

**People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research
University of Tlemcen**



**Faculty of Letters and Languages
Department of English
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**Exploring EFL learners' Information Technology Use in Dissertation
Writing: Case of Second Year Master's Students at Tlemcen University**

Dissertation submitted to the Department of English as a partial fulfilment of the requirements for Master's degree in Didactics of Foreign Languages

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Declaration

I, Kichou Mohammed Yassine, hereby declare that this work is my own and that all sources used have been acknowledged. I affirm that this document has not been submitted, either in the same or similar form, to any other institution or for any other academic qualification. I further state that I have read and understood the rules and regulations of academic integrity regarding plagiarism and citation of sources, and that this work does not include any material written or published by another person without acknowledgment in the text.

Kichou Mohammed Yassine

Dedication

I dedicate this work to:

My heaven on earth—my Mother

Whose love have never wavered.

My guide through life—my Father

Whose wisdom shaped my path.

My protector—my Brother

Whose strength always stood beside me.

My source of laughter—my Sister

Whose joy brightens my days.

Acknowledgements

First and foremost, I would like to express my deep appreciation to my supervisor, Prof. Rahmouna Zidane, who has given me invaluable guidance and encouragement and constructive remarks at all stages of this work. Without her expert insight, this study could not have taken the shape it has.

My thanks are extended to all the English department teachers for their assistance, support, and guidance throughout my academic journey.

Abstract

The influence of ICT tools on academic writing has increased tremendously with their increasing availability. Some of these tools include online libraries, citation management software, grammar checks, and AI-powered writing assistants. This study investigates the use of ICT in second year Master's EFL students' dissertation writing at Tlemcen University. It checks on how the students use these tools, the extent to which they are being used within the writing process, and the problems they create like their lack of digital literacy, over-reliance on artificial intelligence, and technical constraints. A student and teacher questionnaire was employed to gather both quantitative and qualitative data in the case study design. The results indicate that although most students are aware of how ICTs can be used to improve writing correctness and efficiency, their usage tends to lack sophistication and criticality. Furthermore, a lack of formal ICT training leaves most students to self-navigate and learn informally. Although acknowledging the potential of ICT, educators insisted that its integration must be guided to promote critical thinking and academic integrity. The paper concludes by making recommendations for institutional support, pedagogical approaches, and formal ICT training that promote ethical and effective use of technology in academic writing.

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General Introduction

With technology embedded in all aspects of life, Information and Communication Technology (ICT) has been one of the most, if not the most, influential area of technology that have had a significant impact on every domain, from healthcare, business, entertainment, to education particularly. ICT has transformed the way in which people communicate, work, and gather information. The massive growth of the internet, mobile technology, and electronic communication devices has changed the conventional educational procedures making them more efficient and accessible. ICT facilitated online learning through software tools like Learning Management Systems (LMS), research through online databases, and academic writing through programs and applications powered by artificial intelligence (AI) ultimately transforming education. Students gained access to virtual libraries, real-time collaboration platforms, and other resources through the internet, empowering students with easy research works and academic writing processes. Since ICT continues to evolve, its influence can only grow and transform the educational landscape in unprecedented ways.

Students eventually immerse themselves in complex academic writing processes such as dissertation writing. ICT provides essential support for research, organization, writing, and editing operations. For language learners who frequently encounter linguistic and architectural obstacles when writing their dissertations in a foreign language, its integration into academic writing is of paramount importance. Resources such as grammar checkers, reference management software and online libraries are tools that help overcoming such obstacles.

The role of Information and Communication Technology (ICT) in dissertation writing has significantly evolved with the rapid advancement of different digital tools and services. English as Foreign Language (EFL) learners now have access to a diverse array of ICT resources designed to enhance their academic writing skills. However, the extent to which these ICT tools are effectively used by EFL learners and the influence they have on the writing process of their dissertation remains unexplained. This study investigates the techniques used by EFL learners in dissertation writing, focusing on the type of instruments they use, how they use them, and the obstacles they encounter.

Although EFL learners are increasingly integrated into educational settings, they still face many obstacles when writing a dissertation. Some of these problems include language difficulties, lack of familiarity with academic writing convention, and limited access to the

elements of quality investigative work. Since ICT has the promise of addressing these problems, its effectiveness depends in large part on how proficient students are capable of using accessible instruments and integrating them into their writing.

The gap in research concerning the ways in which EFL learners make use of them for intellectual creation, the problems they deal with, and the approaches they employ in order to get the most of their use of such equipment is a thorough examination. Understanding these aspects is essential for developing appropriate pedagogic strategies and support structures that can assist EFL learners to improve their writing abilities.

