated the positive impact of digital tools and platforms on improving student performance across various subject areas (Tamim et al., 2011; Tamin et al., 2015). ICTs can provide interactive, multimedia-rich learning experiences that engage students and cater to diverse learning styles, leading to better comprehension and retention of course content (Tondeur et al., 2017). Additionally, the use of educational software, simulations, and virtual laboratories can help students develop a deeper understanding of complex concepts through experiential and hands-on learning (Barak & Dori, 2011). ICTs also facilitate immediate feedback, personalized instruction, and adaptive learning, enabling students to progress at their own pace and address individual learning needs (Hwang & Tsai, 2011). Moreover, the integration of collaborative technologies, such as online discussion forums and project-based learning platforms, can foster the development of critical 21st-century skills, including communication, problem-solving, and digital literacy (Uerz et al., 2018). As the education sector continues to evolve, the strategic deployment of ICTs remains crucial for enhancing academic learning and preparing students for success in an increasingly technology-driven world.

The integration of Information and Communication Technologies (ICTs) in the classroom can bring about a wide range of benefits for enhancing students' academic learning and achievement. Numerous studies have demonstrated the positive impact of digital tools and platforms on improving student performance across various subject areas (Tamim et al.,

2011; Tamin et al., 2015). ICTs can provide interactive, multimedia-rich learning experiences that engage students and cater to diverse learning styles, leading to better comprehension and retention of course content (Tondeur et al., 2017). Additionally, the use of educational software, simulations, and virtual laboratories can help students develop a deeper understanding of complex concepts through experiential and hands-on learning (Barak & Dori, 2011). ICTs also facilitate immediate feedback, personalized instruction, and adaptive learning, enabling students to progress at their own pace and address individual learning needs (Hwang & Tsai, 2011). Moreover, the integration of collaborative technologies, such as online discussion forums and project-based learning platforms, can foster the development of critical 21st-century skills, including communication, problem-solving, and digital literacy (Uerz et al., 2018). As the education sector continues to evolve, the strategic deployment of ICTs remains crucial for enhancing academic learning and preparing students for success in an increasingly technology-driven world.

1.9. Challenges and Hurdles in Integrating ICTs Effectively in the ELT Classroom

Research studies have found that there are several challenges in the integration of ICTs in education. Rabah (2015) highlights the challenges of integrating ICTs in English schools as: lack of supporting school leadership, inconsistent investments in ICT equipment, infrastructure and resources, inflexibility of funding, lack of professional development and support and incorporation of technology in evaluations and curricular plans. According to Alkahtani (2017), lack of training and a lack of working equipment are the main challenges in ICT integration. He further elaborates that lack of a basic understanding among both students and teachers of how the equipment functions, lack of mastery of ICT teaching techniques, and lack of mastery of electronic equipment are some of the main problems. Likewise, Laronde et al. (2017) found lack of professional development and resources, off-task behavior, and improper referencing as the main challenges in ICT integration. In the same

way, Ozdemir (2017) highlights the inadequacy of technology infrastructure, ICT inadequacy of the teacher and students, inadequacy and unsuitable course materials as the challenges of ICT integration. To Chen (2008), and Christensen (2002), 113 teacher's belief, attitude, and motivation toward ICT and their use are some of the main factors of impeding the integration of ICTs.

Most of the challenges as discussed in Rabah (2015), Alkahtani (2017), Ozdemir (2017) above were also found in this study. However, unlike Chen (2008), the attitude of the teachers, students, and administrators towards ICTs was found to be positive. Research scholars (Traxler & Kukulska-Hulme, 2005; van Dijk, 2005) concluded that ICT integration into the teaching and learning process, particularly in a developing country is influenced by many problems and challenges. Particularly in the developing countries, the management of the infrastructures and availability of ICT-related resources are some of the main challenges (Traxler & Kukulska-Hulme, 2005; van Dijk, 2005). Besides, the effective utilization of the ICTs is also affected by the technological skills of the teacher and students, and by the pedagogical skills of the teachers (Mishra & Koehler, 2006). The findings in this study too, are in the line with these scholars. For example, the teachers and the students were tackling the problems related to infrastructural management; and that they were not satisfied with their technological and pedagogical skills needed for the proper utilization of ICTs. As it was discussed in the theory of ICT adoption and diffusion of resources and appropriation theory (van Dijk, 2005), and TPCK model (Mishra & Koehler, 2006), the effective use of ICTs is affected by two main causes: the distribution of the resources, and lack of technological pedagogical knowledge. These two were some of the main problems and challenges in integrating ICTs in ELTAL in this study too. The use of ICTs in the teaching and learning activities of the teachers and students was frequently hampered by the inefficiency of the infrastructural resources such as low Internet speed, irregular power supply, and inadequate

number of computers in e-library and ICT lab. Likewise, the students did not have a good technological knowledge to handle the ICT tools to be able to use their productive benefits. More importantly, the teachers did not have adequate pedagogical skills to engage the students quite a lot in using ICTs for accessing information, collaborative learning, and English language skills learning.

1.10. Gauging Teachers' Perceptions and Concerns about Technology Use

The integration of Information and Communication Technologies (ICTs) in the classroom can bring about a wide range of benefits for enhancing students' academic learning and achievement. Numerous studies have demonstrated the positive impact of digital tools and platforms on improving student performance across various subject areas. ICTs can provide interactive, multimedia-rich learning experiences that engage students and cater to diverse learning styles, leading to better comprehension and retention of course content. Additionally, the use of educational software, simulations, and virtual laboratories can help students develop a deeper understanding of complex concepts through experiential and hands-on learning. ICTs also facilitate immediate feedback, personalized instruction, and adaptive learning, enabling students to progress at their own pace and address individual learning needs. Moreover, the integration of collaborative technologies, such as online discussion forums and project-based learning platforms, can foster the development of critical 21st-century skills, including communication, problem-solving, and digital literacy.

However, integrating ICTs into English Language Teaching (ELT) classrooms is not without its challenges and difficulties. One major hurdle is the lack of adequate access to technological resources and infrastructure in many educational institutions, especially in resource-constrained settings. Even when the hardware and software are available, teachers may lack the necessary technical skills and pedagogical knowledge to effectively incorporate ICTs

into their lesson plans and teaching practices. Another issue is the resistance to change from teachers who are accustomed to traditional teaching methods and are skeptical about the benefits of technology integration. Inadequate professional development and training opportunities for teachers further compound the problem, as they often struggle to adapt their teaching approaches to leverage the full potential of ICTs. Additionally, the rapidly changing nature of technology and the need to continuously update and maintain equipment can place a significant financial burden on educational institutions, hindering widespread adoption. Overcoming these challenges requires a multifaceted approach that addresses infrastructure, teacher capacity building, and institutional support to ensure the successful integration of ICTs in ELT classrooms.

Conclusion

In order to conclude, ICT and its materials have allowed education to have more creative, more efficient and more effective teaching and learning, and it has helped enhance classroom activities, motivating and engaging students in classroom activities. What has been discussed through this chapter is the impact of using ICT inside the classroom, in addition to the value of ICT effect in improving learning and teaching English. ICT in education refers to the development of information and communication technology for the teaching/learning process. Its implementation in educational settings has shown that ICTs play an important role in education practices, teaching and learning process, quality, accessibility and motivation of students to learn in better conditions and boost their academic performance. ICT has a positive impact on students and teachers to learn and do research. It increases the flexibility of learners and their responsibility, facilitates their possibilities, impacts their motivation, and assists them in learning and acquiring language better and easier.

Chapter Two: Research Design and Methodology

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Introduction

The discussion delves into how ICTs can be utilized to improve the learning experience. The present part of the research is dedicated to elucidating the approach taken to carry out this study O'Leary (2004) defines research methodology as "a framework associated with a specific set of paradigmatic assumptions that a researcher uses to conduct research."(p57). Additionally, this chapter outlines the research methodology and design. Furthermore, it describes the participants, data collection processes and research tools to obtain the data.

The aim of the study is to scrutinize at the hurdles that may face when integrating ICTs into the Algerian learning process and to recognise the most effective practices for using ICTs to enhance the learning process. As it works to investigate instructors' perceptions on the usage of ICTs in order to improve the learning process in Algerian Secondary schools. Accordingly, questionnaires were administered to Teachers from different Secondary schools in Tissemsilt, while a classroom observation was conducted with teachers from various Secondary schools. This method is widely implemented in behavioral sciences, which require the presence of the researcher. The reason is that it helps investigators see and experiment actions from a closer corner. The process implies collecting vivid actions about the samples subjected to investigation. As a result, the data collection process was based on two instruments: a questionnaire for instructors and a classroom observation.

2.1. Research Design

Research is a systematic strategy for data gathering and analysis, and each research design includes a stage that leads to the practical work of a specific study. Data collection is an essential component of conducting research; nonetheless, it is usually perceived as a difficult and time-consuming activity. As a result, "gathering reliable data is a difficult task," according to O'Leary (2004, p137) and "it is important to keep in mind that one method is not

inherently better than another." As a consequence, the data gathering strategy used will be influenced by the study objectives as well as the benefits and drawbacks of each approach." (p. 150).

To achieve dependently for this work, the current study is based on a combination of two independent procedures, namely quantitative and qualitative approaches which means that this research opted for the mixed method approach. "A mixed methods strategy employs both qualitative and quantitative methods," said Denscombe (2010, p.8)

According to Creswell (2009), mixed-method as "a technique to inquiry that mixes or pals each qualitative and quantitative forms, it entails philosophical assumptions, the usage of qualitative and quantitative processes, and the combination examine of each process" (p.4).

The present research investigation used a mixed methods approach to gather and analyze qualitative and quantitative data. The significance of such a procedure can be found in the fact that an in-depth combination of both methods yields a more comprehensive understanding of the causal relationship between the variables under study. As a result, a mixed methods approach will be used to investigate and clarify the relationship between the use of ICTs and their impact on the learning process. Mouton (1996) specifies that a research design is a set of guidelines that a researcher follows in order to address specific research questions. To put it another way, research design is the blueprint that outlines how data will be collected, analyzed, and interpreted in order to reach findings.

