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**Faculty of Letters, Foreign Languages and Social Sciences**

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**The Use of Information and Communication Technology to Develop the  
Teaching Process: Case of Master Two Students at  
The University of AinTemouchent**

*An Extended Essay Submitted as Partial Fulfillment for the Requirements of a  
Master's Degree in Didactics and Applied language*

**Submitted by:**

Ms. Meriem KAMBOUCHE

Ms. Maissa ZANE

**Supervised by:**

Dr. Amaria FEHAIMA

**Board of Examiners,**

**President: Dr. Fatima Zohra ELOUALI** MCB University of AinTemouchent

**Supervisor: Dr. Amaria FEHAIMA** MCA University of AinTemouchent

**Examiner: Dr. Chahrazed HAMZAOUI** MCA University of AinTemouchent

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## ***Dedications***

*I dedicate this work to my family*

*You've been my guiding light through the highs and lows. This memoir is as much yours as it is mine. Thank you for always standing by me.*

*All members of my family, "my parents" you are a source of strength, support, and motivation. My sisters: "Fatima, Hasna, Ikram, Wissem"*

*My two nephews: "Anes, Ziyed "*

*Also my lovely partner "Meriem" we both worked hard.*

**ZANE MAISSA**

## ***Dedications***

*In the name of Allah, the Most Compassionate, the Most Merciful.*

*I dedicate this research work*

*To my father the guiding light of my existence, the most exceptional mother who supported me at every step.*

*To my dear brothers “AMINE” “AHMED” and my sister “FATIMA”*

*A small dedication to my little nephew*

*“DJIHED”*

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**KAMBOUCHE MERIEM**

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## **Abstract**

Information and communication technology has become engaged in almost all aspects of human life, and education is one of them. These days, educators may improve the teaching and learning processes by utilizing a variety of ICT tools, including computers, projectors, and the internet. The purpose of this study is to look into how ICT can be used to teach English. Two questionnaires have been given to teachers and students in an effort to gather information and resolve any doubts at the University of AinTemouchent. The sample includes second year master learners and their teachers. The information gathered demonstrates that teachers and students have favorable opinions about employing ICT. Students and teachers find that the use of ICT in English language instruction helps to improve learning skills and teaching competences. Respectively, leading to an enhancement of the EFL teaching and learning process.

## **List of Abbreviations and Abbreviates**

**AI:** Artificial Intelligence.

**AR:** Augmented Reality.

**EFL:** English as a Foreign Language.

**EFLT:** English Foreign Language Teaching.

**ELT:** English Language Teaching

**ICT:** Information and Communication Technology.

**IOT:** Internet of Things.

**M2M:** Machine to Machine.

**NLP:** Natural Language Processing.

**PDD:** Personal Digital Devices.

**VR:** Virtual Reality.

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# **Chapter One: Introductory**

## **Chapter**

- 1.1. Introduction.
- 1.2. Research Questions and Hypotheses.
- 1.3. Statement of the Problem.
- 1.4. Aims of the Study.
- 1.5. Previous Studies.
- 1.6. Definitions of Key Concepts.
- 1.7. Structure of the Work.

**1.1. Introduction**

The integration of Information and Communication Technologies (ICT) in education has transformed the teaching and learning process, shifting from a traditional teacher-centered approach to a more learner-centered one. This integration has led to a more engaging and interactive learning environment, with students actively involved in achieving learning objectives. ICT has also facilitated differentiated instruction, catering to the diverse learning styles of students.

In the context of English Foreign Language Teaching (EFLT), ICT has been shown to enhance both the teacher's and learner's performance, allowing for the rapid delivery of high-quality educational content. The use of ICT during English language lessons has been found to provide authentic language learning resources, create cooperative and collaborative environments, and offer opportunities for effective teaching and learning.

While the integration of ICT in education presents challenges, such as the need for strategic planning and teacher training, its benefits in improving student learning and preparing students for the 21st century make it a vital investment.

**1.2. Research Questions and Hypotheses**

Creating questions and hypotheses is usually how researchers begin a study project. Any study needs questions and hypotheses to ensure that the research is focused, pertinent, and useful. They also serve as a guide for the research process. In research, questions can ensure that the data collected is relevant and meaningful while also guiding the design of the study. The research questions that led to this project are as follows:

1. What is the level of ICT use in educational institutions? And how does it impact the system of education?

2. To what extent do students feel that information and communication technology are being used in the classroom?
3. What obstacles or issues do educators face when integrating ICT into English language instruction?

Based on the main research questions here are the combined hypotheses for each question, presenting both supporting and opposing perspectives:

1. Proponents argue that ICT use in higher educational institutions enhances educational outcomes, including better academic performance, increased engagement, improved digital literacy, and reduced educational inequities. Others contend that these benefits are overstated, citing challenges like unequal access, potential distractions, and the need for significant investment in infrastructure and teacher training.
2. Many students perceive that ICT is being effectively utilized in the classroom, contributing positively to their learning experience and engagement. Conversely, other students may feel that ICT is not adequately utilized, hindering its potential to enhance learning and engagement.
3. Educators face significant challenges in integrating ICT into English language instruction, such as insufficient availability of resources, insufficient training, and resistance to change from traditional teaching methods. However, some educators argue that they face minimal obstacles due to the availability of ample resources, training, and support, facilitating a smooth transition to ICT integration.

### **1.3. Statement of the Problem**

In the realm of education, the widespread integration of Information and Communication Technology (ICT) holds immense promise for revolutionizing learning methodologies. However, this transformative journey is fraught with challenges that necessitate careful examination. This research endeavors to unravel the complexities surrounding the use of ICT in education, emphasizing

key issues such as access disparities among students and educators, the seamless integration of ICT into pedagogical practices, the adequacy of technological infrastructure, teacher preparedness, the impact on learning outcomes, and strategies for promoting digital inclusion. By scrutinizing these facets, this study aims to provide nuanced insights essential for refining policies, enhancing teacher training programs, and fostering an inclusive educational landscape where the potential of ICT is maximized for the benefit of all learners.

#### **1.4. Aims of the Study**

In order to create dynamic and engaging learning settings, this study is going to investigate the critical role that Information and Communication Technology (ICT) integration plays in English language teaching (Smith, 2022). Through an analysis of numerous advantages of ICT use in the classroom, the study aims to offer practical recommendations to help teachers and students. The project tries to discover efficient ICT integration tactics specific to English language instruction through empirical analysis, enabling ongoing improvement in teaching and learning methodologies. The ultimate goal of this research is to provide useful materials to stakeholders so they may optimize English language instruction and add to the larger conversation about ICT integration in education.

#### **1.5. Previous Studies**

Numerous researchers have made substantial contributions to the field of ICT in education, enriching our understanding of how technology can be effectively integrated into learning environments. Richard E. Clark, R. E. (1994). Media will never influence learning. *Educational technology research and development*, 42(2), 21-29, recognized for his work on multimedia learning, and David Jonassen, Jonassen, D. H. (1991). Evaluating constructivist learning. *Educational Technology*, 31(10), 28-33, a prominent figure in educational technology and learning environment design, have significantly shaped the discourse. Seymour Papert, Papert, S. (1980). *Mindstorms: Children, computers, and powerful ideas*. Basic Books, a pioneer in educational technology, made



notable contributions to constructionist learning theory and the development of the Logo programming language. Linda Darling-Hammond,(1997). *The right to learn: A blueprint for creating schools that work*. John Wiley & Sons.

While focusing broadly on educational policy, has also explored the integration of technology in teaching. Marc Prensky,Prensky, M. (2001). Digital natives, digital immigrants part 1. *On the Horizon*, 9(5), 1-6.credited with popularizing the terms "digital native" and "digital immigrant," has been influential in discussions on technology engagement in education. Chris Dede's research spans virtual reality, online learning, and technology's impact on educationDede, C. (2009). Immersive interfaces for engagement and learning. *Science*, 323(5910), 66-69.. Karen Swan specializes in online learning and educational technology design. Milton Chen advocates for educational media and technology, contributing to discussions on their role in K-12 educationChen, M. (1997). The emerging media age: What educators need to know? *Technology and Learning*, 17(6), 32-37.. Allan Collins, with expertise in cognitive psychology, has explored collaborative learning environments and educational software design. Sherry Turkle, though extending beyond education, has delved into the societal and educational implications of technologyTurkle, S. (2011). *Alone together: Why we expect more from technology and less from each other*. Basic Books.. Collectively, these researchers have played pivotal roles in advancing our knowledge of the effective integration of ICT in education, covering diverse aspects of educational technology and pedagogy.

### **1.6. Definitions of Key Concepts**

**ICT:** It refers to the use of technology to manage and process information, and to communicate and interact with others electronically.

**EFL:** It refers to the learning and teaching of the English language in a non-English-speaking environment, where English is not the primary language of communication.

**Personal Digital Devices:** Are portable electronic gadgets like smartphones, tablets, and laptops, designed for individual use to facilitate communication, entertainment, and productivity.

**Augmented Reality:** (AR) is a technology that overlays digital information, such as images, sounds, or other data, onto the real-world environment in real-time, enhancing the user's perception and interaction with their surroundings through devices like smartphones, tablets, or AR glasses.

**Virtual Reality:** Virtual Reality (VR) is a technology that creates a completely artificial environment, allowing users to experience and interact with a simulated world using devices like VR headsets and controllers.

### **1.7. Structure of the Work**

This research study is divided into four chapters. The first chapter is “the introductory chapter” which focuses on the statement of the problem, aim of the study and the previous studies. The second chapter “The Use of ICT in Education” discusses the many components and methods of ICT use in education. The fieldwork for the research case study, "Students and Teachers of Belhadj Bouchaib University Ain Temouchent," is covered in the third chapter «The Case Study”. And the last chapter is considered as “The Concluding Chapter” of this study as it discusses about the pedagogical implications, study’s limitations, and suggests recommendations, and new research perspectives.

# **Chapter Two: The Use of Information and Communication Technology in Education**

- 2.1. Introduction.
- 2.2. Definition of Information and Communication Technology.
- 2.3. Information and Communication Technology in Education.
- 2.4. Relevance ICT in Modern Education.
- 2.4.1. ICT in the Past, Present and Future.
- 2.5. The Benefits of Using ICT in Education.
- 2.6. Information and Communication Technology Tools Used in Education.
- 2.7. The Role of Information and Communication Technology in Education.
- 2.8. Ethical Considerations in the Use of ICT in Education.
- 2.9. The Role of Artificial Intelligence in Enhancing the Teaching Process.
- 2.9.1. Examples of intelligent artificial tools
- 2.10. Future Trends and the Evolving Role of ICT in Education.
- 2.11. Characteristics of ICT in education.
- 2.12. The Effectiveness of ICT in Education.
- 2.12.1. The Advantages of Using ICT in Education.
- 2.12.2. The Disadvantages of Using ICT in Education.
- 2.13. Conclusion.

**2.1. Introduction**

The use of Information and Communication Technologies (ICTs) is significantly impacting various aspects of society, including education. As ICTs offer both students and teachers more opportunities to adapt learning and teaching to individual needs, schools are increasingly compelled to respond to this technical innovation. The dynamic changes brought about by ICTs are particularly felt in educational settings, where they enable the use of innovative educational resources, the renewal of learning methods, and a more active collaboration among students. This necessitates schools to appropriately address the influence of ICTs on teaching and learning.