ICT is a crucial element in the effectiveness of academic writing, providing access to various resources and enhancing efficiency. However, Algerian EFL students often appear unfamiliar with ICT tools that could facilitate the dissertation writing process. Therefore, this undertaken study provides an understanding into the influence of ICT on second year EFL master's students' academic writing at Tlemcen University. The objective of the research work is to examine the extent and specific methods of ICT use, including usage of tools like grammar checkers, reference management software, and virtual libraries, and how such resources are incorporated into the writing process. It also tries to identify the challenges that the students experience, like difficulty with digital literacy, restriction of access to advanced tools, and technical problems. Finally, the research work attempts to explore how ICT affects proficiency in academic writing, offering information to help in the creation of more effective support and teaching methods.

Thus, the main question is:

To what extent do second year EFL Master's students at Tlemcen University utilize Information and Communication Technology (ICT) resources in their dissertation writing process?

Consequently, this research work was planned to answer the following research questions:

- 1- How do second year EFL Master's students use ICT tools in the dissertation writing?
- 2- What challenges do second year EFL Master's students face when using ICT tools in dissertation writing?

The following hypotheses were formed based on previous researching experience and knowledge to answer the research questions:

1- Second-year EFL Master's students use ICT to draft and format their dissertations, check for grammatical accuracy and plagiarism, manage references, collaborate with peers and supervisors, and access research materials from digital libraries and academic databases.

2- Second-year EFL Master's students may face challenges such as limited digital literacy skills, difficulties in accessing premium software and databases, connectivity issues, technical issues with software functionality, dependency on AI-based tools, and challenges in properly integrating ICT tools into the dissertation writing process.

A case study of second year EFL master's students at Tlemcen University is selected to inquire into the aforementioned research questions and answer the principal question. This work focuses on exploring the influence of ICT on second year EFL master's students'. A questionnaire for second year EFL master' students and a questionnaire for English teachers were chosen to collect the wanted data. The results will be discussed quantitatively and qualitatively.

This research work is branched into two chapters. The first chapter is devoted to the theoretical part providing an overview of the addition of ICT in the educational landscape, its connection with academic writing, and the literature encompassing the aspects of ICT in addition to mentioning the previous studies conducted on this matter. The second chapter will be dedicated to the practical part focusing on giving a detailed description of the research design including the tools used to gather data and the sample population. It also deals with reporting the interpretations and discussions of the results. In the end, it offers some suggestions and recommendations for promoting and developing ICT use among EFL students.

Finally, this research work offers a comprehensive treatment of the subject, both on theoretical grounds and practical applications. By drawing on a range of sources and perspectives, it constructs a well-rounded understanding of ICT and proposes potential directions for future research and innovation. The findings are not only scholarly but they are also meant to urge readers to rethink their assumptions and address ICT-related issues with increased sensitivity and critical awareness. Combining fundamental principles with practical approaches gives this research work the possibility to invite the application of its results in real-life situations, enhancing digital literacy and enabling positive change in personal and professional life.

Chapter One: Literature Review of Information and Communication Technology Use in Dissertation Writing

1.1 Introduction

Technology has emerged as both a driver of innovation and an indispensable element in building modern pedagogy in this ever-changing educational landscape. This chapter examines how technological tools and information and communication technology (ICT) have transformed typical classrooms into interactive, eclectic, and dynamic learning environments. The chapter begins by looking at the historical foundations of educational technology. Then, it explores how online learning, digital environments, and emerging technologies and trends like artificial intelligence (AI) are transforming teaching practices, research methods, and student learning, focusing on academic writing. The chapter also lays the groundwork for a detailed investigation of how technology has continued to transform education in recent years, pointing out both the potential and problems linked to these developments.

1.2 Technology in Education

The Enlightenment era increased the likelihood of an advanced education emphasizing reason, empiricism, and the pursuit of knowledge. Pinker (2018, p. 233) argues that "Homo sapiens, 'knowing man,' is the species that uses information to resist the rot of entropy and the burdens of evolution". He highlights the special human capacity of obtaining and using knowledge, which is a pillar of education, to set in motion societal advancement, paving the way for new technologies to be implemented in various domains. Technology is a fairly broad subject to explore in an educational context, so before that, one must accurately define what it is.

Technology is defined by Gröbler as "encompassing both hardware—the tangible artefacts—and software—the knowledge required to produce and use these artefacts" (Gröbler, 2015, p. 20). He highlights the dynamic nature of technology, focusing on its ongoing development and complex connections that lead to consecutive technological clusters. To clarify, technology refers to the practical application of scientific knowledge to solve problems or improve processes (The Definition of Technology That is Transforming Entire Industries, 2024). It is the use of knowledge, tools, and interconnected systems to solve problems, elevate efficiency, and simplify living.