According to Henning, Van Rensburg, and Smit (2004, p167) "research design describes how the study was set up and gives a general idea of how results will be communicated to the general public"

To achieve successful outcomes in answering the research questions that form the core focus of the study, a well-defined research design must be set up.

This study aims at investigating the impact of ICT on the Algerian learning process and the challenges that might arise when incorporating ICT into the Algerian learning process. We opted for the descriptive study as a research design. According to Best and Kahn the “descriptive method is concerned with conditions or relationships that exist, opinions that are held, processes that are going on evident effects, or trends that are developing” (Best and Kahn, 2006, p.118).

The descriptive method is chosen since it considers people’s opinions, requires less time than quantitative experiments and allows for combining qualitative and quantitative data collecting approaches. In addition to this, the descriptive method may allow for the observation of the phenomena in a perfectly natural setting. Therefore, in order to define and evaluate the research questions, we need an appropriate research technique. The "case study" is an appropriate research technique for our goals. According to (Kamel&OuatiQ, 2017) and Biggam (2008, p.7)” Case studies are used to examine the features of a particular unit (class, school, kid, or community). They are an example of a bond system in which research is done.”

Analyze the comprehensive research strategy and methodology employed in the study. Determine whether the study is characterized by a qualitative, quantitative, or hybrid approach. Provide a rationale for the selected design and elucidate how it corresponds to the study objectives and questions.

2.2. Sampling Procedures

According to Kink (2003) a sample is “a proportion or a subset for a larger group called population” (p1). In other words, a sample is a smaller, representative subset of a larger population. It is used in research to conclude the entire group based on observations made from this smaller subset.

To collect relevant and reliable data, a total of 30 English Secondary school Teachers from different Algerian schools were selected randomly because of the variety of their features such as gender, age, educational qualifications, and years of teaching experience. The data was collected via a questionnaire administered during the third term of the 2023/2024 academic year. Out of these 30 teachers actively participated and provided us responses. Regarding the classroom observation, the observation sessions took place in different Secondary schools in Tissemsilt Algeria with 2 sessions for every teacher. The purpose of using more than one tool of research is to gather significant data, as well as, to provide credible information to this research. Table (1) below describes the participants involved in this study.

Methods of data collection	Participants
Questionnaire	30 EFL Teachers
Classroom observation	3 EFL teachers from different Secondary Schools

Table 2.1: The participants of the research

2.3. Data Collection Tools

To check the validity of the research questions and hypothesis, the researcher opted as mentioned above for two instruments to collect data needed for the investigation of EFL students' and teachers' opinions about the use of ICT for educational purposes; and its impact on learners' learning enhancement. The present work is developed through the use of a questionnaire and classroom observation grid. The observation sessions took place in different secondary schools in Tissemsilt Algeria with 2 sessions for every teacher.

2.3.1. Description of the Questionnaire

Questionnaires consist of a series of questions that are formulated and subsequently handed out to the participants. Each participant reads the questions, interprets them well and then provides written answers (Gillham, 2008). Questionnaires are used for their efficiency; they can be distributed to a large number of subjects within a relatively short time. They are simple and direct which allows the researcher to effectively analyze the data gathered.

The questionnaire was administered to Secondary school teachers in Tissemsilt. It is composed of 12 questions to collect data from 30 teachers. It was made up of four sections. In the first section, teachers were asked to mention some personal information like genre, age, educational qualifications, and teaching experiences (Gay & Airasian, 2000). The second section of the questionnaire intended to gain information about the teachers' perception of integrating ICT in their classrooms and the major challenges or barriers they face when using it. In the third section, the questions were about teachers' expectations of ICT integration to impact the learners' learning enhancement. In the fourth section, teachers were asked to add some comments concerning the use of ICT to impact and enhance learners' learning.

2.3.2. Classroom Observation

According to Marshall and Rossman (1989, p79), observation is the systematic explanation of the events, actions, and artifacts of the social environment. The importance of observation as a method of social science was emphasized in the writings of anthropologists in the late 19th century. Observation is the primary way to record what is happening in this environment. Observation is widely used in sociology, psychology, education, and other social sciences, and has proven effective in research beyond anthropology. B.B. Kaurich (2005), a researcher's attitude during the observation process, or how they position themselves as a researcher, is crucial to the validity of their research. How you position yourself in your

research environment affects your relationship with the people you observe and the quality of the data you collect. Covert surveillance is people who are being watched but are unaware that you are watching them. It's rare to keep secrets.

2.3.2.1. Description of the Classroom Observation

In terms of classroom observation, three teachers from different high schools were observed during four classroom observation sessions with the 3rd year learners to assess how ICT-based formative assessment strategies were implemented during the lessons. A structured observation grid was used as a guideline to assess various aspects, including the classroom context, identification of available resources, the impact of ICT integration, learners' engagement and participation, the effect on learners' learning, the teaching and assessment strategies employed, consideration of accessibility and equity, and reflection on learners' creativity. The data collected was then analyzed, and recommendations were provided to improve the use of ICT-enabled formative assessment practices in the classrooms.

Conclusion

This chapter outlined the methodology employed to address the three research questions concerning the challenges, best practices regarding the integration of ICT into the Algerian learning process and the practical insights and recommendations for enhancing the incorporation of ICTs into Algerian secondary school education. The research approach is characterized by a mixed-method strategy, following the case study design. To collect data, two distinct instruments were used. A questionnaire (made of 12 questions) was administered to English Secondary school teachers from different Algerian schools, and a classroom observation took place in different Secondary schools in Tissemsilt Algeria. The data was analyzed using different software processors and then interpreted to answer the research questions.

Chapter three: Data Presentation and Analyses

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Introduction

The third chapter aims to clarify and investigate the potential challenges with integrating ICTs into Algerian secondary school education, as well as the most effective ways to leverage ICTs to enhance learners' learning experiences. It describes and discusses the data gathered from the questionnaire distributed to Algerian EFL (English as a Foreign Language) teachers, as well as the data gathered from observations conducted in various secondary schools in Tissemsilt.

3.1. Data Analysis

This research employs a combination of quantitative and qualitative data analysis methods. The questionnaire and classroom observations are analyzed using both approaches. Closed-ended and open-ended questions are embedded in the instruments to enable the researchers to obtain substantive data. The quantitative data is discussed, analyzed numerically, and presented statistically. Conversely, the non-statistical information acquired from participants' opinions and justifications is analyzed qualitatively. In this study, both EFL students and teachers participated as the key sources of data. Their responses and the observed classroom practices are systematically examined to gain a comprehensive understanding of the research problem.

The following elements cover the detailed description and analysis of the research tools recovered from the selected participants for clearer and more precise results.

Therefore, data are analysed question by question followed by their descriptions and aims, and are displayed in the form of tables containing statistics, as well as, additional information for clarification and justification.

3.1.1. A Comprehensive Analysis of Questionnaire Data on ICTs Integration

The number of participants who are randomly selected in this research are (30) teachers, the questions are (12) with a variety in their forms as previously explained, and data are described through statistics and percentages. The questionnaire targets the issue of teachers’ perception about the use of ICT, and its impact on learners’ learning enhancement.

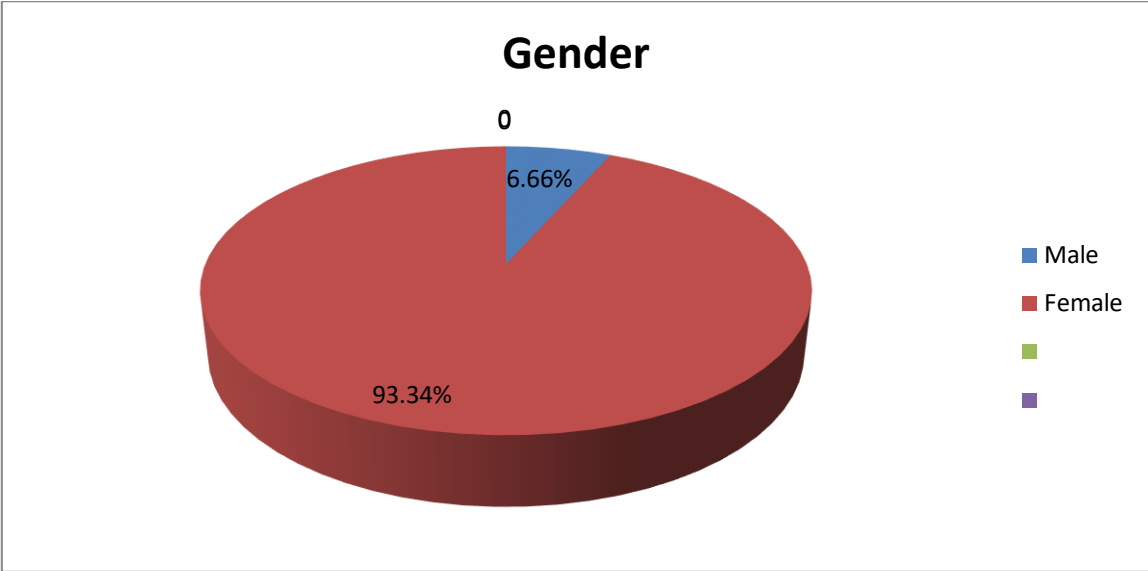
Section 01: Demographic Data

Item1: Participants’ Gender

This question aims to classify teachers according to their gender.

The results obtained are represented in the following table and diagram.

Figure 3.3: Participants’ Gender



The statistical data above demonstrate that the heavy majority of the targeted teachers, representing 93.34% (n=28) are females. The rest of the participants, standing for 6.66% (n=2).

The statistical data reveals a striking gender imbalance among the participating teachers, with a heavy predominance of females. This pronounced gender skew is noteworthy and may warrant further investigation. Potential factors contributing to this imbalance could

include sociocultural norms, educational and career preferences, or systemic biases in the teaching profession, particularly in the Algerian secondary school context.