This chapter focuses on the use of ICT in education, its definition and importance in teaching. And also to figure out the advantages and disadvantages of ICT usage in education

**2.2. Definition of ICT**

Information and Communications Technology (ICT) encompasses a wide range of tools and systems that facilitate the creation, collection, processing, transmission, and storage of information. It includes computing technologies such as servers, laptop computers, and software applications, as well as wired and wireless communication technologies that support telephones, the Internet, the Internet of Things (IOT), and the metaverse. The primary goal of ICT is to enhance access to information and make human-to-human, human-to-machine, and machine-to-machine (M2M) communication more efficient and effective. ICT, or Information and Communications Technology, is a comprehensive term that includes a wide range of communication devices and applications, such as radio, television, cellular phones, computers, and network hardware and software, as well as satellite systems and related services like video conferencing and distance learning. This broad label also covers:

- The infrastructure and telecom components that facilitate both synchronous and asynchronous communication across short and long distances. (Margarat,2023)
- Telecommunication and cloud computing services, which are essential components of modern computing and communication.
- Governance policies that support the use of these technologies, addressing security, privacy, and economic interests, as well as promoting the growth of sophisticated data-driven domestic industries and services.

### **2.3. ICT in Education**

In educational settings, ICTs play an important role in enhancing the quality of teaching and learning. Many research studies have assessed the impact of ICTs on educational outcomes. The results findings showed that ICT tools increase students 'autonomy (Guerza, 2015), enhance students' speaking abilities, stimulate their curiosity, develop their asking techniques and research mindest, and boost their academic performance (Benboulaid, 2014), (Ghaznavi, Keikha, &Yaghoubi, 2011).Consequently, in an effort to transform education and equip students for the information era, many industrialized nations have made significant investments in technology infrastructure and training.

### **2.4. Relevance of ICT in Modern Education**

The relevance of Information and Communication Technology (ICT) in modern education is undeniable, representing a transformative force that has evolved across the past, present, and future.

➤ *ICT in the Past, Present and Future:* Technology in education has significantly evolved over time, impacting both teachers and learners. In the past, educational technology was more about isolated tools such as chalkboards, pens, and physical filing systems. However, in the present, technology integration is a vibrant part of many classrooms, focusing on

improving the learning experience and preparing students to navigate the digital world. This integration includes modern computers, electronic files, computer networks, the internet, email, the cloud, smart boards, and mobile devices, social media like Facebook, Viber, Snapchat. As for the future, technology is expected to continue streamlining and changing the learning experience, with a focus on using technology to give everyone access to quality learning. Teachers have also been impacted by technology, needing to integrate digital technologies into their practice and continuously evolve their understanding of available technologies and their functionalities. According to a study on the role of information and communication technologies in schools, teachers recognize the vital role of ICT in education and the need to integrate it effectively. Overall, technology has transformed the learning environment, minimized accessibility gaps, and enabled the design of learning experiences that better meet the needs of all learners.

In summary, the relevance of ICT in modern education is characterized by its transformative impact on teaching and learning methods. From its nascent stages in the past to its pervasive presence in the present, and the promising advancements anticipated in the future, ICT continues to shape and redefine the educational landscape, offering new possibilities for more effective, inclusive, and engaging learning experiences.

### **2.5.The Benefits of Using ICT in Education**

The use of ICT has been found to:Information and Communication Technology (ICT) in education offer benefits such as improved accessibility to resources, interactive learning experiences, and enhanced collaboration among students, and efficient teaching tools for educators. Overall, it enriches the learning process and equips students with essential digital skills.

➤ ***Assist Students in Accessing Digital Information Efficiently and Effectively:*** The use of information and communication technology (ICT) in education, as highlighted by Brush, Glazewski, and Hew (2008), serves as a tool for students to explore learning topics, solve problems, and offer solutions during the learning process. ICT facilitates easier knowledge acquisition and enhances the understanding of concepts in various learning areas, all while actively involving students in the application of ICT. This integration of ICT in education is instrumental in supporting student-centered and self-directed learning, as well as in improving the quality of teaching and learning. Furthermore, ICT tools can impact student learning by providing diverse options for information processing and expression, thus catering to students with different learning styles.

➤ ***Produce a Creative Learning Environment:*** ICT helps students gain new knowledge in their subject areas (Chai, Koh, and Tsai 2010). ICT offers more imaginative answers to various kinds of learning questions. For instance, reading aloud exercises in reading classes frequently make use of e-books. Students get access to all sorts of texts with ease using PCs, laptops, ipads, or personal digital devices (PDAs). Texts range in difficulty from basic to sophisticated. To be more precise, these electronic books might include reading software that provide various features including games aimed at improving vocabulary and reading comprehension, an interface for reading aloud, and more. ICT thus includes specially created apps that offer creative solutions to fulfill a range of instructional requirements.

➤ ***Support Student-Centered and Self-Directed Learning:*** According to Castro Sánchez and Alemán (2011), students are currently using computers more frequently and for more important purposes. By gaining access to, choosing, compiling, and analyzing information and data, they create new knowledge. Students who study with ICT are better equipped to use data and



information from a variety of sources and evaluate the instructional materials' quality critically.

➤ ***Offer More Opportunities to Develop Critical (Higher-Order) Thinking Skills:*** Based on a constructive learning approach, the integration of Information and Communication Technology (ICT) in education allows students to focus on higher-level concepts rather than less meaningful tasks (Levin and Wadmany, 2006). Furthermore McMahon's study 2009 showed statistically significant associations between the development of critical thinking abilities and using ICT for study. A longer exposure to the ICT environment can foster students' higher critical thinking skills. Therefore, it is strongly recommended that schools integrate technology across all learning areas and levels to enable students to apply technology to achieve higher levels of cognition within specific learning contexts. This integration of ICT in education is instrumental in supporting student-centered and self-directed learning, as well as in improving the quality of teaching and learning.

➤ ***Promote Collaborative Learning in a Distance-learning Environment:*** According to Koc (2005), students may collaborate, exchange, and communicate anytime, anyplace by using ICT. For example, students from all over the world could be invited to participate in a simultaneous topic discussion in a classroom via teleconferencing. In addition to developing thoughts, they might get the chance to investigate ideas and conduct problem analyses. They might assess ICT learning options in more details. Along with learning from one another, students also express themselves and reflect on their learning by sharing a variety of learning experiences.

➤ ***Support Teaching by Facilitating Access to Course Content***): Teachers can serve as catalysts for the integration of technology through ICT, according to research by Watts-Taffe et al. (2003). Teachers' work in creating an ICT class will be facilitated if their institutions provide them with the assistance, tools, and technology they need. These instructors' primary duties will be modify the structure of their courses, develop and clarify the new homework, and set up the computer lab with the help of their assistants or technology learning specialists.

In sum, as Reid (2002) has indicated, ICT gives students more time to develop deeper the material, which helps them understand concepts more fully. The link between teaching and learning is also altered by ICT use. Teachers claimed that, when it comes to information technology, the roles of teacher and student are occasionally reversed, based on the finding of Reid's study. When students are able to assist teachers with technological problems in the classroom, this relationship builds confidence in them. As a result, ICT modifies the conventional teacher-centered approach and calls for educators to be more imaginative in how they alter and customize their own materials.

## **2.6. ICT Tools Used in Education**

ICT tools in education refer to a wide range of applications and services that facilitate teaching and learning. These tools can be broadly categorized into several types, including:

- ***Communication Tools***: These tools enable interaction between students, teachers, and other stakeholders. Email, instant messaging, and video conferencing are a few examples.
- ***Content Creation and Distribution Tools***: These tools help create, distribute, and manage educational content. Examples include word processing software, presentation tools, and e-learning platforms.

- ***Collaboration Tools:*** These tools facilitate group work and collaboration among students and teachers. Examples include online discussion forums, group projects, and collaborative writing tools.
  
- ***Assessment and Testing Tools:*** These tools help assess students' understanding and progress in their learning. Examples include quiz tools, survey tools, and online assessment platforms.
  
- ***Subject-specific Tools:*** These tools are designed for specific subject areas and can enhance the learning experience in various subjects. Examples include online math platforms, science simulation tools, and language learning apps.
  
- ***Accessibility Tools:*** These tools help students with diverse learning styles and needs. Examples include text-to-speech tools, screen readers, and language translation tools. Some popular ICT tools used in education include Blackboard, Google Classroom, Trello, and various online coding platforms. These tools can help improve student motivation, engagement, and academic performance when used effectively in the classroom.

### **2.7. The Role of ICT on Education**

The role of Information and Communication Technology (ICT) in education is indeed multifaceted and spans across various dimensions. Let's delve into some key aspects in more details:

- ***Enhanced Access to Resources:*** ICT provides students with access to a wide range of online resources, including textbooks, research materials, and educational videos, breaking down geographical barriers and making quality education available worldwide, regardless of location or economic background.

- ***Improved Engagement and Knowledge Retention:*** When ICT is integrated into lessons; students become more engaged in their work, leading to improved knowledge retention.
  
- ***Transformation of Teaching and Learning:*** ICT has the potential to transform teaching and learning processes, making them more interactive and effective. It provides both learners and instructors with more educational affordances, allowing for new teaching approaches and technical support.
  
- ***Development of Digital Skills:***The use of ICT in education helps develop ICT literacy and capability, which are essential 21st-century skills. It also opens up avenues for communication, leading to language development.
  
- ***Streamlined Administrative Tasks for Teachers:*** Digital tools and platforms streamline administrative tasks for teachers, allowing them to focus more on the core of teaching and individualized instruction.
  
- ***Challenges and Barriers:***The high cost of ICT tools is a significant challenge in the successful integration of ICT in education, particularly in developing countries. Additionally, the effective use of ICT in education demands skills such as explaining and justifying the use of ICT, and students need to discuss, test, and conjecture the various strategies that they will use.

**2.8. Ethical Considerations in the Use of ICT in Education.**

The section focusing on "Ethical Considerations in the Use of ICT in Education" delves into the ethical aspects associated with incorporating Information and Communication Technology (ICT) into educational contexts. Key concerns include safeguarding the privacy and security of student data as educational institutions increasingly adopt digital platforms, necessitating robust security measures. Equity and access issues are paramount, as the digital divide may exacerbate existing disparities among students; thus, it is imperative to implement ICT initiatives inclusively.

Moreover, the ethical dimension extends to cultivating principles of digital citizenship and responsible technology use among students, addressing aspects like plagiarism and respecting intellectual property. The ethical scrutiny also encompasses the marketing and sale of educational technology to schools, requiring a critical examination of potential influences from commercial interests. The section concludes by offering recommendations and guidelines for educators, policymakers, and technology developers to navigate these ethical challenges, ensuring the creation of a digital learning environment that are not only effective but also uphold principles of fairness, equity, and responsible technology use.

**2.9. The Role of Artificial Intelligence in Enhancing the Teaching Process**

Artificial Intelligence (AI) is transforming education by introducing advanced tools and methodologies that significantly improve teaching and learning. By incorporating AI into educational settings, teachers can create highly personalized learning experiences, automate routine administrative tasks, and deliver immediate feedback to students, thereby enhancing the overall educational process.

➤ ***Personalized Learning through AI:*** One of the most notable impacts of AI in education is its ability to personalize learning. AI-powered platforms

such as Knewton and Carnegie Learning analyze data on individual student performance to tailor educational content to each student's needs. These systems assess various factors like strengths, weaknesses, and learning pace to provide customized lessons. Former U.S. Secretary of Education Arne Duncan highlighted the transformative potential of technology in education, stating, "Technology, when used correctly, can personalize learning in ways that were never possible before."