In this modern era, the pen and paper of our time is technology, which is why it needs to be inserted in classrooms at all levels as soon as possible. Davidson and Goldberg argue that "our institutions of learning have changed far more slowly than the modes of inventive, collaborative, participatory learning offered by the Internet and an array of contemporary mobile technologies" (Davidson & Goldberg, 2009, p. 9). The reason for this slow shift from traditional ways of teaching to technologically advanced ones only happened because the traditional ones were so effective that they did not need to be changed right away since their success rate was high.

Even though technology is spreading fast, teachers are the ones who should be at the forefront of embracing the integration of technologically advanced tools into their teaching practices. It leads to students getting a feel of how their educational environment can be so much more diversified and personalized. Educators can use interactive platforms that feed students multimedia content, such as pictures, videos, simulations, and tests or quizzes, making learning more within reach. In addition, they can use Learning Management Systems (LMS), platforms of education that allow teachers to make, manage, and deliver content to students (Neverdal, 2023, para. 2). Technology also facilitates the design of personalized learning paths at various speeds, minimizing stress and pressure and at the same time teachers can use the accumulated data to recognize areas where students need some scaffolding (Lim et al., 2023).

With the help of the media platforms, students became more aware of the many benefits technology offers for their academic lives, as Hicks stressed, "Today, many forms of media surround us and, in various ways, invite us to read, listen, view, and click, as well as— with the advent of smartphones and tablets---tap and touch" (Hicks, 2013, p. 104). Yet the authority of implementing technology in education lies in the decision makers' hands since it is their responsibility to decide on its efficacy, budget for it, and offer both educators and students the proper training and support to enable it to live up to its potential in enhancing learning experiences.

Piaget's Constructivism focuses on active, student-centred learning where learners construct knowledge through curiosity, problem solving, and interaction (Scholnik et al., 2006). Other concepts like the TPACK (Technological Pedagogical Content Knowledge) framework model and the SAMR (Substitution, Augmentation, Modification, and Redefinition) model are essential educational paradigms that help guide teaching practices and technological integrations (Zimmerman, 2018). Constructivism theory of learning

promotes both TPACK and SAMR through the advancement of contextual, consequential learning.

Moreover, TPACK integrates three vital areas; Technological (TK), Pedagogical (PK), and Content knowledge (CK). It treats them as functioning "individually as well as together" (Hilton, 2015, p. 70 as cited in Zimmerman, 2018). TPACK helps teachers design lessons where technology ideally supports subject matter and teaching methods. Unlike SAMR, which views the degree of technology integration (from substitution to redefinition), TPACK provides a subtle blueprint for aligning tools with pedagogy and content. (Zimmerman, 2018) states that the SAMR model outlines four levels of technology usage; substitution and augmentation which are considered ways to replace and enhance existing tools that the teacher might use in a learning task, while modification and redefinition are considered to transform a task in a way that would not be possible without technology.

These models call on educators to move towards transformative practices, which redefine learning tasks while exploiting technology to enhance student-centred learning experiences. According to Raja & Nagasubramani (2018), technology's role in education is significant since it is integrated into the curriculum, teaching methods, serves as a platform for instruction, and boosts the learning experience. Also, Carstens et al., (2021), explained that technology provides learning possibilities and allows for student comfort, engagement, readiness, motivation with the teachers mentioning that it benefits the students more than it impedes them (pp. 105-112).

Technology has firmly cemented itself to the educational framework increasingly proving itself to have more of a benefit impact than a negative one where students have more of a welcoming attitude towards learning. The Enlightenment's acceptance of reason and the prospect of human beings being able to know, paved the way for modern education to employ empirical research and drive social progress, and nowhere is this more evident than in the rapidly evolving technology of today. Technology both physical equipment and expertise to create and use it, continuously challenges us with novel means of more effectively solving issues and improving efficiency, and it is necessary that schools move faster than traditional methods.

Teachers, with the help of educational leaders and decision makers, must take the lead in introducing interactive platforms, multimedia content, and learning-management systems to construct personalized, engaging routes that respond to each student's specific requirements. Educational frameworks such as Constructivism, TPACK, and the SAMR model offer blueprints for shaping pedagogy, content, and technology to create effortless alignment of

learning tasks, taking teachers from simple substitution to transformative redefinition. Existing researched evidence proved that when technology is planned carefully into curriculum and instruction, it enhances student motivation, interest, and performance with the benefits being far greater than challenges.

1.3. Overview of ICT in Education

Information and Communication Technology (ICT) involves the infrastructure, components, and applications that enable modern computing and digital communication, as well as widely used technologies and electronics in several fields, including education. David Warlick (2006) described his 2000 visit to schools in Hong Kong, noting that teachers had multimedia projectors mounted on the ceiling with the projectors connected to high-performance desktops at their desks, which allowed them to project a wide range of information in the media type most appropriate to the teaching goal and students' information styles, and that “interactive media was replacing the chalkboard” (p. 24). His visit proven that in a couple of years technology would become the main means of accessing, producing, and disseminating knowledge and it has become, whereas pen and paper were formerly the primary tools for writing and recording.