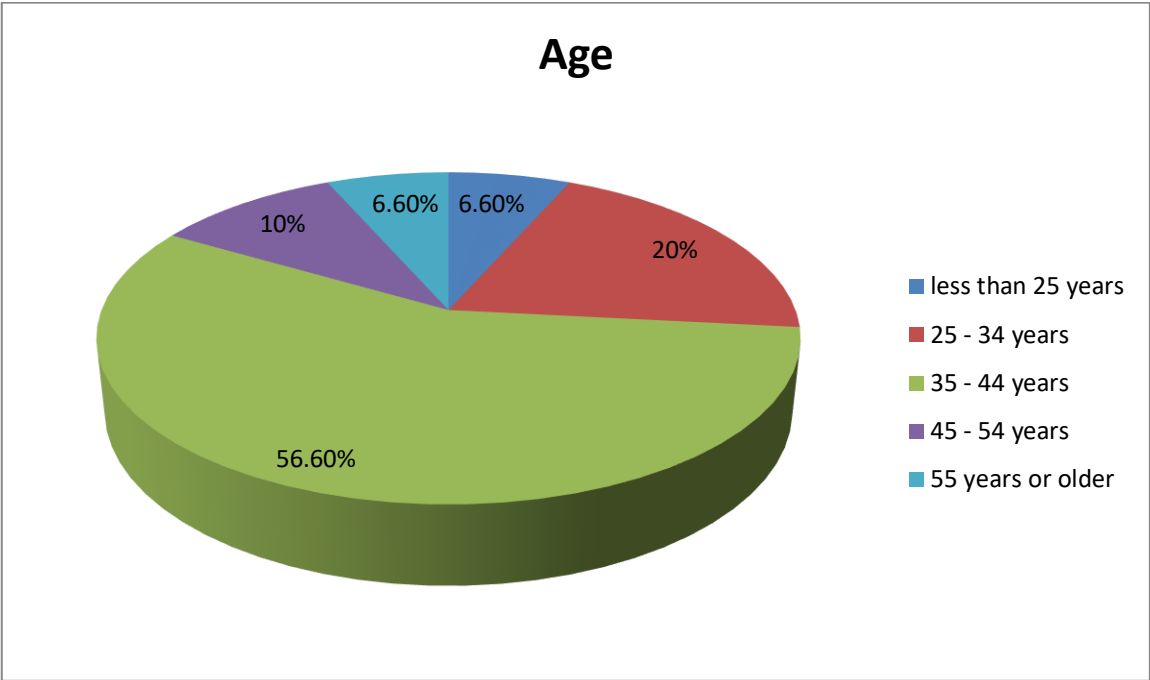
The significant overrepresentation of female teachers may have implications for the dynamics within the classroom, the teaching approaches employed, and even the perspectives and experiences shared by the participants. It would be valuable to explore whether this gender composition reflects broader trends in Algerian education or is unique to the specific sample studied.

Examining the reasons behind this striking gender distribution could provide valuable insights into the teaching workforce, teacher recruitment, and the broader societal attitudes toward gender roles in the education sector. Investigating this data point more deeply may unveil important contextual factors that shape the makeup of the teaching population in Algerian secondary schools.

Item 2: Participants' Age

This question aims to know the age of each teacher.

Figure 3.4: The Distribution of Teachers According to Their Age



According to this data, 56.6 % of respondents are 35–44 years old, 20% are 25–34, 10% are 45–54, 6.6 % are above 55, and 6.6 % are under 25. The chart shows an intriguing response age profile. Middle-aged instructors (35–44 years old) make up 56.6% of the sample. This shows that many teachers are in their peak careers. Second, 20% of responders are 25–34-year-old instructors. This suggests that many early-career educators might contribute new ideas and enthusiasm to education. 10% of the remaining participants are 45–54 years old, while 6.6% are beyond 55. This reflects a good balance of experienced teachers and newer ones. The data also reveals that 6.6% of responders are under 25, which is unusual for secondary school instructors. This may indicate the involvement of student teachers, freshly trained educators, or alternate teaching routes in Algeria.

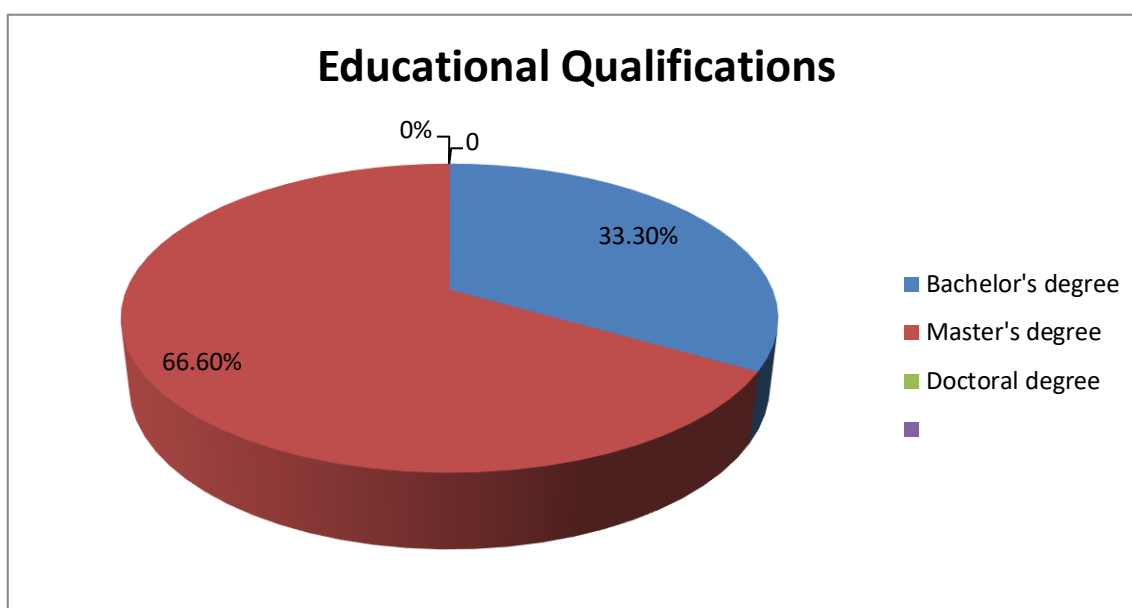
The teaching staff age-based distribution affects classroom dynamics, instructional methods, and receptivity to educational advances like ICT integration. Younger instructors may use technology, while more experienced teachers may use traditional techniques.

Understanding the participant pool's age make-up helps analyze the findings and assess the study's ramifications. Exploring how various age groups use and interpret ICTs in the classroom may give valuable information.

Item 03: What educational qualifications do you have?

The objective behind asking the above question is likely to better understand the background, knowledge, and expertise of the person or entity being asked.

Figure 3.5: The academic levels of teaching



According to the results shown in the table above, the participating teachers reported the following educational qualifications: 66.6% of respondents said they have a Master's degree, 33.3% of respondents said they have a Bachelor's degree, and none of the respondents reported having a Doctoral degree.

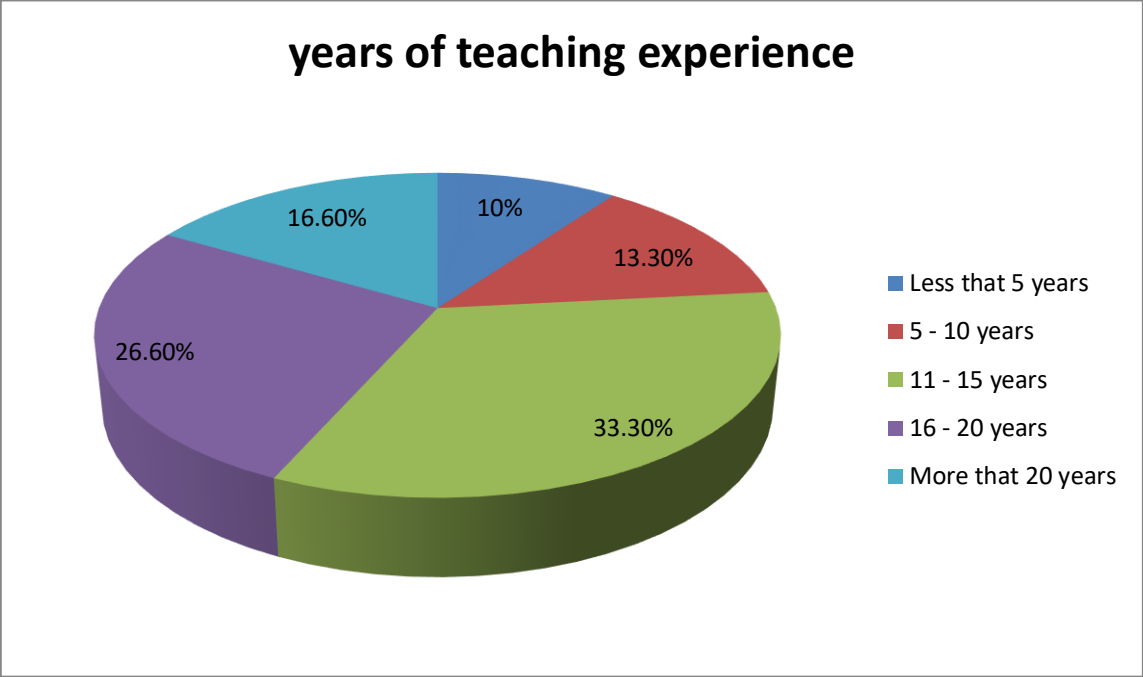
This data suggests the teaching staff leans heavily towards advanced degrees, with the majority holding Master's qualifications. However, the lack of any Doctoral degrees among the respondents may indicate a gap in highly specialized academic credentials within the teaching population. Further context about typical credential requirements, total participant size, and broader regional trends would be helpful to fully interpret the significance of this distribution of educational attainment.

Item 04: How long have you been teaching English in secondary school?

The fourth question likely seeks to assess the respondents' extent of teaching experience and expertise in the specific domain of secondary English instruction. Knowing the duration of their professional experience can provide insight into the respondents'

credibility, ability to handle challenges, familiarity with curriculum and school dynamics, and overall suitability for a particular role or responsibility. Additionally, this information may encourage the respondent to reflect on their career journey and enable the asker to draw connections between the respondent's experience and relevant issues or best practices in secondary English education, thereby fostering a more productive dialogue.