➤ ***Automating Administrative Tasks:*** AI also significantly reduces the administrative burden on educators. Tools like automated grading systems and administrative bots handle repetitive tasks, freeing teachers to focus more on direct instruction and student interaction. For example, Gradescope, an AI-driven grading tool, enables educators to grade assignments more efficiently and consistently. A report by the Bill & Melinda Gates Foundation underscores this benefit: "AI can take over repetitive tasks, enabling teachers to spend more time on personalized instruction and student support."

➤ ***Real-Time Feedback and Assessment:*** AI's ability to provide immediate feedback is another critical advantage. AI-driven applications such as Turnitin and ASSISTments offer real-time evaluations and feedback on student submissions, helping learners understand their errors and improve promptly. Education technology researcher Dr. A. Z. Khan notes, "Real-time feedback powered by AI can enhance learning by addressing students' needs promptly and effectively."

➤ ***Enhancing Student Engagement:*** AI also boosts student engagement by making learning more interactive and enjoyable. Virtual tutors and AI-based educational games adapt to individual student levels and learning styles, providing a more engaging and effective educational experience. For instance, Duolingo uses AI to customize language lessons to the learner's

proficiency level, ensuring that the content remains both challenging and achievable. Educational psychologist Dr. Rachel Goodman explains, "AI-driven educational tools can significantly increase student motivation and participation by making learning more adaptive and responsive to individual needs."

In summary, integrating AI into education is revolutionizing the teaching process by enabling personalized learning, automating administrative tasks, providing real-time feedback, and enhancing student engagement. These advancements not only improve teaching efficiency but also contribute to better educational outcomes for students.

### **2.9.1.Examples of intelligent artificial tools**

1. **ChatGPT:** It is an example of an intelligent artificial tool as it uses advanced natural language processing (NLP) techniques to understand and generate human-like text, enabling it to engage in discussion and offer support on a range of subjects.

2. **QuillBot:** It is also an example of an intelligent artificial tool. It utilizes AI algorithms to paraphrase and rephrase text while maintaining the original meaning, helping users improve their writing and avoid plagiarism.

3. **Google:** It offers a wide range of products and services that leverage artificial intelligence. For example, Google Search uses AI algorithms to provide relevant search results. Google's language translation services, image recognition capabilities, and personalized recommendations are all powered by artificial intelligence. Additionally, Google's smart assistant, Google Assistant, is another example of an intelligent artificial tool that can

understand and respond to natural language queries, perform tasks, and provide information to users.

### **2.10. Future Trends and the Evolving Role of ICT in Education**

This segment delves into anticipated developments and emerging trends in the integration of Information and Communication Technology (ICT) in education. As technology continues to advance, several key trends are expected to shape the future of education.

➤ ***Personalized Learning Environments:*** The future is likely to witness a shift towards more personalized and adaptive learning experiences, where ICT tools will tailor educational content to individual student needs, preferences, and pace.

➤ ***Augmented and Virtual Reality:*** The integration of augmented reality (AR) and virtual reality (VR) technologies is poised to transform traditional teaching methods, offering immersive and interactive learning experiences that can enhance understanding and engagement.

➤ ***Artificial Intelligence (AI) in Education:*** AI applications, such as intelligent tutoring systems and automated assessments, are expected to play a prominent role in providing real-time feedback, identifying individual learning gaps, and customizing educational content.

➤ ***Blockchain for Credentialing:*** Blockchain technology may revolutionize credentialing and verification processes, providing secure and transparent means for storing and validating academic achievements, thereby enhancing the credibility of educational credentials.



- ***Global Collaborative Learning:*** ICT tools will further facilitate global collaboration among students and educators, breaking down geographical barriers and fostering cross-cultural understanding through collaborative projects and online platforms.
  
- ***Data Analytics for Educational Insights:*** Enhanced data analytics tools will enable educational institutions to gather valuable insights into student performance, engagement, and learning patterns, allowing for more informed decision-making.
  
- ***Internet of Things (IoT) in Education:*** IoT devices, such as smart classrooms and connected educational resources, are likely to create more interactive and efficient learning environments, providing real-time data and connectivity.
  
- ***Mobile Learning Platforms:*** With the increasing prevalence of mobile devices, the future will see a continued emphasis on mobile learning platforms, allowing students to access educational content anytime, anywhere, promoting flexibility and accessibility.
  
- ***Gamification of Learning:*** Gamified elements in education, such as educational games and simulations, will likely become more prevalent, making learning more engaging and fostering a positive and interactive learning environment.
  
- ***Ethical Considerations in EdTech:*** As technology advances, there will be a growing need for ethical guidelines and considerations in the development and use of educational technology, ensuring responsible and equitable integration.

**2.11. The Characteristics of ICT in Education**

Information and communication technology (ICT) in education refers to any set and software that helps process educational data. Specifically speaking, ICT in the modern period refers to computer technology and includes both hardware such as personal computers and the infrastructure needed to set up Internet access and software such as CD-ROMs containing a variety of software packages and e-learning techniques. ICT in education encompasses any Information Technology specifically designed for acquiring, storing, manipulating, managing, transmitting, or receiving data essential for educational purposes. This includes the management of students' records, admissions information, and updates on both academic and extracurricular activities. Broadly, ICT in education refers to any technology facilitating the exchange of information, essentially communication, within the teaching and learning processes. Examples of this include the utilization of Electronic learning technologies such as teleconferencing, PowerPoint presentations, and CD-ROMs, all of which fall under the category of Communication Technology, a crucial component of ICT.

ICT in education encompasses various educational technologies applied within the educational process. It involves a Hardware approach, which utilizes machines and materials, a Software approach that employs methodologies and strategies for teaching and learning, and a Systems approach that utilizes management technology for the systematic organization of both hardware and software. This includes different software packages tailored for various education departments, such as library software, administration software, and software designed for managing the entire teaching and learning process. In essence, ICT in education serves as supportive material for the human resources involved in the educational process, aiming to enhance the overall quality of education. The application of the science of online and offline learning, facilitated by computer technology, is a fundamental aspect of ICT in education.

**2.12. The Effectiveness of ICT in Education**

The use of ICT in education gives teachers and students the chance to learn about many disciplines...The purpose of this study is to examine both the advantages and disadvantages of using ICT in teaching English.

**2.12.1 The Advantages of Using ICT in Teaching English**

The use of ICT in education offers numerous advantages for teachers. One of the most significant benefits is that it allows teachers to access resources and plan lessons more effectively. By using the internet, teachers can gather necessary information to ensure that they have a full understanding of the target course, which helps them to prepare and deliver lessons that are more effective. Additionally, teachers can use ICT to enhance their professional image by reading and checking updated information, which is valuable for reaching their previous information. During the course, teachers can use data show and computers to display videos, pictures, and writings to their students, which guarantees a better explanation.

Furthermore, teachers have the ability to contact both their students and school, which allows them to send and receive news and documents. The use of ICT in education also helps teachers manage their workload and responsibilities more efficiently, allowing them to focus on providing individualized support to students with specific needs. Overall, the integration of ICT in education holds the potential to make the teaching process more engaging, efficient, and dynamic for teachers. Student are motivated to learn and can perform a variety of tasks in a variety of ways thanks to ICT.

On the other hand, examining the benefits of ICTs from the perspective of the learner, we may point out that, in comparison to the school library, kids have more access to the internet and the resources it offers them to learn and become knowledgeable. In the event that students struggle to understand a course during the teacher's explanation, they will still have access to a wealth of knowledge that

is vital for their academic pursuits. Students may more easily create discussion groups on Facebook, email, and Twitter, allowing them to talk about career-related themes. Additionally, these groups give hesitant students a great chance to talk about their partners. Additionally, students can now concentrate on their areas of weakness in their learning skills by using computer applications and cell phones. They can then work with people both inside and outside of the school to complete assignments together. (Vodopivec.L.J, Samec.P. 2000; Md. Yunus. M, Nordin. N, Salehi.H, Sun. CH, Amin. M. in 2013).

### **2.12.2.The Disadvantages of Using ICT in Education**

There are disadvantages to ICT use in education, despite its apparent benefits. Students can utilize the internet, for instance, to discover information to assist them with assignments such as term papers and other homework. Nonetheless, students who copy content from the internet and pass it off as their own are engaging in a practice known as plagiarism. The last term witnessed a sharp rise in plagiarism as a result of students relying only on ICTs to complete their assignments as fast and efficiently as possible. Teachers and students must both learn how to use these tools and strategies in order to use ICTs. For example, computer proficiency is required to use the internet. This makes arranging classroom instruction essential for teaching teachers and students computer skills.

Teachers and students can also find plenty of information from numerous websites on the internet. On occasion, though, students can stumble into dubious websites that could cost them points on assignments. Students who use ICTs also have to rely on gadgets like laptops and cellphones because they couldn't complete their work by hand without them. Second, because adolescents have unfettered access to every website, they could see offensive material that seems out of place for someone their age. (MdYunus . M, .Nordin . N, .Salehi . H , . Sun .C , . Amin .M . 2013; Vodopivec .L . J, Samec.P. 2000) .

**2.13. Conclusion**

Over time, Information and Communication Technologies (ICT) have evolved to facilitate people's lives in various ways. In the educational domain, teachers and learners can leverage ICT tools such as the internet, computers, and mobile devices to gather valuable information for their educational journey. Teachers can utilize computers and projectors to display courses and explain them to students, which allows them to save time and ensures a more effective teaching process. However, ICT can also have both positive and negative impacts on students' studies. While ICT offers numerous advantages, such as improved concentration, comprehension, and access to resources, it can also lead to challenges like increased distractions, cyber bullying, and reduced social interaction. It is essential for educators to be aware of these potential issues and guide students on how to use ICT responsibly and effectively. By doing so, the integration of ICT in education can continue to enhance the learning experience for both teachers and students.

# **Chapter Three: Research Design, Data collection and Analyses**

- 3.1. Introduction.
- 3.2. Research Design.
  - 3.2.1. Research methods.
  - 3.2.2. Research Instruments.
- 3.3.2. The Sample Population.
- 3.4. Setting.
- 3.5. Data Analysis.
  - 3.5.1. Student's Questionnaire Analysis.
  - 3.5.2. Findings and Discussion.
  - 3.5.3. Teachers' Questionnaire Analysis.
  - 3.5.4. Findings and Discussion.
- 3.6. Conclusion.

### **3.1. Introduction**

This chapter is devoted to the application of practical part of research .That clarifies the data collection, research design, research method, the sample, students and teachers questionnaires, with a specific focus on Information and Communication Technology (ICT), in the university and the analysis is detailed, and it includes the presentation of findings along with discussions on the ultimate results of the study.

### **3.2. Research Design**

In the pursuit of advancing knowledge and understanding in the realm of Information and Communication Technology (ICT), the research design for the master's level case study at the University of Belhadj Bouchaib. It is carefully designed to reveal intricate processes underlying ICT implementation. The chosen case study approach serves as a comprehensive investigation into the multifaceted aspects of ICT, emphasizing its relevance and impact within the university context. The objectives of employing this case study methodology are twofold: firstly, to analyze the practical implications of ICT integration in the academic setting of the University of Belhadj Bouchaib, and secondly, to identify challenges and opportunities associated with the adoption of ICT in higher education.