ICT integrates computing, telecommunications, and digital media to enable communication, automation, and information sharing across various domains and sectors. It is an interconnected system that collects, processes, stores, transmits, and retrieves information in a digital form. Vasquez & Felderman stressed, “It is crucial for educators at all levels of schooling to take charge of reshaping curriculum and pedagogy in relation to technology” (Vasquez & Felderman, 2013, p. 97). ICT and technology have become a decisive component in education, where teachers’ active role in integrating it and changing curriculum and pedagogy is critical, ultimately, enhancing the educational framework.

ICT has been implemented in different educational contexts from primary to higher education. According to Coll et al., (2008), four ICT uses can be identified; mediating student-content interaction, (access to digital content, searching for information), supporting communication & representation (using ICT to present and explain content), monitoring and regulation (using ICT for feedback and assessment), and creating learning environments (virtual collaboration zones), which were the least used.

Zhang et al. (2016) discussed the main uses of ICT mentioning that it triggers educational reforms (reform of teaching and learning, of schools, and of education). According to them, ICT remodel the functions of teachers and learners, supports new

pedagogies, and enables digital learning through online exams, virtual classes, and interactive tools. In addition, they mention that ICT reforms provide "...openness and transparency of school administrative affairs". To explain, it aids in enhancing administration by providing decision-making systems that are data-based, increasing clarity in administration, and restructuring of governance promoting co-responsibility. Furthermore, they also state that ICT ensures educational equity through access to quality learning content, support of disabled learners, and fair opportunities for education while enhancing the effectiveness of educational institutions as well as complements anti-corruption mechanisms within education systems.

Digital textbooks, interactive whiteboards, and multimedia learning materials are implemented in intelligent classrooms to enhance engagement and comprehension by the students with the help of ICT. According to Marina (2025) Learning Management Systems such as Blackboard and Schoology facilitate learning online through online platforms for the delivery of content, assessment, and communication. Pugachevsky (2021) defined Massive Open Online Courses (MOOCs) as free and open learning platforms like Coursera and edX that allows for learning opportunities anywhere across the globe, enabling students to acquire new skills beyond traditional classrooms. ICT greatly aided students with disabilities using assistive technology (screen readers, speech-to-text programs, and alternative input devices). Hollingsworth (2024) demonstrates the eclecticism of ICT in addressing varying learning needs and increasing educational accomplishments in various contexts.

In short, ICT plays an important role in modern education with the help of digital technologies, computers, and telecommunications promoting learning as well as administrative efficiency. ICT revolutionizes teaching methods, creates virtual learning environments, and drives education reforms based on clarity, accessibility, and diversity. ICT integration through digital resources, platforms, and assistive technology has a large impact on the learning outcomes as and participation of students. By altering pedagogies and curriculum, ICT keeps learning adaptive, fair, and productive and in line with current technological developments.

1.4. The Role of ICT in Education

ICT is the combination of three words: INFORMATION, COMMUNICATION and TECHNOLOGY. From these three words, we can define ICT as "a combination of technological tools and resources that are used to manipulate and communicate the information. (Kaware & Sain, 2015, p. 27). To clarify, information and communication technologies (ICT) is "a diverse set of technological tools and resources used to transmit, store, create, share or exchange information". (UNESCO 2009, p. 120).

ICT encompasses more than simply data storage and access, it also includes effective data processing, analysis, and dissemination. In Toomey's words, ICT is "...those technologies that are used for accessing, gathering, manipulating and presenting or communicating information. The technologies could include hardware (e.g. computers and other devices); software applications; and connectivity (e.g. access to the Internet, local networking infrastructure, videoconferencing)" (Toomey, 2001, para. 3 as cited in Margaret, 2005, p. 3).

In simple terms, Information Technology (IT) is "the technology involving the development, maintenance, and use of computer systems, software, and networks for the processing and distribution of data" (Merriam-Webster, 2025). This definition shows how foundational IT or ICT is in almost every educational aspect. These aspects include the ability to create, build, and customize learning platforms like Microsoft Teams, Moodle, and Google Classroom (Dabbagh & Kitsantas, 2012, p. 3-8). It allows for maintenance of networks, servers, and devices, and provide security measures for them ranging from confidentiality to authenticity (Abd El-Latif et al., 2023, p. 13). In addition, the distribution of data through digital libraries, virtual labs, and MOOCs and analyze educational student data like performance, attendance, enrollment, and grades (Rubio-Menor et al., 2022, p. 2; Salameh & Hawarna, 2023, p. 379-380).