Figure 3.6: Teachers' teaching experience



As shown in the figure above, the majority of teachers (33.3%) have 11 to 15 years of experience. Furthermore, (26.6%) have 16 to 20 years of teaching experience. Moreover, (16.6%) stated that they have more than 20 years of teaching experience. Additionally, (13.3%) of them have 5 to 10 years of experience. In contrast, (10%) reported having less than 5 years of teaching experience.

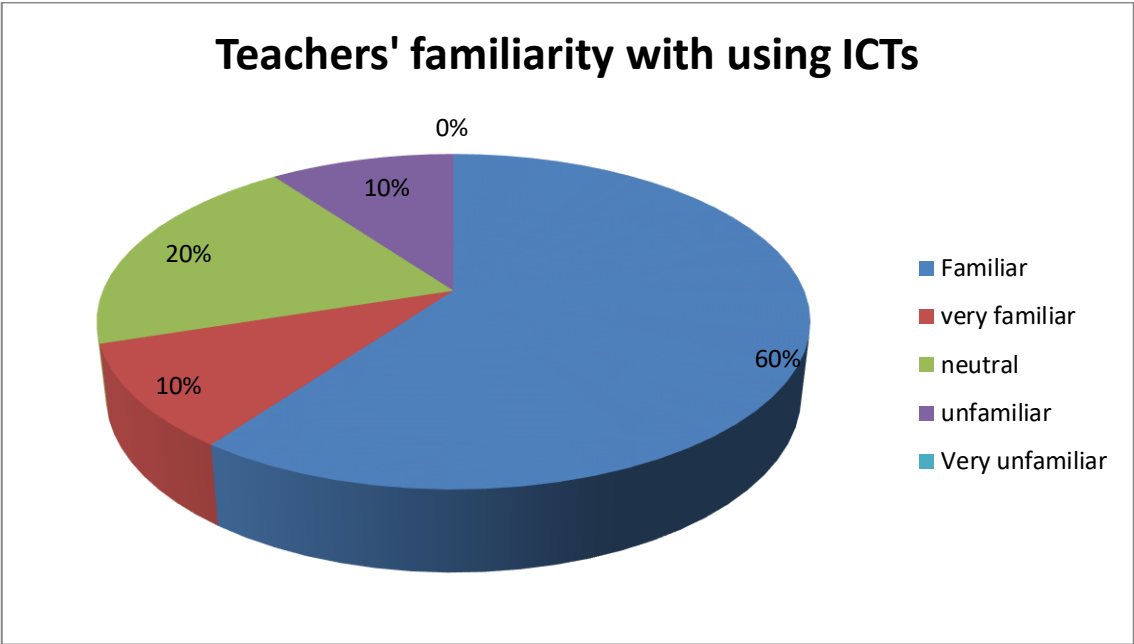
This distribution indicates a teaching force that is predominantly made-up of seasoned educators, which could imply a stable and experienced educational environment, with the potential for strong mentorship and the sharing of institutional knowledge, though the lack of newer teachers may also suggest challenges in attracting and retaining fresh talent.

Section II: Teachers' Perceptions and Attitudes Towards the Use of ICTs

Item 05: How would you rate your overall familiarity with using ICTs in classroom practices?

The purpose of asking teachers to describe their overall level of comfort and proficiency with integrating ICTs into their classroom teaching practices is multifaceted. It can serve as a means to assess the institution's progress in adopting and leveraging educational technologies, identify areas where additional training or professional development may be required, evaluate the pedagogical approaches being employed, inform decisions around resource allocation for hardware, software, and technical support, promote reflective practice among teachers, and facilitate peer-to-peer learning by highlighting opportunities for experienced, tech-savvy teachers to mentor their less confident colleagues. The responses to this question can provide valuable insights that can guide strategic planning and the effective integration of ICTs within the educational environment.

Figure 3.7: Participants' Self-reported Familiarity and Comfort Levels in Utilizing ICTs within their Classroom Instruction



The data depicted in Figure 3.5 suggests that the majority of teachers (60%) report a general familiarity with using information and communication technologies (ICTs) in their classroom practices. However, a concerning minority (10%) indicate they are unfamiliar with integrating ICTs, while a sizable portion (20%) remain neutral on the matter.

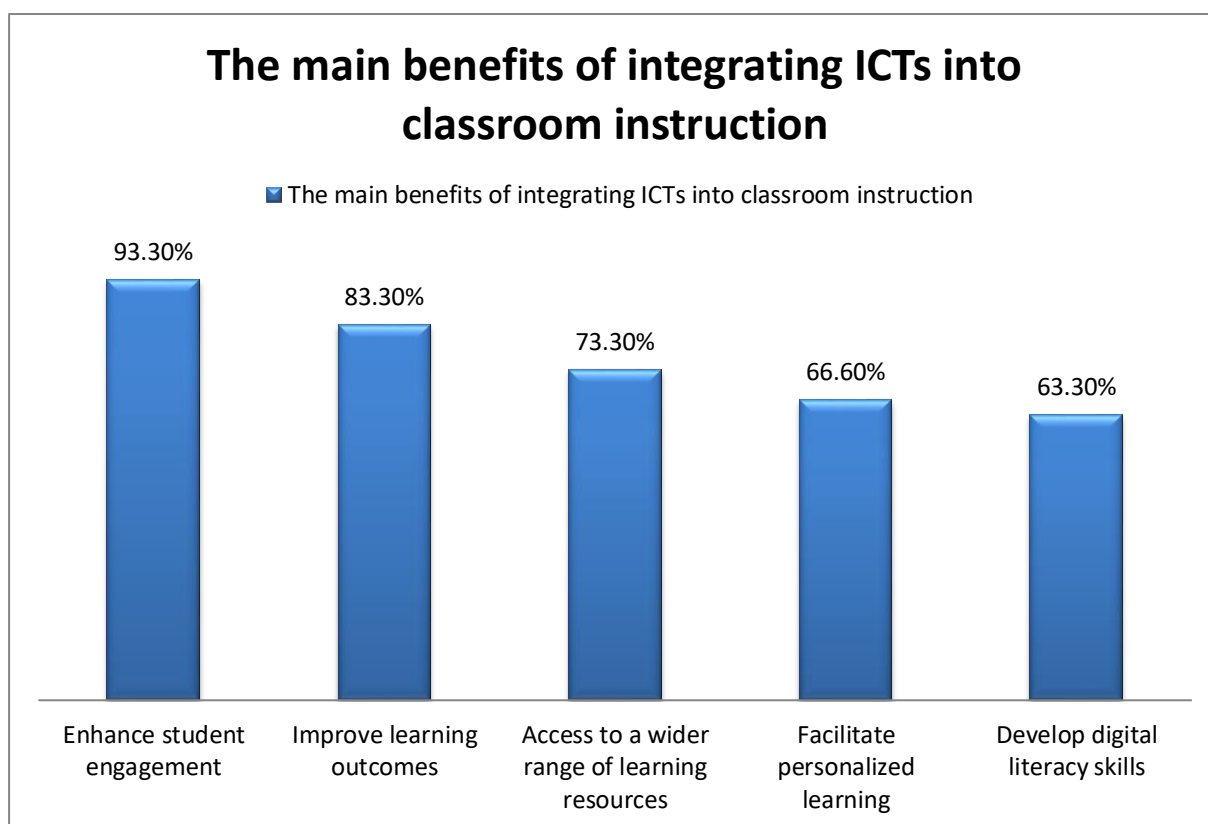
This highlights the need for targeted professional development to ensure all teachers are equipped with the necessary skills and confidence to effectively leverage educational technologies. The absence of any teachers claiming to be "very familiar" or "very unfamiliar" with ICTs usage suggests a potential opportunity to facilitate peer-to-peer learning and knowledge sharing among the teaching staff to raise the overall competence and comfort levels in this domain.

Item 06: In your opinion, what are the main benefits of integrating ICTs into classroom instruction? (Five options were given to them)

The aim behind asking teachers to share their opinions on the main benefits of integrating ICTs into classroom instruction is multifaceted. It probably serves to gauge the teachers' perceptions of the value and advantages that educational technologies can bring, which can provide insights into their overall attitudes and alignment with the institution's strategic goals for technology-enhanced learning. Additionally, this feedback can inform the planning and design of targeted professional development programs to address the teachers' specific needs and concerns, while also promoting critical reflection and the sharing of innovative practices among the teaching staff. By understanding the educators' perspectives on the key benefits of ICTs, the institution can better tailor its technology integration initiatives to foster a more receptive and collaborative environment for the effective adoption of educational technologies within the classroom.

Figure 3.8: Participants' Self-Reported Benefits of ICTs Integration within their Classroom