By delving into this specific case, the research aims to contribute valuable insights that not only enrich academic discourse but also offer practical recommendations for optimizing ICT utilization in educational institutions. This approach aligns with the broader goal of fostering a more effective and technology-driven learning environment, ultimately enhancing educational outcomes and preparing students for the demands of the digital age.

#### **3.2.1. Research methods**

The research methodology employed in this study utilized a mixed-method approach, integrating both quantitative and qualitative methodologies to



comprehensively examine the integration of Information and Communication Technology (ICT) in English language teaching at BelhadjBouchaib University.

### **3.2.2. Research Instruments**

To collect data, two sets of questionnaires were administered: one designed for instructors and another for students. These questionnaires aimed to gather the perspectives of both tutors and students regarding the integration of Information and Communication Technology (ICT) in the teaching of English. The student questionnaire included multiple-choice questions and open-ended questions to capture their attitudes, and experiences with ICT in their English lessons at Belhadj Bouchaib University. The teacher questionnaire comprised similar types of questions, focusing on their perceptions, and challenges in integrating ICT into their teaching. The researcher opted for a questionnaire because it ensures participants' anonymity, which encourages honesty and results in more reliable data.

### **3.3. The Sample Population**

This investigation involved the distribution of 38 questionnaires to the students and educators Belhadj BouchaibUniversity, AinTemouchent. Four questionnaire of the total number were distributed to teachers to obtain information about 'the teachers experience in teaching English. While the remaining thirty questionnaires were distributed to the master2 student population. The selection of this sample was based on the consideration that master two level, soften involves more intricate and specialized aspects of ICT. Thus it aims to assess the effectiveness of ICT on the teaching and learning experience, considering the viewpoints of both teachers and learners.

### **3.4. Setting**

This investigation was conducted at BelhadjBouchaib University, where the study was conducted to explore the integration of Information and Communication Technology (ICT) in English language teaching. The data collection involved distributing questionnaires to both teachers and Master 2 students, focusing on their experiences and attitudes toward using ICT in their educational activities. The research setting is significant because it provides a

real-world context for examining the practical applications and challenges of ICT integration in a higher education environment. This setting allows for the collection of diverse perspectives, contributing to a comprehensive understanding of the subject

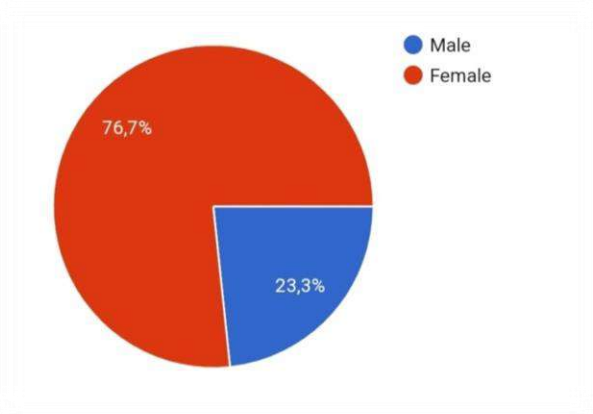
### 3.5. Data Analysis

The data analysis involved examining students' and teachers' questionnaires to understand the impact of ICT on education at the University of Ain Temouchent. For students, the analysis focused on their access to and use of ICT, and its effect on their engagement and learning outcomes. For teachers, it assessed how they incorporate ICT into their teaching practices, their training on ICT, and its perceived impact on student performance. The results highlighted both the benefits and challenges of ICT integration in the educational process.

#### 3.5.1. Students' Questionnaire Analysis

The thirty students participate on this survey from the master two students at the department of English that aims to gather information and experiences. The questionnaire is divided into two parts. The first part collects simple demographic information such as age and gender, while the second part consists from 15 questions. The questions can be closed, requiring a "Yes" or "No" answer, or multiple-choice, or open, requiring students to give their own answers and provide justification if needed.

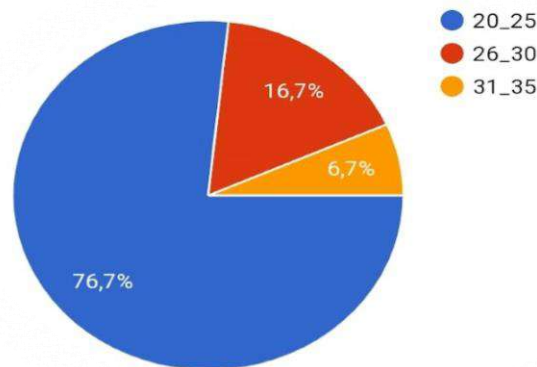
**Q1:** *What is your gender?*



**Figure 3.1:** Learners Gender

The result from above table and figure indicates a higher representation of females (76.6 %) compared with male (23.3%) in the learning context. The research demonstrates that the rise in the female population is supported by their numerical advantage in comparison to the male population.

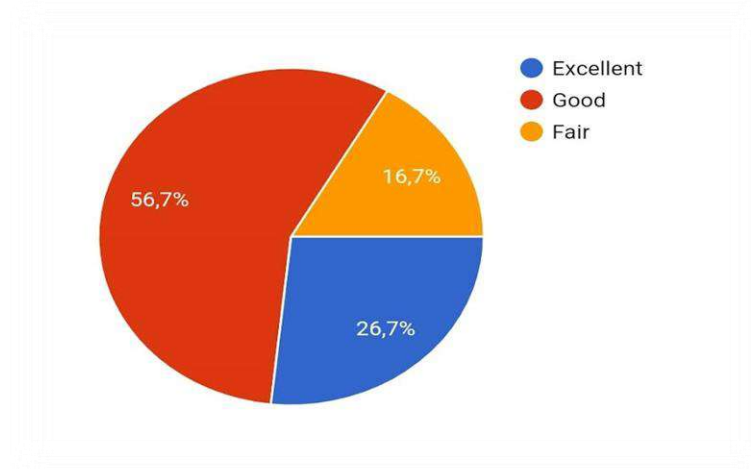
**Q2:***How old are you?*



**Figure 3.2:** Learners' Age

The figure above illustrates the age distribution of the sample. The provided sample age distribution shows that the majority of the sample (76, 7%) is between (20) and (25) years old. A smaller percentage (16.7%) falls within the (26) and (30) age range and even smaller percentage (6.7%) is between (31) and (35) years old. This distribution suggests that the sample is predominantly composed of individuals in the (20\_25) age since it is the legal age of the master level.

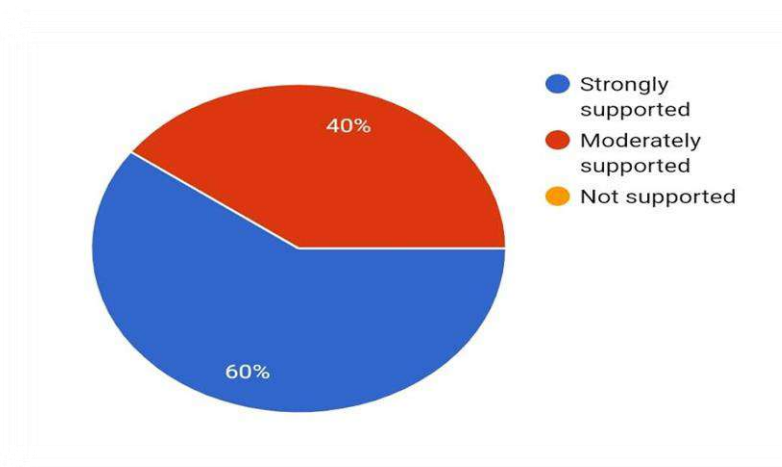
**Q3:** *How would you rate the availability of ICT resources in your educational institution?*



**Figure 3.3:** Availability of ICT Resources in Educational Institution

The figure notice that the majority of (56.7%) expressed satisfaction, rating the availability of ICT resources in our educational institution as good. Additionally, (26.7%) found it excellent, reflecting a positive perception. However, (16.7%) rated it as fair, suggesting there may be areas for improvement to ensure more equitable access for all.

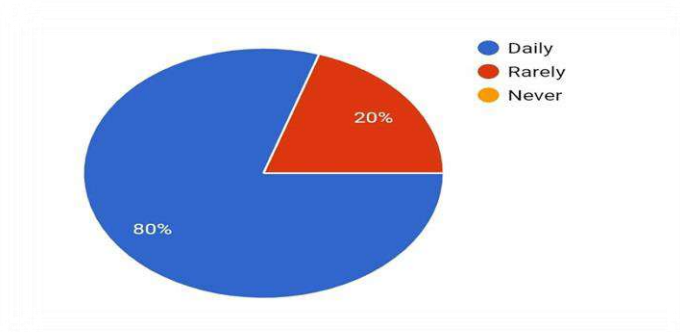
**Q4:** *To What extent do you feel supported in using ICT for your studies?*



**Figure 3.4:** The Level of Support for ICT Use in Studies

Students generally feel supported when using technology for their studies. From the results above about (60%) of the assistance they receive is strong and helpful. Another (40%) is moderately supported. While (0%) reflecting as not supported.

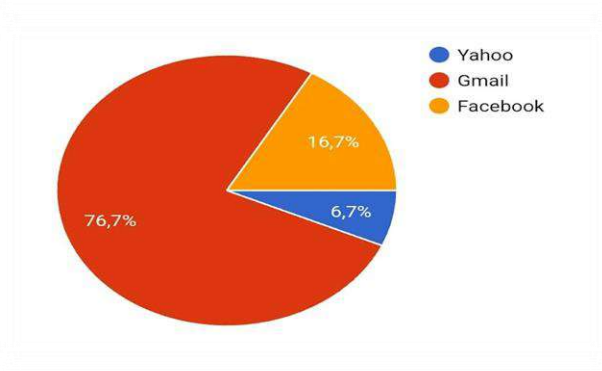
**Q5:** *How frequently do you use ICT in your educational activities?*



**Figure 3.5:** The Frequency of ICT in Educational Activities

The figure show how much students use technology (ICT) for learning. About (80%) uses it every day, which means most learners find it helpful in their studies all the time. Additionally, (20%) of participants noted rare usage of ICT. What's interesting is that none of the individuals mentioned that they don't use it with (0%). showing that everyone sees the good side of using technology for learning.

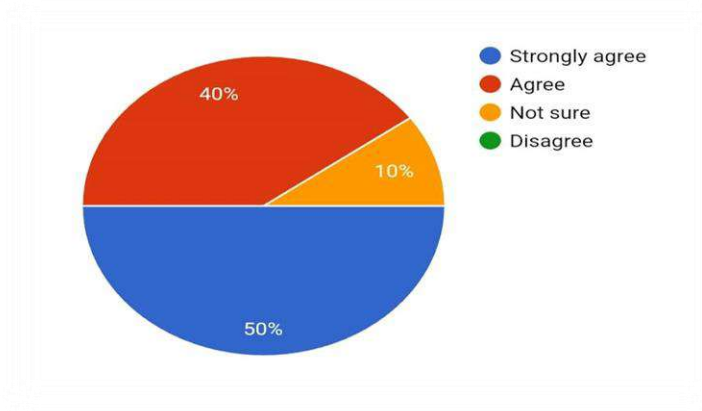
**Q6:** *What are some popular websites and Search engines that people commonly use to access information online?*



**Figure 3.6:** Diverse Information Access Platforms

The result from above table and figure it is evident that Gmail dominates the online information landscape as the primary search engine, enjoying widespread use. With a significant (76,7%) share. In comparison, Yahoo's search engine claims a (6.7%) share, and Facebook takes up (16,7%). These numbers show how these platforms help people find and share information online in different ways.