1.5. Key Components of ICT in Education

Information and Communication Technology (ICT) is an extremely vital aspect of modern society, it influences many aspects of life, especially education. ICT is a broad range of technologies used in processing, storing, retrieving, and communicating information. ICT is a fusion of information technology (IT) and communication technology to facilitate a fast exchange of data and connectivity. It is crucial to grasp the different aspects of ICT in education to be able to realize its impact on students.

These include hardware and software systems, networking, internet technologies, online learning, and productivity tools (Ashikuzzaman, 2024). Recent trends such as artificial intelligence (AI) can also be considered an aspect. With the ever-advancing ICT, it determines the way individuals interact, collaborate, and innovate. An understanding of its key components and applications informs us about its significance and the challenges of applying it in the rapidly changing digital era.

1.5.1 Hardware, Software and Networking

ICT involves several important components that play a direct role in enhancing the learning process (hardware, software, and networking). According to Ashikuzzaman (2024) Hardware includes the physical tools like computers, tablets, smartphones, and interactive whiteboards, networking equipment as well such as routers, switches, modems all the way to peripheral devices like printers, scanners, and external storage devices. These equipment help perform tasks, store and distribute data, and connect networks.

Additionally, he mentions that software includes computer programs or apps (like Microsoft Office and Google Workspace), operating systems (OS) (like Windows, macOS, Android, and iOS), and utility programs that are used for system optimization and maintenance, such as virus-protection tools, anti-virus programs and firewalls. Software forms the skeleton on which Hardware operates. Furthermore, he also explains that networking (connectivity and infrastructure) include the internet, networking systems, and cloud that facilitate collaboration, online resource access, and remote learning through which learning can be pursued digitally.

1.5.2 Online Learning Platforms

Online learning platforms took the world by storm allowing access to courses, tutorials, and academic resources from anywhere in the globe. "Since 2002, a study of online courses has been conducted in the United States. It was found that in 2012 there were 1.6 million students who studied at least one online course, and in 2013 and 2014 there were 5.5 million and 7.1 million students, respectively" (Kolowich, 2014 as cited in Liu et al., 2024, p. 5).). To clarify, this shows that online education became more common which shows in the increasing number of students enrolling in online courses in educational institutions.

Platforms like Moodle, Open edX, NEO, and LMS are the ones that Liu et al., (2024) focused on since they are translated into many languages making them logical for

international students to enrol on. They also concluded that they are the biggest platforms for distance learning while having some free access, allowing students to get accustomed to how they operate. According to Smith (2025), online education platforms have revolutionized schooling by providing educational courses, tutorials, and other materials online from any location and sites such as the aforementioned ones provide students with the freedom to learn as they desire, interact with instructors, and enjoy multimedia capabilities for enhanced learning.

1.5.3 Productivity Tools

There are many tools designed for the enhancement and betterment of students' learning experience. According to Ganlyat K. & Goodness J. (2022), digital productivity tools offer options for expression and growth by maximizing or extending the users' capacity to solve problems and create various matters. When it comes to the aspects of education, various tools help in terms of organization, collaboration, note-taking, time management, online learning, and research; for organization, tools like Google Keep, Evernote, and OneNote provide versatile workspaces for notes, databases, and task management. For creation and collaboration, tools like Google Docs, Google Sheets, Google Slides, Microsoft Office (Online/Desktop version), and Notion create notes, wikis, and tasks in a customizable flexible workspace.

Moreover, for time management, Trello and Todoist provide a simple to-do list and visual task management using boards and lists. For online learning, Platforms like Moodle, Zoom, Google Classroom and Microsoft Teams allow for free video conferencing and provide a digital classroom for assignments and collaboration. Lastly, for research, Google Scholar finds academic papers, and Zotero and Mendeley are reference management tools for academic research that also help organize research papers and citations. Other productivity tools include; Wolfram Alpha, Deepseek, Forest, Khan Academy, Quizlet, Grammarly, QuillBot, Perplexity, Slack, Asana, RescueTime, ChatGPT, Duolingo, Aria (by Opera), Socratic (by Google), Turnitin, Consensus, and so much more.

1.5.4 Artificial Intelligence

Artificial Intelligence (AI) has transformed the educational landscape by improving learning for students and revamping how students learn. As stated by Cohen (2024), AI can make adjustments to the needs of each student through machine learning algorithms that

provide customized learning experiences based on their individual needs. He also mentioned that AI has made education more accessible than ever before while providing individualized teaching and helping students with impairments or different learning styles receive specialized support and adjustments. In general, AI can be called many names. "AI can be categorized into three different types: Artificial Narrow Intelligence (ANI), Artificial General Intelligence (AGI), and Artificial Super Intelligence (ASI)" (Murugesan, 2024 as cited in Kwid et al., 2024).