Instruction



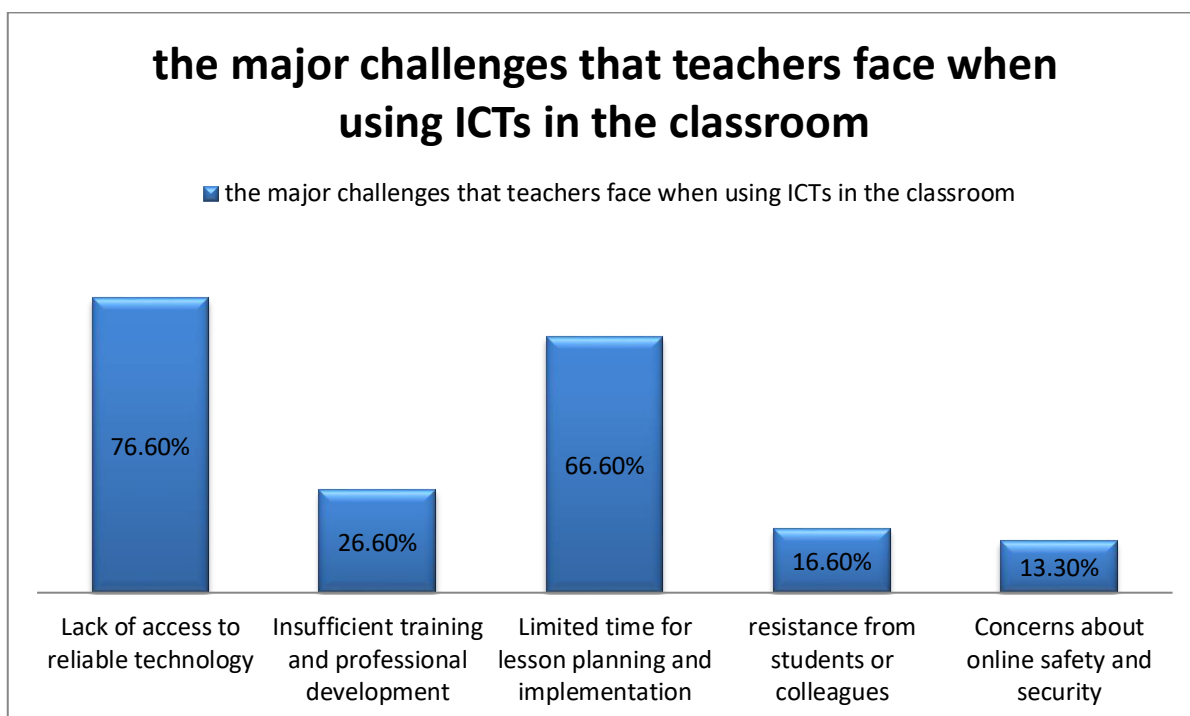
The data presented in the table indicates that the overwhelming majority of respondents (93.3%) perceive the integration of information and communication technologies (ICTs) into classroom instruction as enhancing student engagement. A similarly high proportion (83.3%) reported that the use of ICTs improves learning outcomes. Additionally, over three-quarters of participants (73.3%) claimed that the integration of ICTs provides access to a broader range of learning resources. Furthermore, two-thirds of the respondents (66.6%) stated that ICTs facilitate personalized learning approaches. Finally, a majority (63.3%) declared that incorporating ICTs into classroom instruction helps develop students' digital literacy skills. These findings suggest that the sampled teachers hold generally positive views regarding the benefits that educational technologies can bring to the teaching and learning process.

The data paints a compelling picture of the teachers' overwhelmingly positive perceptions regarding the benefits of integrating information and communication technologies (ICTs) into classroom instruction. The vast majority of respondents, over 90%, believe that ICTs enhance student engagement, while an equally high proportion reported improvements in learning outcomes. Additionally, more than three-quarters of participants recognized the value of ICTs in providing access to a wider range of learning resources. Furthermore, two-thirds of the teachers stated that educational technologies facilitate personalized learning approaches, and a majority affirmed that ICT integration develops critical digital literacy skills. Collectively, these findings indicate that the sampled educators hold strongly favorable views towards the pedagogical advantages that can be realized through the effective incorporation of technological tools and resources into their teaching practices.

Item 07: What are the major challenges or barriers you face when attempting to use ICTs in the classroom? (Five options were given to them)

The primary objective behind inquiring about the key challenges or barriers teachers face when integrating information and communication technologies (ICTs) into their classroom instruction is to identify the major impediments that are hindering the effective adoption and utilization of educational technologies. This information can then be leveraged to inform the development of targeted professional development programs, strengthen institutional support and resources, and facilitate the implementation of more contextually relevant strategies to overcome these obstacles and foster a conducive environment for the successful integration of ICTs into teaching and learning practices.

Figure 3.9: Participants' Self-reported Major challenges Faced when using ICTs in the classroom



The survey results indicate that teachers perceive significant benefits associated with integrating ICTs into classroom instruction. An overwhelming majority (93.3%) of respondents reported that the use of ICTs enhances student engagement. Similarly, a high proportion (83.3%) stated that the integration of educational technologies improves learning outcomes. Furthermore, over three-quarters of participants (73.3%) claimed that the use of ICTs provides access to a wider range of learning resources. Additionally, two-thirds of the respondents (66.6%) felt that ICTs facilitate personalized learning approaches. Finally, a majority (63.3%) declared that incorporating ICTs into the classroom helps develop students' digital literacy skills. Collectively, these findings suggest that the sampled teachers hold highly positive perceptions regarding the pedagogical advantages of educational technology integration.

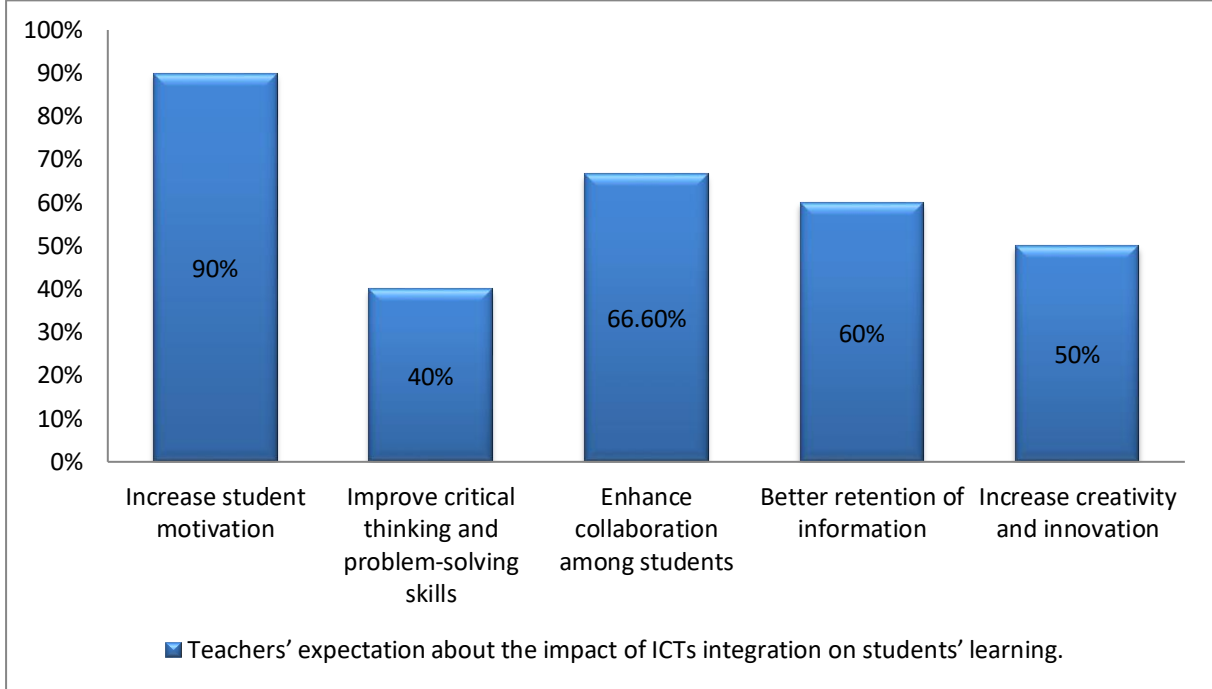
The gleaned data above reflect a remarkably positive outlook among teachers regarding the benefits of integrating ICTs into classroom instruction. The overwhelming

majority of respondents, ranging from two-thirds to over 90%, identified a diverse array of advantages facilitated by educational technologies. These include enhanced learners’ engagement, improved learning outcomes, greater access to learning resources, personalized learning approaches, and the development of critical digital literacy skills. The consistency and strength of these positive perceptions across multiple dimensions underscore the significant value that teachers ascribe to the effective incorporation of ICTs within their teaching practices. These findings suggest a receptive environment and a strong impetus for further investment and support to enable teachers to fully leverage the pedagogical potential of educational technologies in the classroom.

Section III: Expectations and Suggestions on ICTs Integration

Item 08: How do you expect the integration of ICTs to impact learners' learning experiences and outcomes?(Five options were given to them)

Figure 3.10: Participants’ Self-reported Expectations about the impact of ICTs Integration on Learners’ learning.



The statistical data above indicate that teachers overwhelmingly expect the integration of ICTs in their classrooms to have a positive impact on various aspects of student learning. An overwhelming majority (90%) of respondents reported that the incorporation of ICTs increases student motivation and engagement. Similarly, a significant proportion (66.6%) stated that the use of educational technologies enhances collaboration among students. Moreover, 60% of the teachers believe that the integration of ICTs leads to better retention of information by their students. Additionally, half of the participants (50%) claimed that the use of ICTs in the classroom promotes creativity and innovation among learners. However, a smaller yet notable subset (20%) of the teachers expressed expectations that ICT integration would also improve students' critical thinking and problem-solving skills.

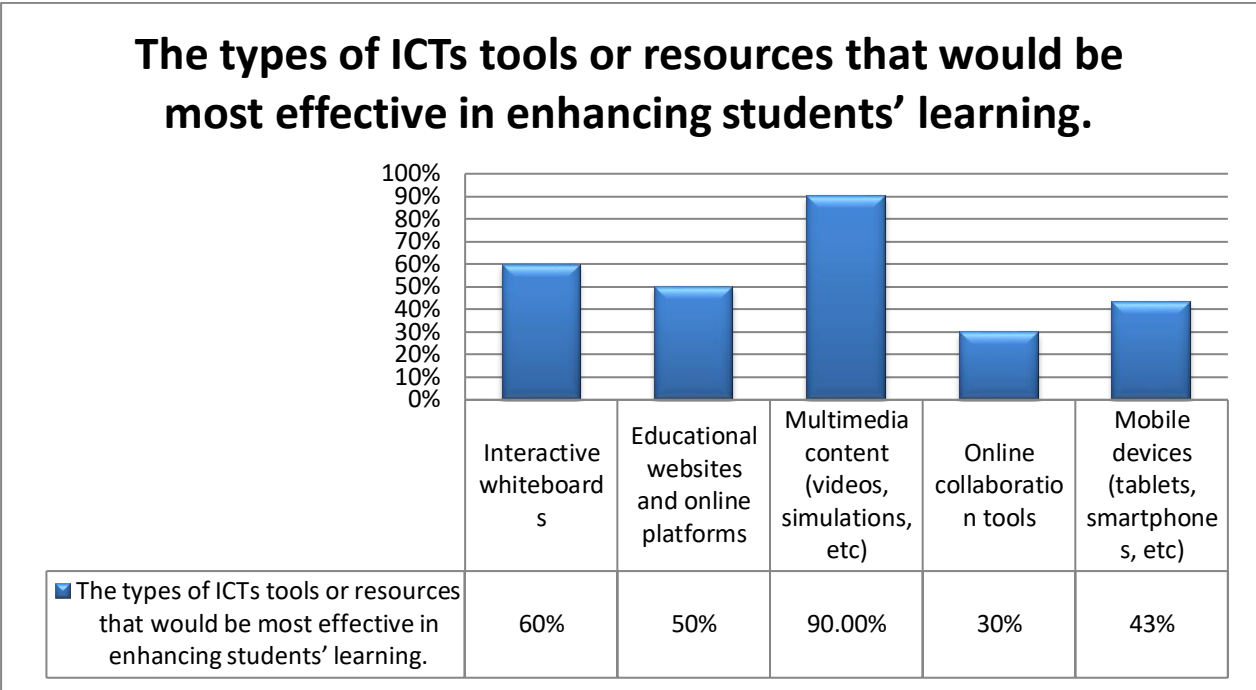
The statistical data portray a persuasive picture of teachers' overbearing positive expectations regarding the integration of ICTs in the classroom. The survey responses indicate that teachers foresee ICTs having a transformative impact on a range of crucial learning outcomes, from enhancing student motivation and collaboration to improving knowledge retention and nurturing creativity. While the majority of teachers focus on more immediate benefits like engagement and participation, a notable subset also recognize the potential of ICTs to develop higher-order skills like critical thinking and problem-solving. This balance of expectations, spanning both affective and cognitive dimensions of learning, underscores the multifaceted ways in which teachers envision educational technologies shaping the learning experiences and outcomes of their students.