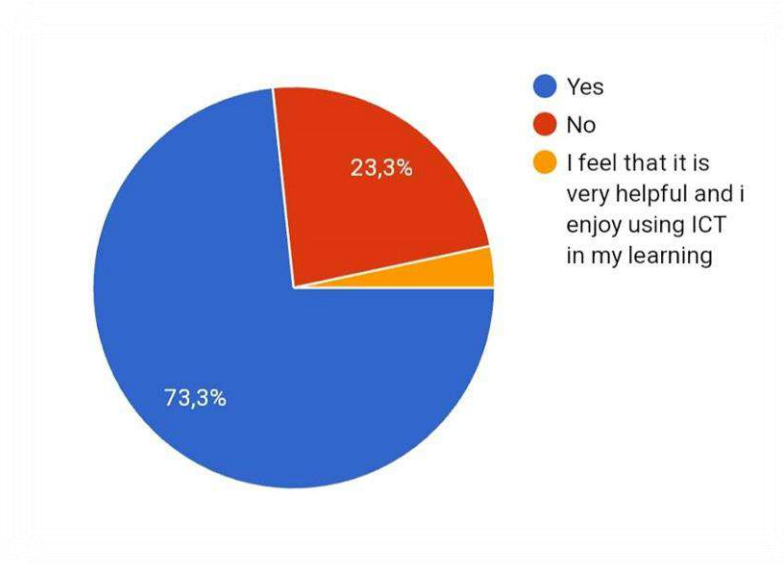
**Q7:** *The use of ICT in the classroom can make the subject matter more interesting?*



**Figure 3.7:** Classroom Engagement through ICT Integration

According to the results, the majority of learners, (50%), strongly agree that incorporating ICT in the classroom can enhance the interest in the subject matter. Additionally, (40%) agree with this sentiment, while (10%) are unsure. None of the learners express disagreement. These findings suggest a widespread belief among learners that ICT has a positive impact on making the subject matter more engaging and compelling.

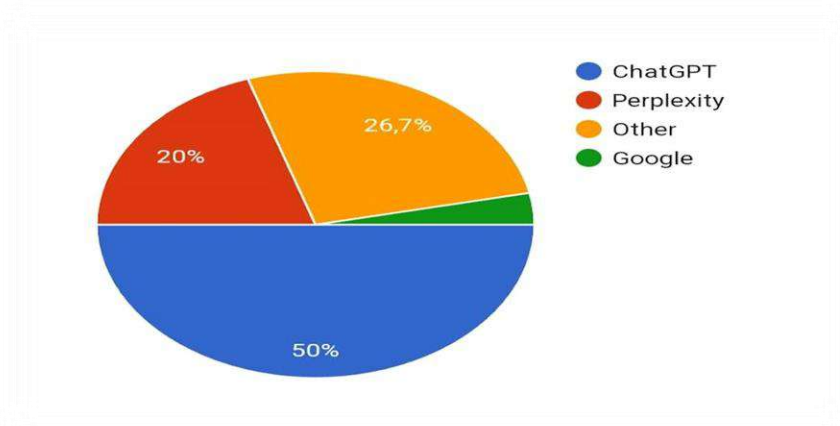
**Q8:** *Are you utilizing artificial intelligence in your professional work?*



**Figure3.8:** Intelligence in Professional Settings

The pie chart above illustrates the distribution of responses regarding the utilization of artificial intelligence (AI) in professional work. Among the participants surveyed, (73.3%) indicated that they are indeed utilizing AI in their professional efforts, highlighting a prevalent adoption of AI technologies across various industries. On the other hand, (23.3%) of respondents reported not utilizing AI in their professional work, suggesting that there is still a significant portion of professionals who have yet to integrate AI into their workflows. These discoveries emphasize the rising significance of AI in modern work settings and the necessity for further exploration and integration of AI technologies to remain competitive in today's rapidly changing professional landscape.

**Q9:** *What are the most common educational applications or software that you use?*

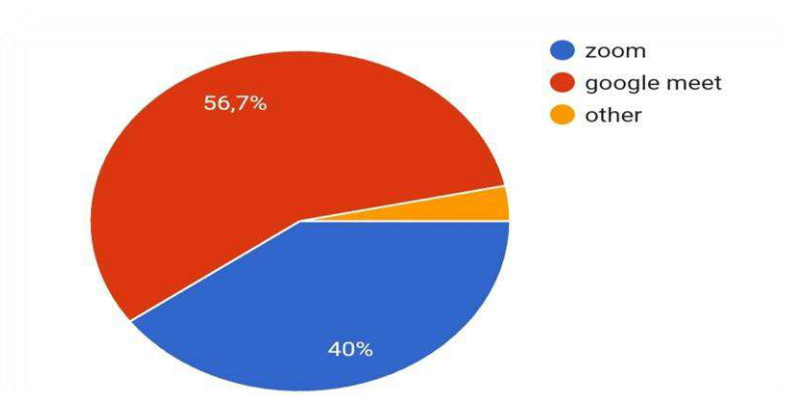


**Figure 3.9:** Popular Educational Applications and Software

Regarding the findings obtained from this question, it's clear that learners have different favorite educational apps or software. "Chat GBT" is liked the most, chosen by half of the learners. This indicates a strong preference towards interactive and conversational learning platforms. "Perplexity" comes next with (20%), suggesting a notable in platforms that focus on enhancing problem-solving and critical thinking abilities. About a quarter of learners chose "Other" options, showing they use different tools. "Google" got a small percentage, indicating it's used but not as much as other apps. These results show that learners have different ways of learning, and it's important to have a variety of tools available to meet their needs.



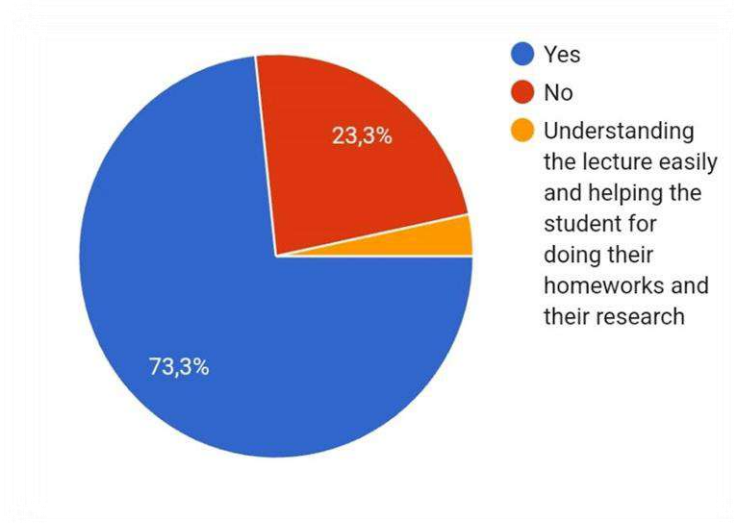
**Q10:** *What online platforms do you use for virtual classes or learning?*



**Figure 3.10:** Top Choices for Virtual Learning Platforms

According to these results, it seems Google Meet is the most popular platform for virtual classes or learning, with (56.7%) of respondents preferring it. Zoom comes in second at (40%), indicating a substantial user base as well. Interestingly, a smaller percentage, (3.3%) opted for other platforms. These results suggest a dominant presence of Google Meet and Zoom in the virtual learning landscape, with other platforms also playing a role for a minority of users.

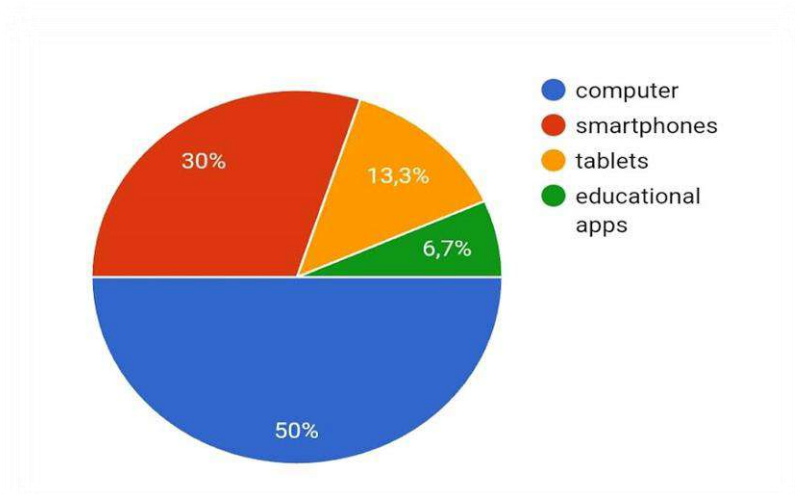
**Q11:** *Do you prefer assessments conducted through digital platforms over traditional methods?*



**Figure 3.11:** Digital Platforms vs. Traditional Methods Assessment

The majority of respondents (73.3%) favor using digital platforms for assessments rather than traditional methods, showcasing the accessibility provided by digital tools during learning. However, it's worth noting that a significant section (23.3%) still value traditional methods. Moreover, one participant stressed how crucial it is to understand lectures easily and get help with homework and research. This shows he want support alongside assessment methods.

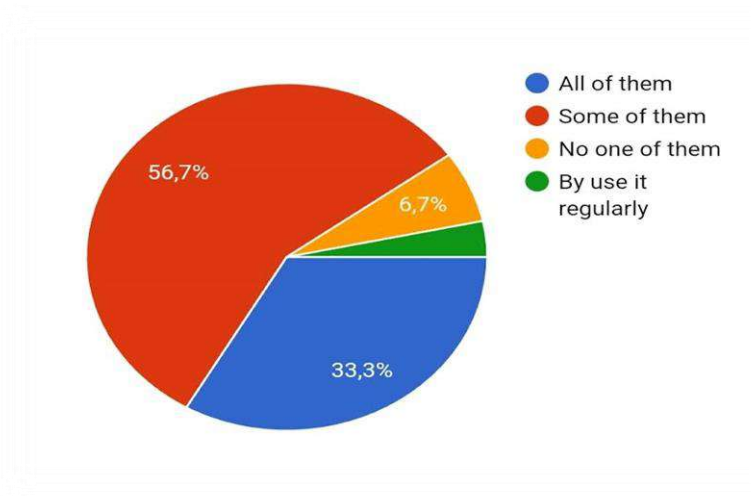
**Q12:** Which ICT resources do you think are best for learning online?



**Figure 3.12:** ICT Tools for Online Education

The finding results show that when it comes to learning online, computers remain the top choice for users, comprising (50%) of preferences. followed closely by smartphones at (30%) indicating their increasing popularity and the availability for educational aim. Tablets hold a smaller share at (13%), while educational apps are least preferred, with only (6.7%) of users opting for them.

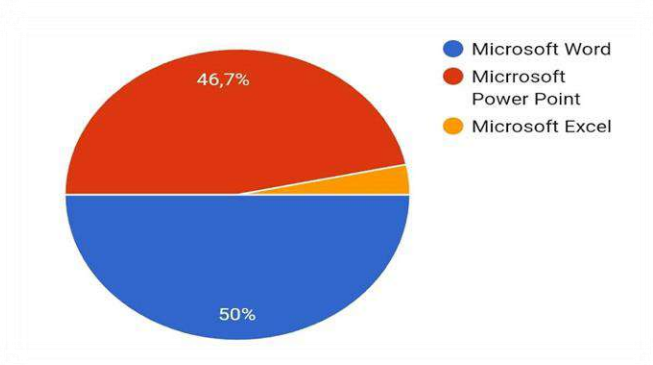
**Q13:** *Do your teachers use technological integration in their lessons?*



**Figure 3.13:** Integration of Technology in Teaching

Regarding the findings obtained from this question, it's interesting to observe that a majority of teachers, around (56.7%), incorporate technology into their teaching. Even more the statistic indicating that (33.3%) of teachers employ technology in every lesson, this high percentage shows that they are really committed to using technology in their teaching in a smooth way. However, it's also note that there are still some teachers, approximately (6.7%), who do not incorporate technology into their lessons at all. Finally, it's interesting to note that only (3.3%) of teachers regularly employ technology. While everyone has their preferred teaching style.