ANI is known as Narrow AI such as Siri and Google Assistant, AGI which is the next generation of AI expected to be smarter than humans and perform cognitive tasks like them, and lastly, ASI which is much smarter than humans in every field raising concerns about where educational reform is heading (Narain, 2019 as cited in Kwid et al., 2024). However, there are other three types of AI tools. "AI-Based Learning Management Systems (LMS), AI-Powered Tutoring Tools for Students, and AI Tools for Language Learning". (Cohen 2024). As he explained, LMS use sophisticated AI algorithms to analyze student performance data and provide insightful feedback, tutoring AI also provides insights that help AI tutors identify where students need extra focus and provide targeted assistance, and Language learning

AI helps students practice and develop language skills in a simulated and interactive setting, making them fluent and confident. This means that these tools are tailored to a wide range of students' needs specifically made to target what they lack and what they need to work on. Numerous educational AI tools of these types are available with the most famous being Grammarly, Notion, ChatGPT, QuillBot, Turnitin and more.

1.5.5 Research Accessibility

When it comes to accessing resources, students are provided with many ways to do their research, including digital libraries, open-access journals, and online databases. According to Rajkumar et al., (2024), digital libraries have the ability to offer multiple advantages that help give access, storage, and share information, these advantages include accessibility, cost efficiency, global reach, preserved resources, and much more. Open-access journals are another great way of research. The Directory of Open Access Journals (DOAJ), which is according to Entrup et al., (2023) a catalogue of carefully picked and analyzed open-access journals with different conditions such as fee-free journals, journals reviewed by peers, and journals certified by DOAJ. They also mentioned the Bibliometric and Semantic Open Access Recommender Network or B!SON, which they explained has the same concept as the DOAJ; providing appropriate open-access journals and data sources to researchers or writers

based on their specific needs. These are search engines for finding journals that help in the research journey.

Furthermore, online databases are "...collections of journal, magazine, and newspaper articles. Each database contains thousands of articles published in many different journals, allowing you to find relevant articles faster than you would by searching individual journals." (ECA Library & Learning Support, What is a Research Database? section, para 1). For instance, many universities have their university database that gives students the ability to access an abundance of academic resources free of charge as a part of their tuition. To clarify, an online database is like an assembly of searchable information such as Google or Wikipedia, yet they are significantly inaccurate because of the duplicated results, limited document types, and lack of information stability.

1.6 ICT in Academic Research and Dissertation Writing

The dissertation is a key part of students' academic career which is generally a requirement for the Master's degree. Technology streamlined the multiple stages of the dissertation writing journey from research to composition by providing tools for literature searching, data analysis, and manuscripts. Online databases and citation managers simplify referencing, collaborative tools facilitate peer review and commenting, and AI gives instant feedback for any part of the process including grammar, information structure and so on.

1.6.1 ICT-Related Opportunities in Dissertation Writing

The development of information and communication technology (ICT) has dramatically influenced dissertation writing by enhancing research effectiveness, access, and collaboration. Students can gain access to vast academic literature from digital libraries, internet databases, and search engines. Other software facilitates reference management, whereas artificial intelligence-based writing assistants enhance writing quality. Additionally, cloud-based technologies enable real-time collaboration and synchronized interaction between learners (Kashyap, 2024). With the expansion of the information and communication technology (ICT) field, its application in writing dissertations opens up new futures for efficient and productive academic work.

1.6.1.1 Enhanced Access to Research Materials

The arrival of ICT has completely revolutionized the way students retrieve information. Students were once reliant on libraries, but now vast amounts of data can be retrieved from anywhere in the world, freeing up chances for more thorough literature reviews and data collection (The Impact of Technology on Dissertation Research and Writing, para 2, 3). Thus, this access leads to students easily identifying research gaps and new trends, guiding the selection of relevant and new dissertation topics.

Besides, digital libraries and online databases which are "repositories of information that are created, collected, organized, preserved, and disseminated in digital form" (Koehler, 2002, p.1 as cited in Zubaidi, 2023, p. 2) such as Google Scholar and JSTOR give access to an immense collection of scholarly journals, articles, and books allow students to carry out faster and more extensive literature reviews.

1.6.1.2 Improved Collaboration and Communication

Technologies like computers, laptops, and mobile phones are widely used for collaborating. Applications like the well-known Microsoft Office and Google Workspace are famous choices for academic writing offering real-time collaboration, solid document management, and version management making them convenient and manageable with seamless communication. (Dewey, 2024). Also, students could conduct various data collection methods through applications or websites such as Google Forms that include free functionalities like unlimited questionnaires and survey creation.