Item 09: What Types of ICT tools or resources do you think would be most effective in enhancing learners' learning?(Five options were given to them)

The core purpose of this question is to identify the most effective use of ICT tools and resources for enhancing the quality, engagement, and effectiveness of the learning

process itself. The goal is to leverage technology to meaningfully improve learners' outcomes.

Figure 3.11: Participants' Self-reported Impactful ICT Tools and Resources for Enhancing Learners' Learning



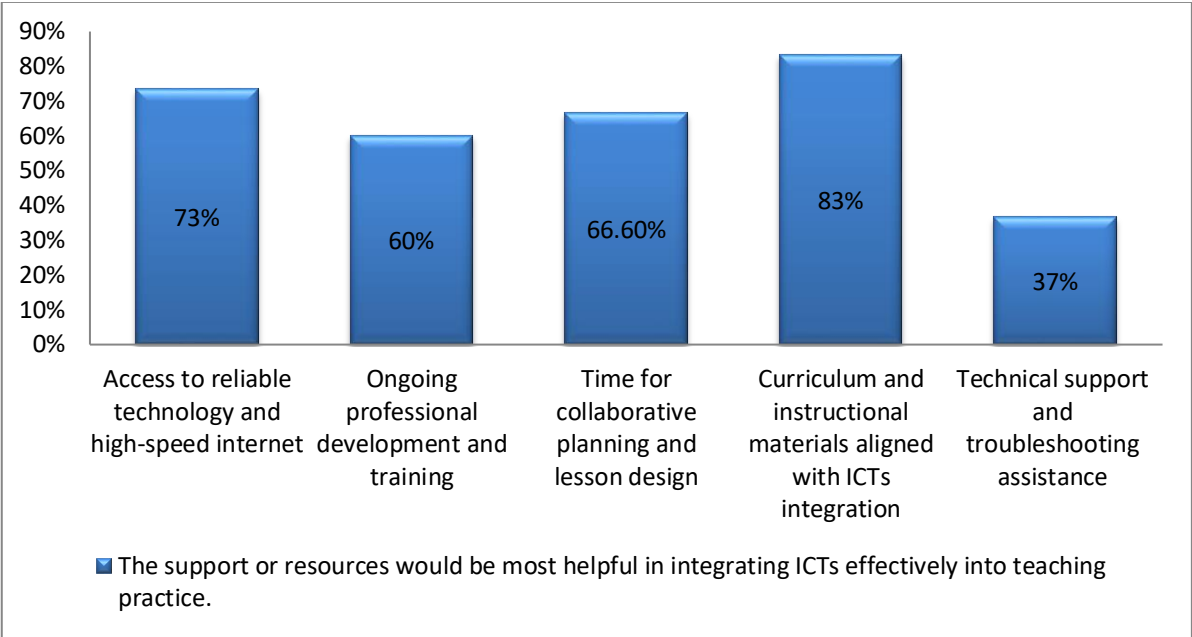
The findings abovementioned indicate that interactive multimedia content, such as educational videos and simulations, is considered the most impactful ICT resource for enhancing student learning, with 90% of participants endorsing its effectiveness. Interactive whiteboards also emerged as a highly favored tool, cited by 60% of respondents as a top choice for improving the learning process. Educational websites and online platforms were selected by 50% of teachers as among the most effective digital resources. Additionally, 43% of participants viewed mobile devices like smartphones and tablets as valuable tools for enhancing learning, while 30% highlighted the benefits of online collaboration platforms. Collectively, these results suggest that a blend of visually engaging multimedia, interactive

classroom technologies, and accessible digital content and tools may represent the most effective ICT-enabled strategies for supporting and enriching student learning.

Item10: In your opinion, what support or resources would be most helpful in integrating ICTs effectively into your teaching practice?(Five options were given to them)

This question intends to understand the specific challenges teachers face when integrating educational technologies, assess current integration efforts, and inform professional development to better support teachers in leveraging ICTs effectively in their instruction. The goal is to gather insights that can help optimize the seamless integration of information and communication technologies into teaching and learning.

Figure 3.12: Participants’ Self-reported Most Helpful ICTs to Integrate into Teaching Practices



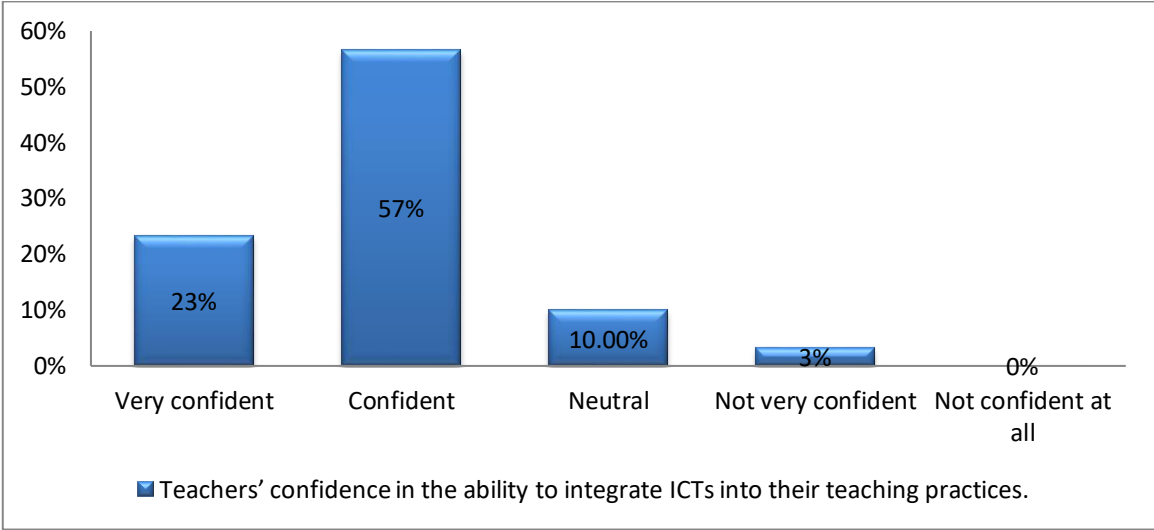
The statistical findings above reveal that the majority of the targeted secondary school teachers identified several key resources and support mechanisms as being most helpful for effectively integrating ICTs into their teaching practice. Notably, 83% of respondents selected curriculum and instructional materials aligned with ICT integration as the most impactful

resource. Additionally, 73% stated that access to reliable technology and high-speed internet was the most beneficial form of support. Furthermore, 66.6% of teachers declared that time for collaborative planning and lesson design was considered effective support for using ICTs. Moreover, 60% of respondents claimed that ongoing professional development and training represented the best support for ICT integration. However, only 37% of teachers, or 11 individuals, chose technical support and troubleshooting assistance as the most helpful support.

Item 11: To what extent do you feel confident in your capacity to successfully incorporate ICT into your teaching practice?

The key objectives behind question item 11 are to gauge teachers' confidence in integrating ICT into their practice. The primary aims are to assess the teachers' self-efficacy and identify any skill or knowledge gaps, in order to inform the design of targeted professional development programs. Ultimately, the question seeks to uncover factors that enable or hinder the successful adoption and meaningful integration of educational technologies within teaching and learning.

Figure 3.13: Participants' Self-Reported Confidence in Effectively Incorporating ICTs into their Instructional Practices



The data presented in Figure 3.11 reveals that the majority of participants, amounting to 57%, report feeling confident in their ability to integrate ICTs into their instructional practices. Furthermore, an additional 23% of them indicated that they are very confident in effectively incorporating educational technologies within their teaching. Moreover, 10% expressed a neutral stance on the matter. Additionally, only 3% of teachers conveyed that they are not very confident in ICT integration. Notably, the data shows that none of the participants expressed a complete lack of confidence in their capacity to integrate ICTs into their teaching.

The data reveals an encouraging overall trend, with 80% of teachers reporting confidence or high confidence in integrating ICTs into their instructional practices. However, the 13% expressing neutrality or low confidence suggest opportunities for targeted professional development to build capacity and address any skill gaps, while the absence of teachers completely lacking confidence points to a general openness to educational technology integration.

Section IV: Additional Comments

Item 12: Can you share any additional insights you have regarding the usage of ICTs to impact and enhance learners' learning?

This question aims to elucidate some additional insights that teachers have concerning the usage of ICTs to impact and enhance the learners' learning. Differently couched, the aim is to collect some practical experiences in integrating ICT tools in EFL classrooms. Overall, the majority of respondents stated that the use of ICTs in education holds great potential to transform and enhance the learners' learning experiences by providing them with access to a wealth of resources, encouraging interactive and collaborative learning, and supporting personalized and innovative teaching methods.