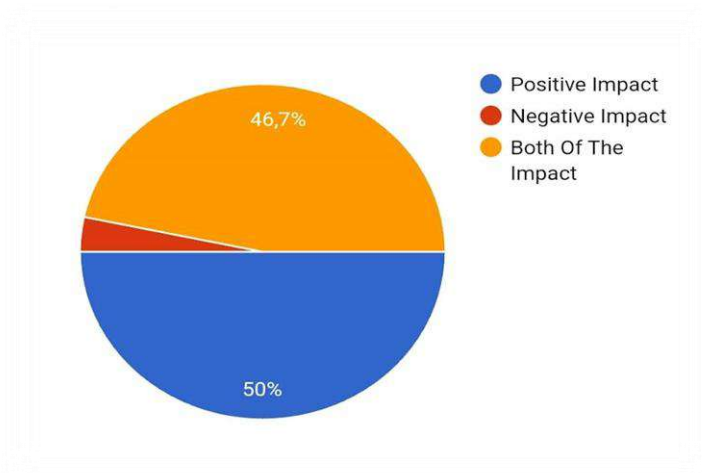
**Q14:** *which of these packages are you most adept at using?*



**Figure 3.14:** Expertise in Diverse Software Packages

According to the results, Microsoft Word appears to be the most adeptly used package, with (50%) proficiency. This is reflected in the availability of various features and functionalities that they can efficiently utilize within the application. For instance, they can create and edit documents, format text and layout, insert images and tables, and collaborate with others in real-time. Microsoft PowerPoint shows a proficiency level of (46.7%). However Microsoft Excel is significantly behind, with just a (3.3%) proficiency rate.

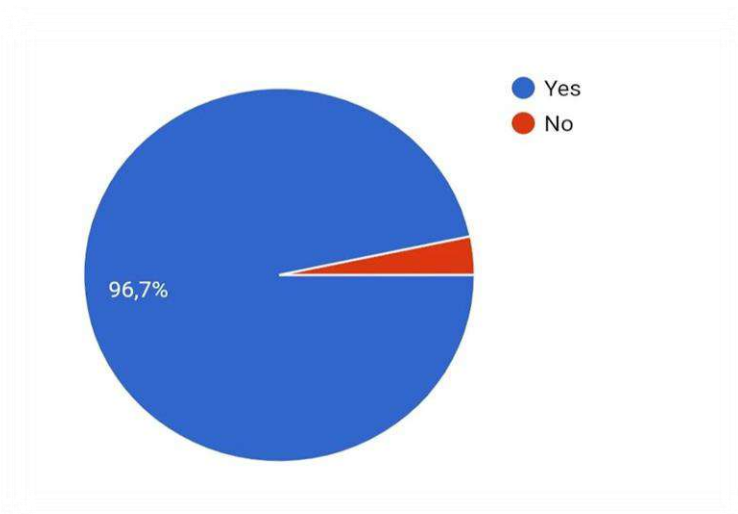
**Q15:** *what do you think about the impact of technology in education?*



**Figure 3.15:** The Impact of Technology in Education

The research suggests that half of the participants view technology's impact on education primarily in a positive light. They point to advantages such as improved access to information, increased engagement, and personalized learning experiences. In contrast, just (3.3%) of respondents perceive technology's role in education as mostly negative. However, a significant (46.7%) of respondents believed that technology has both positive and negative impacts on education.

**Q16:** *Using ICT in your opinion effect on your academic performance?*



**Figure 3.16:** The Influence of ICT on Academic Performance

Students are asked to say whether their academic performance is affected or not by the use of Information and Communication Technology (ICT). (96.7%) of students responded affirmatively, indicating that ICT positively affects their studies. Conversely, only (3.3%) of students disagreed, suggesting that ICT does not have a significant impact on their academic performance.

### **3.5.2. Findings and Discussion**

From the data gathered from the learners' questionnaires; we have come to result that most of learners affirm that they reveal a mixed landscape of technology integration in education, The findings suggest that while technology integration is prevalent to some extent, there is variability among educators in adopting technology in their teaching methods. They discover that these technologies are helpful and beneficial especially in teaching and learning English due to its development. While others don't, highlighting the need for support in integrating technology effectively. It also reveal that a great number of learners show their acceptance of the idea of integrating technologies, they reported also that they using ICT in their educational activities on a daily basis. It suggests that ICT has become deeply integrated into the daily routines

and academic practices of learners, indicating a strong reliance on technology to support their educational efforts.

Most of the respondents, favor digital assessments compared to traditional methods. The reason for this preference is probably because digital assessments offer several advantages, such as flexibility, quick feedback, and ease of access. However, it's important to recognize that there is still a minority who prefer traditional methods. Some individuals may feel more comfortable with traditional assessment methods, such as paper-and-pencil tests or oral examinations, due to their familiarity with these formats. They may perceive digital assessments as unfamiliar. From the obtained data it noticed that the minority of learners have a preference for specific ICT resources, such as computers, and their proficiency in software packages like Microsoft Word and PowerPoint underscore the importance of fostering digital literacy and skill development.

The findings on the perception of technology's impact on education, seems that technology has a mostly positive impact on education. However, a significant portion acknowledges both positive and negative impacts. Despite variability in technology adoption, there is a strong belief among respondents in the positive impact of ICT on academic performance, exploring the powerful impact of technology on education. Most people think using technology in education really affects, they see it as a big change for education. This idea shows that people understand how technology can make, learning better, help students achieve more, and give them more control over their studies. While also recognizing the importance of carefully considering its potential drawbacks

In summary, these discoveries shed light on the connection between technology and education, revealing insights into what students are currently doing, preferring, and thinking. Focusing on the areas that need improvement can make education more inclusive, interesting, and effective with technology.

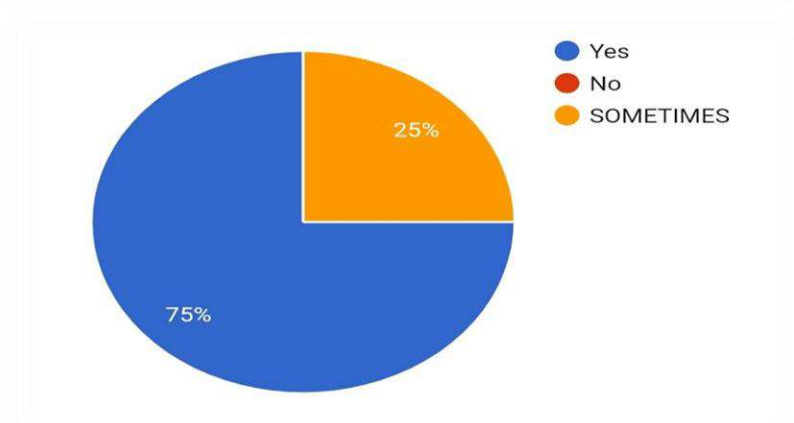
### 3.5.3. Teachers' Questionnaire Analysis

The teachers' questionnaire consists of eight questions, this survey primarily addressing the integration of ICT in English teaching. The participants are four English teachers at Belhadj Bouchaib University. In this survey, teachers were asked to answer questions about how they use technology in their classes. They are responsible for teaching students at this specific grade level (M2).

**Q1:** *For how long have you been an English instructor?*

According to this questionnaire, it Represents participants' English teaching experience at the university. The instructor admitted that they, has been teaching English for a significant period of time. Specifically, they has been an English instructor for 14, 15, 16, and 19 years. Which, falls within the range of 10 to 20 years. This implies that they've had plenty of time to become highly proficient at teaching English and assisting students in their learning. Also their long time teaching shows they probably know a lot about English and how to teach it well.

**Q2:** *Do you employ ICT to educate in your classes?*



**Figure 3.2:** The Use of ICT by Teachers

These figures reflect the practices of teachers in integrating Information and Communication Technology (ICT) into their classes. The data indicates that (75%) of teachers utilize ICT as a core component of their teaching methods.

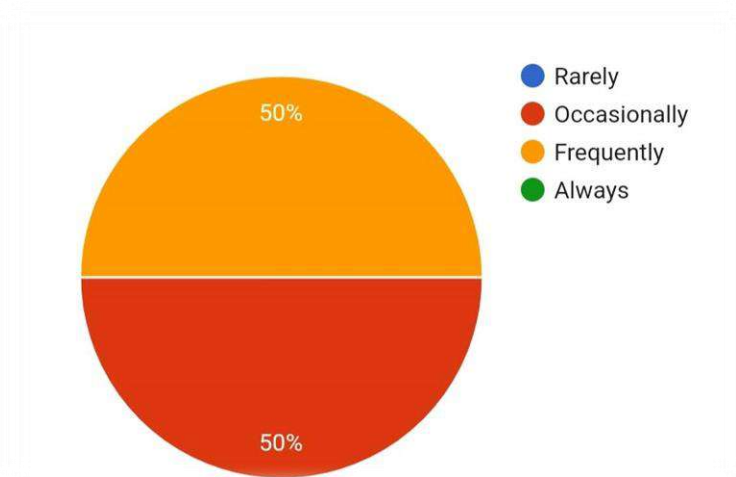
Approximately (25%) of teachers utilize ICT less frequently and none reported not using ICT at all.

**Q3:** *Which ICT tools do you use most often in your teaching?*

Considering the answered questionnaires of the respondents, it is evident that Teachers predominantly using laptops, computers, the internet, and data shows in their teaching practices. Computers are favored by teachers for their flexibility and ease of transport, allowing for a range of educational activities such as multimedia presentations and online resource access. Further more teachers mentioned that using data shows, which could refer to the use of data visualization presenting educational data.

These findings indicate the significant reliance of educators on digital tools and the internet to facilitate their teaching practices, which is consistent with the increasing integration of technology in education.

**Q4:** *How frequently do you use ICT tools in your teaching?*

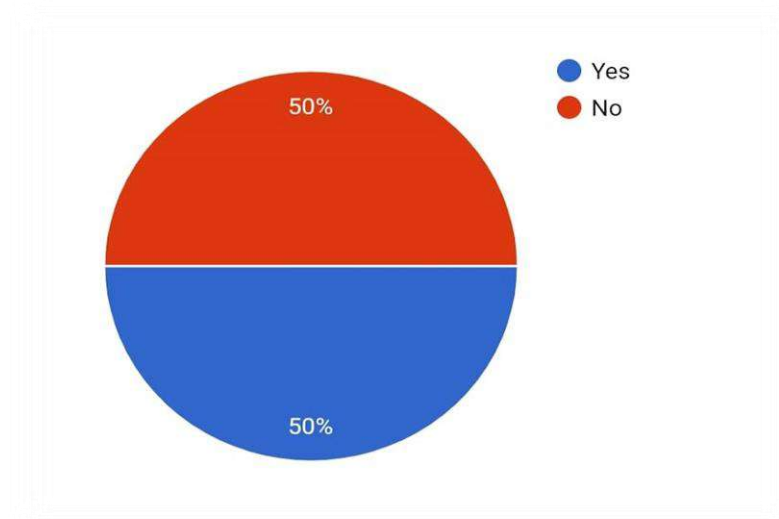


**Figure 3.4:** The Frequency of ICT by Teachers

The above figure and table which is concerned with the frequency of using ICT by teachers show that two teachers answer with “occasionally” while two other teachers use them frequently.