Responses data can be sent to a central database via the internet and put immediately into that specific application for the researcher to check. This is more convenient for the researcher and the respondents alike eliminating the requirement of travel or the need for any form of physical presence or material. Additionally, the countless AI features in these survey tools support distributing them via digital platforms, online links, emails, and other channels, making communication easy between both the researcher and the respondent while supporting data collection from various audiences (Williams, 2025).

1.6.1.3 Efficiency in Data Management

Researchers can use programs like Zotero and Mendeley to organize citations and maintain bibliographies systematically. Note-taking apps like Evernote or Notion allow students to construct literary databases, capture information from the web, attach multimedia

links, and write citations and bibliographies using word processors for easy retrieval. (Mayerhofer, 2024). AI assistants like ChatGPT help with feedback, rewriting, brainstorming, and enhancing any type of information.

1.6.1.4 Enhanced Writing Support

Artificially intelligent writing support tools has transformed the quality and efficiency of academic writing where tools like Grammarly, Quillbot, and Open AI's ChatGPT provide grammar correction, paraphrasing suggestions, style improvement, and real-time feedback to assist students in improving their dissertation drafts (Khalifa & Albadawy, 2024, p. 3).

Another study recognized the power of AI-assisted tools in writing and participants' reflections highlighted their benefits that included accessibility and convenience, where a participant shared that he could access ChatGPT any time and any place making it possible for him to practice writing at his own speed and receive feedback on the spot. While another participant mentioned that it expanded his vocabulary and improved the flow of his writing (Song & Song, 2023, p. 9).

1.6.1.5 Time Management

Effective time management organization is crucial for successful dissertation writing, and various ICT tools have emerged to support these needs. These optimization software tools makes use of AI to thoroughly analyze someone's daily habits, preferences, and priorities to form a personalized schedule making each aspect of a student's life coordinated with their educational and personal objectives ("Harnessing AI", 2024). Tools like Google Calendar and Todoist embody these characteristics providing seamless integration to students' academic lives.

1.6.1.6 Data Analysis and Visualization Software

Data analysis, the central element of most dissertations, has been transformed by expert software and visualization tools. For instance, researchers are able to carry out data analysis using systems like NVivo or ATLAS.ti and visualize data through software like Tableau and Microsoft Power BI that also allow students to display complicated data in understandable, interactive modes and help them analyze big datasets easily, detect trends, and deliver visual outputs to make their dissertation findings clearer and more impactful (Khalifa & Albadawy, 2024, p. 3).

1.6.1.7 Online Learning Communities and Academic Networking

Growth of online academic communities and professional networks has provided new possibilities for assistance and collaboration in the process of dissertation (McCulloch et al., 2017, p. 2-4). For example, platforms such as Research Gate, Academia.edu, and LinkedIn groups offer students a chance to connect with fellow researchers, share publications, ask for advice, and stay updated with new developments in their own fields (Lupton, 2014 cited in McCulloch et al., 2017, p. 4). Additionally, they mentioned that these communities offer a space where they can exchange knowledge and enable collaborative work, which results in significant feedback, potential co-authorship of papers, or access to rare materials. Membership in such networks adds value to students' academic profiles and establishes connections that could aid their future careers (Veletsianos & Kimmons, 2012; Weller, 2011 as cited in McCulloch et al., 2017, p. 4).

1.6.2 ICT-Related Challenges in Dissertation Writing

As students pursue their higher studies and reach the dissertation phase, they encounter countless difficulties since actually going through that phase is not as easy as catching up. According to Locke and Boyle (2016), four factors influence the dissertation writing process; not knowing how to start, writing barriers, challenges with supervisors/dissertation committee chairs, and finding the time. Other difficulties include, especially for EFL students, planning and collecting information, beginning the writing process, accurately revising, and with the last one being deciding on a topic and analyzing the content and structure (Alsaedi, 2024, p. 42).

Yet, it all falls under the umbrella of struggling with cognitive and metacognitive activities (Alisha et al., 2019, P. 20 as cited in Alsaedi, 2024, p. 42). The emergence of ICT tools such as AI assistants like ChatGPT or any similar assistant definitely helped when it comes to eliminating these challenges through generated content, feedback, and revised structure along with many other aspects ultimately improving efficacy and lessening the time consumed for research. Yet, difficulties still remain as AI is still an emerging technology in need of more care and caution.

1.6.2.1 Technical Issues

Ju & Pawlowski (2024) in a recent study, explored various technical issues students have with ICT tools in academic writing whether it is a personal issue or a technological

issue. As they explored, some issues included unreliability of technology, usability issues, quality issues, the learning curve, experience with these tools or lack of familiarity, software and hardware incompatibility, and tool availability and limitations. These findings align with recent literature of Emmanuel et al., (2024) on the application of ICT tools in schools. For instance, a systematic review highlighted shortcomings such as poor network connectivity and lack of electricity or electricity outages affecting students' use of ICT tools and facilities.