3.1.2. Extracting Actionable Insights from Observational Analysis

In the terms of classroom observation, three teachers took the stood in four classrooms observation sessions from different high schools to observe how ICTs formative strategies are implemented during the lesson. A grid was taken as a guide line to assess the context, identifying resources, assessing the integration of ICTs, observing the learners engagement and participation, evaluating the impacts on learners, analyse the strategies, considering the accessibility and equity, the reflect on learners creativity, analysing data and providing some recommendations for improving the learners ‘learning process.

3.1.3. Insightful Observation Reports to Inform Evidence-Based Stakeholders

First observation:

T1 began the lesson with a 4-5 minute icebreaker activity to help students engage with the new material and create a focused, prepared atmosphere for the lesson. Then, T1 utilized a data projector, which is considered an important instructional technology tool. T1 started the presentation by displaying relevant images and illustrations related to the main topic, and posed some open-ended questions. This encouraged students to connect the new information to their prior knowledge, such as recalling relevant names, places, and phenomena. The lesson was structured and organized according to T1's lesson plan.

In the second part of the lesson, T1 played a video that contained a dialogue relevant to the main topic of the lesson. The students were focused and attentive as they watched the video, and many of them took notes in order to be able to answer the teacher's subsequent questions. This demonstrated a high level of class control, as well as strong student concentration and interaction with the teacher.

Comments:

The classroom observation provides a positive overview of T1's lesson. A few key strengths are evident:

T1 began the lesson effectively by using an icebreaker activity to engage students and set the stage for the new material. This helps create a focused and prepared atmosphere.

The use of the data projector and visuals (images, illustrations) related to the topic is an appropriate and effective instructional strategy. Posing open-ended questions further encourages students to actively connect the new information to their prior knowledge.

The lesson appears to be well-structured and organized according to a lesson plan, which is important for ensuring coherence and flow.

In the second part, the video with a relevant dialogue helped maintain student focus and engagement. The fact that many students took notes to be able to answer the teacher's questions demonstrates high levels of concentration and interaction.

In a nutshell, T1 seems to have implemented a variety of effective teaching strategies to facilitate student learning and engagement throughout the lesson. The observation indicates a well-planned and executed lesson.

Second Classroom Observation

T2 began the lesson with an open class discussion about the main subject, aiming to activate students' background knowledge and share it with their classmates. This provided a strong starting point for the lesson.

T2 then used a data projector and speakers to present a set of photographs related to the lesson topic. The learners paid close attention as the photos were displayed, and they became

actively engaged when T2 played a video about the relevant phenomenon.

After the video, T2 gave the students an activity that required them to suggest solutions to the issues presented. The learners demonstrated a high level of creativity in the options they proposed, showcasing their engagement and understanding of the topic.

In the second part of the lesson, the class moved to the computer lab, where the students used the internet to research the dangers and potential ways to avoid the maximum damage related to the phenomenon. This hands-on, technology-enhanced activity allowed learners to further explore the topic and potentially influence others about the issues discussed.

Comments

The reformulated classroom observation describes an effective and well-structured lesson by T2. Here is a brief account of the key strengths:

The lesson began with an open class discussion, which is a strong instructional strategy for activating students' prior knowledge and engaging them in the topic from the outset. This set a solid foundation for the rest of the lesson.

The use of visuals (photographs) and multimedia (video) helped capture students' attention and enhanced their engagement with the lesson content. The fact that the learners became actively involved during these activities suggests they were interested and invested in the material.

The subsequent solution-focused activity further demonstrated the students' understanding and creativity. Their ability to generate a range of potential solutions indicates a deep level of engagement and learning.

Transitioning to the computer lab for internet research allowed the students to explore the topic more independently and potentially influence others. This hands-on, technology-enhanced approach likely deepened their learning experience.

All in all, the lesson appears to have been well-designed and implemented, incorporating a variety of effective instructional strategies to foster student participation, understanding, and critical thinking.

Third Classroom Observation

T3 started her lesson by recapitulating the previous lessons in order to start a new unit with a warm-up activity for 6 min to involve all students in the atmosphere of gaining knowledge where the majority participated.

The second part was built for conceptualizing the elements of the new unit where she clarified the general image to make the learners motivated for the upcoming parts

The third part was devoted to an open ended question where the learners were meant to see a certain video and listen to specific audios where they can write a paragraph in workshops made of 3 participants in each group.

The last part contains the presentations of the work where they are committed to reading for their friends and use all equipment they need to transmit the information to their class mates properly.

Comments

The lesson began with a recapitulation of previous content, which served as an effective warm-up to transition into the new unit. T3 then led a 6-minute activity to actively involve all students and set the stage for gaining new knowledge.

In the second part of the lesson, T3 focused on conceptualizing the key elements of the new unit. She worked to clarify the general overview and concepts, which helped motivate the learners for the upcoming activities.

The third part was structured around an open-ended task. Students watched a video and listened to audios, then worked in small groups of 3 to collaboratively write a paragraph. This workshop-style activity encouraged active learning and engagement with the new material.

Finally, the lesson culminated in student presentations. Learners read their group work aloud to the class and utilized various equipment and technologies to effectively communicate the information to their peers. This provided an opportunity for synthesis and shared learning.

Overall, T3 employed a well-rounded lesson structure that included review, introduction of new content, collaborative work, and culminating presentations. The variety of activities and instructional strategies likely helped foster student motivation, participation, and deeper understanding of the unit's concepts.

The first observation of T1's lesson demonstrates several positive elements. T1 effectively used an icebreaker activity to engage students and set the stage for the new content. The integration of visuals, such as images and illustrations, via the data projector was an appropriate instructional strategy to support student learning. Additionally, T1's use of open-ended questioning encouraged students to actively connect the new information to their prior knowledge.

The observation also indicates that the lesson was well-structured and organized, which is important for ensuring coherence and flow. The use of a relevant video with dialogue helped maintain student focus and engagement, as evidenced by the students taking notes to answer the teacher's follow-up questions. Overall, T1 seems to have implemented a variety of

effective teaching strategies to facilitate student learning and engagement throughout the lesson.

The reformulated observation of T2's lesson highlights several key strengths. The lesson began with an open class discussion, which is a strong instructional strategy for activating students' prior knowledge and engaging them in the topic from the outset. This provided a solid foundation for the rest of the lesson.

The integration of visuals (photographs) and multimedia (video) effectively captured students' attention and enhanced their engagement with the lesson content. The observation indicates that the learners became actively involved during these activities, suggesting a high level of interest and investment in the material.

The subsequent solution-focused activity further demonstrated the students' understanding and creativity, as they were able to generate a range of potential solutions, indicating a deep level of engagement and learning. The transition to the computer lab for independent internet research allowed students to explore the topic more deeply and potentially influence others, which likely deepened their learning experience.

Overall, the lesson appears to have been well-designed and implemented, incorporating a variety of effective instructional strategies to foster student participation, understanding, and critical thinking.

The observation of T3's lesson shows a well-rounded and structured approach. The lesson began with a recapitulation of previous content, serving as an effective warm-up to transition into the new unit. T3 then led a focused activity to actively involve all students and set the stage for gaining new knowledge.

In the second part of the lesson, T3 worked to conceptualize the key elements of the new unit, clarifying the general overview and concepts to motivate the learners for the upcoming activities. The third part was structured around an open-ended task, where students watched a video, listened to audios, and collaborated in small groups to write a paragraph. This workshop-style activity encouraged active learning and engagement with the new material.

The lesson culminated in student presentations, where learners read their group work aloud to the class and utilized various equipment and technologies to effectively communicate the information to their peers. This provided an opportunity for synthesis and shared learning.

Overall, T3 employed a well-rounded lesson structure that included review, introduction of new content, collaborative work, and culminating presentations. The variety of activities and instructional strategies likely helped foster student motivation, participation, and deeper understanding of the unit's concepts.

To conclude, the three classroom observations demonstrate the implementation of effective teaching strategies and well-designed lesson plans by the respective teachers. Each lesson incorporates a range of instructional approaches, such as activating prior knowledge, using visuals and multimedia, encouraging collaborative learning, and providing opportunities for independent research and presentation. These elements contribute to creating an engaging and meaningful learning experience for the students.

3.2. A Holistic Discussion Blending Teacher Questionnaire and Classroom Observation

Findings

The study's findings indicate that technology-based teaching and learning is more effective compared to traditional classroom methods. This is because the use of ICTs tools that create a more engaging and effective learning environment for teachers and learners. These results support Macho's (2005) research, which found that incorporating ICTs in

education improves learners' learning.

On the other hand, many teachers in the study believe that ICTs contribute to better classroom management by promoting learners' discipline and focus. Additionally, the study demonstrates that the learners learn more efficiently with ICTs due to the engaging and interesting lesson designs. As a result, the participants agreed that the integration of ICTs can enhance learners' learning.

Teachers are optimistic about the potential of the ICTs for education, but they lack sufficient understanding and experience in applying it effectively. They have not yet incorporated the internet into their teaching and learning practices, and they have little knowledge about the technical aspects of ICTs and network technology. ICTs enable learners to gain confidence in their communication and expression skills, which in turn enhance their creativity and imagination as they broaden their knowledge.

Moreover, ICTs equip learners with all four skills in learning by providing them with the information and knowledge they need.

This study touched different areas, as it is noticeable at the observation, the learners and the teachers reached a high level than before while using ICTs in different terms as engagement, concentration, performance and even smoothness of the session where it is clear that most of the teachers are females by 93.34% from various ages and educational qualifications that shows the amount of experience they have about the domain, the results of the questionnaire about their habituation on using ICTs is very high by 70% whom are familiar with ICTs in their work arguing that it is very useful reaching higher percentages in different aims as students engagement, learning outcomes, range of learning sources, personalised learning and digital literacy skills. However, many teachers pointed some obstacles that repeatedly keep showing as the lack of reliable technology, insufficient training

and professional development, limited time for planning and implementation, resistance from learners and colleagues and the online safety and security. Moreover, the expectations of the teachers about the integration is positive due to the results that proved the credibility of the ICTs impact in the educational environment specifically some important tools as interactive whiteboards, online platforms and educational websites, multimedia content and mobile devices and that would be highly beneficial with specific availability of the access to reliable technology, ongoing professional training, collaboration and competitive team working , new curriculum with ICTs standards and technical support and troubleshooting assistance, that can be a huge addition to the positive side of integrating the ICTs in the educational environment where it is the request of most of the teachers nowadays.