**Q5:** *Have you received training on how to effectively integrate ICT into your teaching?*



**Figure 3.5:** Training on Integrating ICT into Teaching

The teacher's responses regarding their training in incorporating ICT into teaching shows a balanced distribution, with half affirming they have received such training, while the remaining half report they haven't received any specialized training in this domain .

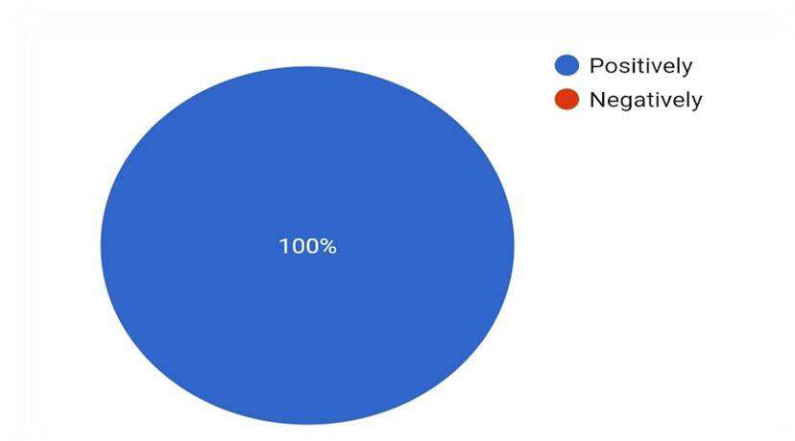
**Q6:** *What do you perceive as the main benefits of integrating ICT into education?*

The responds the researchers addressed through the professors about the main benefits of integrating ICT into education are multifaceted. Firstly, it enhances teaching approaches and facilitates students' learning. Further More, It motivates and encourages students to learn by helping to attract and maintain their attention through engaging, interactive content.

The instructor also state that ICT also facilitates teaching by providing teachers with a rich source of knowledge and information that can be easily accessed and incorporated into lessons . This not only makes teaching more efficient, but also allows teachers to change and diversify their instructional methods, keeping students interested and engaged. Furthermore, the use of ICT can save teachers time and energy. Overall, the integration of ICT into education

is a valuable tool that can transform the learning experience for both students and teachers.

**Q7:***In your experience, how does the use of ICT impact student engagement in the learning process?*

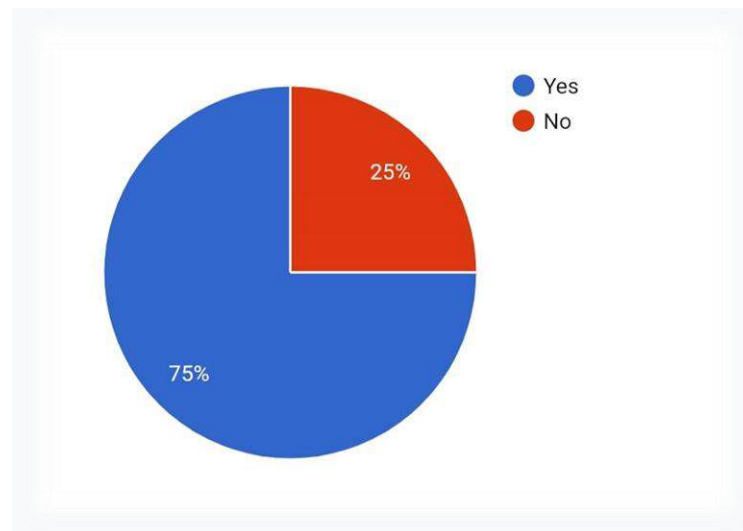


**Figure 3.7:** The Impact of ICT on Student Engagement in Learning

The figure above, reveals that all responses (100%) tell that the use of ICT impacts student engagement in the learning process is totally positive. The teachers were asked to justify their answers, and here are the most repeated answers:

- 1-Learning through experiment or learning by doing is more motivating and more effective since students are engaged in the teaching learner process.
- 2- ICT is not like the archaic approach of teaching where the learners were passive.
- 3-They will be motivated and autonomous.
- 4- When well used it may be a time saver and a very big help in explaining

**Q8:** *Have you observed any changes in student learning outcomes as a result of using ICT?*



**Figure 3.8:** The Influence of ICT on Student Learning Outcomes

In the final question, teachers were asked about changes in student learning outcomes due to using ICT. Teachers reported observing a positive impact in (75%) of cases, while (25%) did not notice significant changes. This suggests that a majority of teachers perceive ICT as beneficial in enhancing student learning outcomes.

#### **3.5.4. Findings and Discussion**

The Analysis of the teachers' questionnaire Provide valuable insights into the integration of Information and Communication Technology (ICT) in educational practices. The first findings, the percentage received suggests a widespread acceptance and adoption of technology as a tool for enhancing teaching and learning experiences. But for few percentage use it occasionally, which could mean they face challenges. These challenges might include not having enough technology or not having enough time. The third question which deals with which ICT tools using most, teachers reveals that they have the preference for Computers because it is the main tool used for different educational programs. While data shows and the internet provide lots of helpful information to make classroom lessons more interesting and engaging for

students. Additionally, two teachers revealed that they had received training on how to effectively integrate ICT into their teaching, while the other had not received such training.

The figure number seven reveals that all responses tell that the use of ICT impact student engagement in the learning process is totally in positive way. This positive reaction toward ICT usage in the classroom as they are already expected in and comfortable with various modern technologies, also they are motivated and more effective since students are engaged in the teaching learner process, also it can save time and greatly assist in clarifying information.

The final question's findings reveal that majority of teachers perceive ICT tools as beneficial in enhancing student learning outcomes, there remains a minority who do not observe significant changes. In addition Educators can choose how to use technology in the classroom by looking at both the good and bad ways it affects students' learning. This helps them make smart decisions about using technology effectively.

### **3.6. Conclusion**

This chapter aims to outline the objectives and methods for administering questionnaires to teachers at Belhadj Bouchaib University and master Two learners. To collect the necessary data, a two-step approach was employed. Initially, a questionnaire was distributed to thirty students to assess their comprehension of the survey and whether their responses will be helpful to our research. The second step is the teachers' questionnaire which was designed to respond, about how they use technology in their classes. These steps are followed by analysis of results which seem consistent with our hypotheses.

To sum up, the participants confirm that they integrate ICT technologies in teaching English at the university is very useful for both students and teachers. Moreover, the research findings suggest that participants perceive integrating ICT into both learning and teaching as beneficial for improving the quality of

education. Additionally, the utilization of ICT by educators is influenced by individual teachers' perspectives on these methods.

# **Chapter Four: Concluding Chapter**

- 4.1. Introduction.
- 4.2. Summary of the Study.
- 4.3. Some Pedagogical Implications.
  - 4.3.1. Teacher Training.
  - 4.3.2. Students Perceptions.
  - 4.3.3. Language Pedagogy.
  - 4.3.4. Pedagogical Approaches.
- 4.4. Limitation of the Study.
  - 4.4.1 Time Limitations.
  - 4.4.2 Sample Limitations.
  - 4.4.3 Methodological Limitations.
- 4.5. Some Suggestion and Recommendation.
- 4.6. New Research Perspectives.
- 4.7. Conclusion.

#### **4.1. Introduction**

In this pivotal moment of reflection and synthesis, the concluding chapter unfurls as the culmination of an intellectual expedition into the nexus of education and technology. The integration of Information and Communication Technology (ICT) has been the focal point of our exploration, an odyssey that has traversed pedagogical landscapes, acknowledged the contours of limitations, illuminated pathways with practical suggestions, and cast an anticipatory gaze toward the unexplored realms of future research. As we pen the introductory lines, envision the intersection of theory and practice, where the digital and the pedagogical converge in a harmonious narrative. The pages that follow resonate with the essence of our inquiry, weaving together threads of insight and foresight. This chapter beckons the reader to delve into the nuanced layers of our findings, from the transformative potential etched in pedagogical implications to the pragmatic considerations encapsulated in limitations, suggestions, and recommendations. Let this introduction serve as a portal, inviting all who venture forth to navigate the intellectual landscape that unfolds within. Here, the echoes of our research resound, setting the stage for a holistic understanding of the intricate dance between education and technology, culminating in a crescendo of perspectives that transcend the confines of this study.

#### **4.2. Summary of the Study**

The present work was carried out to explore the importance of the use of ICT to develop the teaching process on EFL students, and whether it is an effective tool in teaching, and to test if using ICT in classroom can assist the students to boost their skills.

This study has focused on two key questions: How do educators use ICT is the first question. The second is whether or not instructors and students can benefit from the use of ICT in the classroom. The answers to those queries are provided as hypotheses, or predictions. According to the first hypothesis, using ICT benefits both teachers and students. However, the second hypothesis asserts



that there are drawbacks to the usage of ICT in the classroom. Therefore, the purpose of this work is to test the aforementioned hypotheses, which have been validated and shown to be true.

### **4.3. Some Pedagogical Implications**

This section of the research explores the critical area of policy implications associated with the integration of Information and Communication Technology (ICT) in educational systems. Policymaking plays a pivotal role in shaping the direction and effectiveness of ICT integration, impacting various stakeholders such as students, educators, and administrators. One crucial consideration is the development of clear and comprehensive policies governing the use of ICT in education. This involves establishing guidelines for curriculum design, teacher training, and infrastructure development. Well-defined policies help create a structured framework for integrating ICT seamlessly into the educational landscape.

Additionally, policies should address issues of accessibility and inclusivity. Ensuring that ICT resources are distributed equitably among schools and that all students have equal access to technology is essential. This involves strategies for narrowing the digital divide and promoting a more inclusive learning environment. Teacher professional development is another key aspect that policy should focus on. Providing educators with the necessary training and support to effectively utilize ICT tools in their teaching practices is crucial for successful integration. Policies can outline incentives, training programs, and ongoing professional development opportunities. Moreover, policies should be flexible and adaptive to the dynamic nature of technology. Regular reviews and updates are necessary to keep pace with technological advancements, ensuring that educational policies remain relevant and effective over time. The section concludes by offering recommendations for policymakers to consider when formulating and implementing ICT integration policies. By addressing these policy implications, educational systems can create an environment that

maximizes the benefits of ICT, enhances learning outcomes, and prepares students for the demands of the digital age.

The use of Information and Communication Technology (ICT) in the teaching process has several pedagogical implications, as supported by various studies. Here are some key implications:

➤ **Teacher Training:** Teachers' pedagogical and ICT training significantly influence their approaches to online teaching and the use of digital tools. Formal pedagogical training is associated with aligning the design and implementation of online teaching, while ICT training is related to a learning-focused approach. Therefore, investing in both pedagogical and ICT training for teachers is crucial for effective integration of ICT in teaching.

➤ **Student Perceptions:** It is important to consider students' perceptions of the impact of ICT on teaching and learning. A study of Palestinian students and teachers revealed that while teachers had a strong impression of the influence of ICT on teaching, students perceived ICT to have a moderate impact. Students also reported facing challenges such as lesson duration, access to modern devices, and information research skills.

➤ **Language Pedagogy:** The use of ICT in language pedagogy has been rapidly evolving, with profound effects. This dynamicity of scientific innovations emphasizes the need for teachers to adapt their pedagogical approaches to integrate ICT effectively into language teaching.

➤ **Pedagogical Approaches:** Different pedagogical approaches are adopted for the integration of ICT into subjects such as English and mathematics. For example, teachers facilitate students to learn from and

with technology, emphasizing production and collaboration. Understanding these pedagogical approaches is essential for effectively integrating ICT into different subject areas.

In summary, the pedagogical implications of using ICT in the teaching process underscore the importance of teacher training, understanding student perceptions, adapting pedagogical approaches, and integrating ICT effectively into different subject areas. These implications can guide educators in leveraging ICT to enhance the teaching and learning experience.

#### **4.4. Limitations of the Study**

In research, limitations are like obstacles that hold us back from fully exploring a topic. They can be due to things like not having enough people in our study, the way we're doing our research, or how we're analyzing the information. It's important to recognize and talk about these limitations so we can understand our findings better. In this study, the researcher had a few things slowing them down, such as:

##### **4.4.1. Time Limitations**

The researcher's time frame for the study was limited because it is usually carried out over a little period of time. This could limit the methods of data collection that can be employed, which could limit how broadly the findings can be applied.

##### **4.4.2. Sample Limitations**

The number of students in our study was really small, only thirty. Also, most of them were girls, 23 to be exact. This means we might be getting the viewpoints and experiences of girls more, which might not be the same for other groups. And the respond of teachers was only four of them.

### **4.4.3. Methodological Limitations**

In addressing methodological challenges, we adopted a judicious mix of quantitative and qualitative approaches. This hybrid methodology allowed us to capture both statistical trends and nuanced qualitative aspects, offering a more comprehensive understanding of the impact of ICT in education. Our strategic use of longitudinal elements further strengthened our ability to assess the sustainability and evolving dynamics of ICT interventions.

### **4.5. Suggestions and Recommendations**

In the dissertation's discussion section and conclusion, offering suggestions for future research is a critical aspect. These suggestions aim to outline methods through which other researchers can replicate the study's findings to draw further conclusions. Additionally, they may propose alternative avenues for other investigation. In the context of this study, the following recommendations are provided:

✓ As ICT is a tool utilized in every aspect of life, EFL teachers and students ought to make use of it to improve their teaching and learning of the language.

✓ In order to facilitate their English teaching (both in class presentation and audio recording), educators should use ICT into their professional and academic activities.

✓ ICT encourages effective pedagogical practices and has a good impact on university instructors and pupils.

✓ To assist and expand their competence, students should use ICT resources to look for and search for further knowledge.

✓ Instructors ought to be aware of their students' challenges and let them participate in decision-making.

✓ At last, since information and communication technologies permeate most aspects of our lives, it is imperative that we use them to improve the educational teaching process. ICT makes teaching easier for teachers, inspires

students, and provides opportunities for them to support their learning competencies.

#### **4.6. New Research Perspectives**

New research perspective in the field of using technology in education involves looking at how immersive technologies like augmented reality (AR) and virtual reality (VR) can be used to create more engaging learning environments. The research explores how these technologies impact student involvement and understanding across different subjects and grade levels. It also investigates how teachers can adapt their teaching methods to make the most of these immersive technologies. This research aims to uncover the potential benefits and challenges of incorporating AR and VR into education, providing valuable insights for improving the overall learning experience

#### **4.7. Conclusion**

After we end our investigation into the dynamic interplay of Information and Communication Technology (ICT) within the educational tapestry, a resounding theme emerges the metamorphosis of traditional pedagogy into a digital frontier. Our sojourn has unfolded layers of insights, from the intricate dance of pedagogical implications to the candid acknowledgment of study limitations, the pragmatic embrace of suggestions and recommendations, and the visionary gaze into uncharted research horizons. The pedagogical implications etched in the digital canvas reveal a paradigm where technology is not a mere supplement but an integral catalyst in the learning process. It heralds an era where educators become curators of digital landscapes, guiding learners through immersive experiences that transcend the boundaries of conventional classrooms. The narrative shifts from linear instruction to an interactive symphony, echoing the pulse of a generation wired for innovation. In recognizing and confronting limitations, we illuminate the dimly lit corners of our research. These limitations are not impediments but compass points, guiding future explorers to refine,

iterate, and expand upon our foundational work. The digital pedagogy landscape is vast, and our insights serve as beacons, beckoning forth scholars and practitioners to navigate with an informed compass and a spirit of continuous improvement. The practical suggestions and recommendations articulated in these pages are not mere directives but invitations to a collaborative journey. They represent the nexus where theory meets practice, urging educators, administrators, and policymakers to bridge the digital divide. From cultivating digital literacy to fostering an environment of innovation, each recommendation propels us beyond the rhetoric into the realm of tangible transformation. As we pivot to the future, the concluding chapter serves not as a final note but as a prelude to the next movement in the symphony of educational research. The research perspectives outlined here are the siren songs calling forth inquisitive minds to explore the uncharted territories of AI-driven adaptive learning, the socio-cultural implications of technology in diverse educational contexts, and the ethical considerations that accompany our digital odyssey. In conclusion, our journey into the heart of ICT integration in education is not just an academic exercise; it is an innovative adventure into the future of learning. The echoes of our research reverberate in the halls of innovation, urging educators to not just embrace technology but to lead the charge in sculpting a digital pedagogy landscape that transcends boundaries, empowers learners, and charts a course for a future where the classroom knows no limits.

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# Appendices

## Appendix (a): Students' Questionnaire

Dear participants,

This questionnaire is part of completion research, which explores the use of information and communication technology which called ICT in Education context. Therefore, you are kindly invited to fill this questionnaire. Thank you so much for your time and collaboration.

Please put a tick (√) in the appropriate box and make full statements whenever necessary.

Q1. Gender:

- Male       Female

Q2. Age:

- 20\_25                       26\_30                       31\_35

Q3. How would you rate the availability of ICT resources in your educational institution?

- Excellent                       Good                       Fair

Q4. To what extent do you feel supported in using ICT for your studies?

- Strongly Supported       Moderately Supported       Not Supported

Q5. How frequently do you use ICT in your educational activities?

- Daily                       Rarely                       Never

Q6. What are some popular websites and search engines that people commonly use to access information online?

- Yahoo                       Gmail                       Facebook

Q7. The use of ICT in the classroom can make the subject matter more interesting?

- Strongly Agree       Agree                       Not Sure       Disagree

Q8. Are you utilizing artificial intelligence in your professional work?

- Yes                       No

Q9. What are the most common educational applications or software that you use?

- Chat GPT                       Perplexity                       Other

Q10. What online platforms do you use for virtual classes or learning?

- Zoom                       Google meet                       Other

Q11. Do you prefer assessments conducted through digital platforms over traditional methods?

- Yes                       No

Q12. Which ICT resources do you think are best for learning online?

- Computer                       Smart phones                       Tablets

Q13. Do your teachers use technological integration in their lessons?

- All of them                       Some of them                       No one of them

Q14. Which of these packages are you most adept at using?

- Microsoft word                       Microsoft power point                       Microsoft excel

Q15. What do you think about the impact of technology in education?

- Positive impact                       Negative impact                       Both of the impact

Q16. Using ICT in your opinion effect on your academic performance?

- Yes                       No

Q17. Do you have any additional comments or suggestions regarding the use of ICT in education?

.....  
.....  
.....

## **Appendix (b): Teachers' Questionnaire**

Dear teachers,

We would be extremely grateful if you could respond to the following questionnaire. The purpose of this questionnaire is to gather information about your experiences and opinions regarding the use of Information and Communication Technology (ICT) in education.

Please put a tick (✓) in the appropriate box and make full statements whenever necessary.

Q1. For how long have you been an English instructor?

.....

Q2. Do you employ ICT to educate in your classes?

- Yes
- No
- Sometimes

Q3. Which ICT tools do you use most often in your teaching?

.....

.....

Q4. How frequently do you use ICT tools in your teaching?

- Rarely
- Occasionally
- Frequently
- Always

Q5. Have you received training on how to effectively integrate ICT into your teaching?

- Yes
- No

Q6. What do you perceive as the main benefits of integrating ICT into education?

.....  
.....  
.....

Q7. In your experience, how does the use of ICT impact student engagement in the learning process?

- Positively
- Negatively

\_ Justify?

.....  
.....  
.....

Q8. Have you observed any changes in student learning outcomes as a result of using ICT?

- Yes
- No

## **Summary**

Information and Communication Technologies (ICT) have profoundly changed the field of education. Today, teachers have access to a variety of digital tools such as computers, projectors, and the Internet to facilitate teaching and learning. This study focuses on integrating Information and Communication Technologies into teaching English as a Foreign Language (EFL). Two questionnaires were distributed to second-year Master's students and their teachers at BelhadjBouchaib University in AinTemouchent to gather their opinions. The results indicate that both students and teachers have a positive attitude towards the use of Information and Communication Technologies. Students believe that these technologies enable them to improve their learning skills. Teachers also see Information and Communication Technologies as enhancing their teaching skills and thus helping to improve the teaching and learning process of English as a Foreign Language (EFL).



## **Résumé**

Les technologies de l'information et de la communication (TIC) ont profondément transformé le domaine de l'éducation. Les enseignants disposent aujourd'hui d'une multitude d'outils numériques comme les ordinateurs, les vidéoprojecteurs ou Internet pour faciliter l'enseignement et l'apprentissage. Cette étude s'intéresse à l'intégration des TIC dans l'enseignement de l'anglais langue étrangère (EFL). Deux questionnaires ont été distribués aux élèves de Master deux et à leurs professeurs de l'université Belhadj Bouchaib d'Ain Témouchent pour recueillir leurs perceptions. Les résultats montrent que les apprenants et les enseignants ont une attitude positive envers l'utilisation des TIC. Les élèves estiment que ces technologies leur permettent d'améliorer leurs compétences d'apprentissage. Les professeurs considèrent également que les TIC améliorent leurs compétences pédagogiques et, par conséquent, les TIC aident à améliorer le processus d'enseignement et d'apprentissage de l'EFL.

## المخلص

تقنيات المعلومات والاتصالات (ICT) قد غيرت بشكل عميق مجال التعليم. يتوفر اليوم للمعلمين مجموعة متنوعة من الأدوات الرقمية مثل الحواسيب وجهاز العرض والإنترنت لتسهيل التدريس والتعلم. تركّز هذه الدراسة على دمج تقنيات المعلومات والاتصالات في تعليم اللغة الإنجليزية كلغة أجنبية (EFL). تم توزيع استبيانين على طلاب الماجستير الثاني ومعلميهم في جامعة بلحاج بوشعيب بعين تموشنت لجمع آرائهم. تشير النتائج إلى أن الطلاب والمعلمين لديهم موقف إيجابي تجاه استخدام تقنيات المعلومات والاتصالات. يعتقد الطلاب أن هذه التقنيات تمكنهم من تحسين مهاراتهم في التعلم. كما يرون المعلمون أن تقنيات المعلومات والاتصالات تعزز مهاراتهم التعليمية وبالتالي تساعد في تحسين عملية التدريس والتعلم للغة الإنجليزية كلغة أجنبية (EFL).