As it was planned before, the findings of the research match the hypotheses to a high extent confirming the validity of the study.

Conclusion

This chapter endeavored to analyze and explain the study's results in light of the research questions. The results of the questionnaire and classroom observation data showed that there are number of obstacles that Secondary school teachers in Algeria must overcome in order to successfully integrate ICTs tools into their lesson plans. These obstacles include a lack of training, a shortage of technology, and big class sizes. The experiences, suggestions, and viewpoints of the instructors also emphasize the significance of intentional ICTs use, tool selection, teacher preparation, and institutional support. The teachers' replies yielded a wealth of diverse views that together provide a comprehensive picture of the most effective ways to integrate ICTs in Secondary schools in Algeria.

3.3. Limitation sand Constraints of the Study

This study encountered several limitations which made it difficult to generalize its findings. The limitations that apply to this study can be summarized as follows:

- The ICTs are not applied in most of the high schools which created a strong obstacle for the findings.
- High number of rejections by the teachers who didn't want to try the ICTs in their lessons for unknown reasons.
- The teachers who use ICTs are not well formed about the new technologies and they avoid it mostly.
- Some of the teachers find using ICTs is just slowing the process of the yearly curriculum.
- Many teachers refused to answer the questionnaires about ICTs in their educational zone.

3.4. Recommendations

It might be widely spread that ICTs integration in the educational environment still facing strong struggles, it is beneficial if the next studies would be based on the problems teachers and students are dealing with, for example:

- There should be professional formative assessment for the teachers about the new ICTs technologies.
- Equipping all the educational areas by the most ICTs practical tools that serve the students and the teachers.
- Pushing the public schools to adopt new teaching methods including ICTs as the private ones.
- Accelerating the spread for better results as soon as possible

General Conclusion

General Conclusion

The education sector's views on the best ways to conduct teaching and learning have changed as a result of the broad adoption of information and communication technologies, or ICTs. As this generation grows more and more accustomed to technology, we can also observe an increasing interest in the application of information and communication technologies (ICTs) in the field of education. Notwithstanding the challenges, the advantages of this kind of equipment offer crucial support in the classroom.

In order to identify the difficulties that Algerian Secondary school teachers encounter when integrating ICTs into their classrooms and to determine the most effective ways to integrate ICTs into the Algerian educational system, this research aims to experiment the impact of ICTs use on the learners' learning enhancement.

There are three chapters in this work: The literature review, which is a theoretical exposition of the key concepts surrounding ICTs and their use in the field of education, takes up one chapter. The research design and methodology are covered in the second chapter, and the practical part of the work which includes a description of the data collected via questionnaires and classroom observations is covered in the third chapter. This study used a mixed method design to conduct a descriptive analysis. We collected both qualitative and quantitative data through classroom observations with three teachers at separate Secondary schools in Tissemsilt and a questionnaire given to thirty EFL teachers from various Algerian Secondary schools.

According to the data gathered from the questionnaire, EFL teachers in Secondary schools in Algeria are confronted with a number of obstacles when it comes to implementing ICTs. These obstacles include a lack of ICTs equipment in their schools, internet connectivity

issues, crowded classrooms that make it difficult to use ICTs in the classroom, and a lack of skills and training on how to use ICTs tools.

Additionally, the results show that teachers understand the benefits of integrating ICTs into their lesson plans, even in the face of obstacles. It is their belief that effective ICTs integration in Algerian Secondary schools can be achieved through the use of practices like student setup, peer collaboration, teacher training, curriculum alignment, and above all systematic improvements, which include allocating a specific budget for technical support to Secondary schools in Algeria.

To sum up, this study offers viewpoints on how ICTs can enhance the learning process, evidence of the primary obstacles that can appear when ICTs are integrated into Algerian education, and best practices for ICTs integration into Secondary schools in Algeria.

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Appendices

Appendices

Appendix A

Teachers' Questionnaire

Dear teachers, this questionnaire aims to find out about teachers' perception and expectation of ICTs use to impact and enhance the learners' learning and aims to gather information to carry out this research.

Section 1: Demographics

1. Gender:

Male

Female

2. Age:

Under 25 years 25-34 years 35-44 years 45-54 years 55 years or older

3. Educational Qualifications:

Bachelor's degree

Master's degree

Doctoral degree

Other (please specify)

4. Years of Teaching Experience:

Less than 5 years 5-10 years 11-15 years 16-20 years More than 20years

Section 2: Perception of ICT Use

5. How would you rate your overall familiarity with using information and communication technology (ICT) in the classroom?

Very Familiar Familiar Neutral Unfamiliar Very Unfamiliar

6. In your opinion, what are the main benefits of integrating ICT into classroom instruction?
(Select all that apply)

Enhances students engagement	
Improves learning outcomes	
Access to a wider range of learning resources	
Facilitates personalized learning	
Develops digital literacy skills	
Other (please specify)	

7. What are the major challenges or barriers you face when using ICT in the classroom?
(Select all that apply)

Lack of access to reliable technology	
Insufficient training and professional development	
Limited time for lesson planning and implementation	
Resistance from students or colleagues	
Concerns about online safety and security	
Other (please specify)	

Section 3: Expectations of ICT Use

8. How do you expect ICT integration to impact student learning? (Select all that apply)

Increases student motivation	
Improves critical thinking and problem-solving skills	
Enhances collaboration among students	
Better retention of information	
Increased creativity and innovation	
Other (please specify)	

9. What types of ICT tools or resources do you believe would be most effective in enhancing student learning? (Select all that apply)

Interactive whiteboards	
Educational websites and online platforms	
Multimedia content (videos, simulations, etc.)	
Online collaboration tools	
Mobile devices (tablets, smartphones, etc.)	
Other (please specify)	

10. In your opinion, what support or resources would be most helpful in integrating ICT effectively into your teaching practice? (Select all that apply)

Access to reliable technology and high-speed internet	
Ongoing professional development and training	
Time for collaborative planning and lesson design	
Curriculum and instructional materials aligned with ICT integration	
Technical support and troubleshooting assistance	
Other (please specify)	

11. How confident are you in your ability to effectively integrate ICT into your teaching practice?

Very confident Confident Neutral Not very confident

Not confident at all

Appendix B

Classroom Observation Sheet: ICTs and Impact on Foreign Language Learning (English)

Observer: [Name] _____

Date: [Date] _____

Class: [Grade/Level] _____

Duration of Observation: [Duration] _____

1. General Information:

- Teacher's Name: _____
- Lesson Topic: _____
- ICTs Used: [Specify the ICT tools, software, or devices being utilized]

2. Pre-Observation:

- Lesson Objective(s): _____
- How will ICTs be integrated into the lesson? _____
- Students' Prior Knowledge and Experience with ICTs: _____

3. Classroom Environment:

- Organization and Arrangement of Technological Resources: _____
- Accessibility and Functionality of ICT Tools: _____
- Students' Engagement and Participation: _____

4. Instructional Strategies:

- Introduction and Explanation of ICT Tools: _____
- Demonstration of ICT Usage: _____
- Opportunities for Interactive Learning and Collaboration: _____
- Differentiation of Instruction: _____

5. ICT Engagement and Utilization:

- Students' Comfort and Confidence with ICTs: _____
- Frequency and Quality of ICT Usage: _____
- Effectiveness of ICTs in Enhancing Language Learning: _____
- Integration of Speaking, Listening, Reading, and Writing Skills: _____

6. Students' Learning and Progress:

- Language Acquisition and Retention: _____
- Level of Students' Engagement and Motivation: _____
- Students' Collaboration and Communication: _____
- Individual Progress and Performance: _____

7. Challenges and Considerations:

- Technical Issues or Limitations: _____
- Language Barriers in ICT Usage: _____
- Individual Student Needs and Support: _____
- Classroom Management and Time Management: _____

8. Reflection and Feedback:

- Teacher's Reflections on ICT Integration: _____
- Students' Feedback on ICT Usage: _____
- Adjustments and Improvements for Future Lessons: _____

9. Overall Observations:

- Strengths and Successes: _____
- Areas for Improvement: _____
- Recommendations for Further ICT Integration:

تبحث هذه الدراسة في استخدام تكنولوجيا المعلومات والاتصالات في مدارس التعليم الثانوي الجزائرية وأثرها على التعلم. وتهدف إلى استقصاء التحديات والممارسات الفضلى لاستخدام هذه التكنولوجيا بفعالية لتحسين عملية التعلم. وقد استخدمت الدراسة منهجًا وصفيًا وجمعت البيانات من خلال استبيان وملاحظة صفية. وتكشف النتائج عن التحديات الرئيسية والممارسات الناجحة لإدماج تكنولوجيا المعلومات والاتصالات في التعليم الثانوي. وتقدم الدراسة اقتراحات وتوصيات لتيسير التنفيذ الناجح لهذه التكنولوجيا بهدف تحسين التعلم.

Summary

The study examines the use of information and communication technologies (ICT) in Algerian secondary schools and their impact on learning. It aims to explore the main challenges and best practices for using these technologies effectively to improve the learning process. The study used a descriptive approach and collected data through a questionnaire and classroom observations. The results reveal the main challenges and successful practices for integrating ICT into secondary education. The study also provides suggestions and recommendations to facilitate the successful implementation of these technologies with the aim of improving learning.

Résumé

Cette étude examine l'utilisation des technologies de l'information et de la communication (TIC) dans les écoles secondaires algériennes et leur impact sur l'apprentissage. Elle vise à explorer les principaux défis et les meilleures pratiques pour utiliser ces technologies de manière efficace afin d'améliorer le processus d'apprentissage. L'étude a utilisé une approche descriptive et a collecté des données à travers un questionnaire et des observations en classe. Les résultats révèlent les principaux défis et les pratiques réussies pour intégrer les TIC dans l'enseignement secondaire. L'étude fournit également des suggestions et des recommandations pour faciliter une mise en œuvre réussie de ces technologies dans le but d'améliorer l'apprentissage.