Students may encounter power outages that disrupt the writing process, making them lose any form of progress they made despite the auto-save feature that most new programs have nowadays. Another study by Belkhodja & Bouazid (2024) also brought to the forefront the findings and called for the need for user-friendly interfaces and reliable technologies in an attempt to enhance the writing experience. Complicated interfaces that are not user-friendly might make students lose interest and affect the amount of effort and time it takes to learn new tools, which may ultimately affect their writing output.

1.6.2.2 Over-Reliance

ICT covers various technological areas such as AI. According to Livingstone (2024) Dependence on AI tools like ChatGPT can result in superficial engagement with writing tasks, hindering the development of essential cognitive skills. In her words "...paraphrasing is hard work. It is not surprising, then, that many students are tempted by AI-powered paraphrasing tools" (para. 6). These tools can only be beneficial when the student already has a foundation in the writing process. These AI-powered tools also lead to a heavy amount of procrastination since they make students' hard work, easy.

1.6.2.3 Cost and Accessibility

As it is known, many tools require payment nowadays, which not every student can afford. The majority of the tools limit the user from using them in the first place because they have to pay to unlock premium features, or they need strong laptop or computer specifications to operate, and other tools are just subpar requiring the user to adjust the results over and over again. Digital divide also proves to be another issue that limits accessibility. Access to online journals, academic databases, and digital archives is critical for research. When access is unequal because of bad internet connection or unavailability of devices that allow for research, the quality and scope of a student's literature review and data analysis might be lacking.

1.6.2.4 Plagiarism

There are many types of plagiarism with the common ones ranging from copying and pasting from another study to unintentionally committing plagiarism by neglecting to properly cite sources or paraphrase them, this could happen out of ignorance or the lack of awareness of citation methods and paraphrasing complexities (AJE, 2021). Based on an article from The Guardian, Coldwell (2024) explained how the advancement of AI tools like ChatGPT has seen an increase in AI-assisted writing, igniting a confusion between what is authentic content and what is AI-generated content. This has led to controversy over academic integrity and the morality of using AI in education and especially in academic writing.

1.6.2.5 Lack of Teacher Training

Although the transformative potential of ICT in education is recognized, a significant barrier to its effective integration remains which is the absence of teacher preparation. Ghavifekr et al. (2016) pointed out that, while teachers know the benefits of ICT in improving teaching and learning, their capacity to use these technologies effectively is significantly constrained by a lack of training opportunities. They recognised that the majority of training initiatives concentrate mainly on fundamental digital competencies, with no consideration of the pedagogical practices required for successful integration of ICT into classroom practice.

Habibu et al. (2012) also discovered that teachers in Uganda encounter problems such as inadequate institutional support and weak training capacities that are major obstacles to ICT integration. As a result, teachers lack the confidence and competence required for using ICT tools, which compromises the efficacy of digital integration and influences student learning and achievement. Thus, to successfully integrate technology and facilitate 21st-century learning, teachers must be provided with thorough, pedagogically grounded training.

1.7 Overcoming ICT-Related Challenges in Dissertation Writing

Digital tools should be incorporated thoughtfully, with clear guidance to ensure they complement rather than replace critical thinking and creative writing skills. Additionally, professional development for educators is crucial to ensure they are well-equipped to guide students in using these tools effectively, fostering both technical proficiency and independent, and creative thought (Ramadhan et al., 2024, p. 768). Since these past couple of decades are heavily reliant on technology, most if not all students need to be digitally literate. As the previous quote stressed, finding a state of steady footing where digital tools are only the finishing touch and not replace the entirety of a student's skills in academic writing is crucial.

To clarify, Lambert (2024) explained how students nowadays might have the same technologically advanced tools, yet a different perception of how AI works when it comes to generating written content for example. Her blog aligns with the previous quote on how important it is to provide some digital awareness to students and teachers alike that automatically helps eliminate any kind of challenges concerning academic writing. Cognitive engagement is key for a good writing process. Carucci (2024) supports this by mentioning that “the blend of human ingenuity and generative AI could become a powerful marriage” (para. 16). Thus, by combining AI assistance with active human oversight and encouraging users to question outcomes, cross-check facts, and engage in reflective analysis, students’ critical thinking is kept intact.

Furthermore, Okojie et al., (2024) spoke on how to provide digital equity for students. They mentioned the need for some kind of allowance given by government agencies towards digital media to help educational institutions acquire the necessary technology. According to them, students who grew up in this modern age do not necessarily know how to use digital media for educational purposes, which is where teachers come in, so strategies such as video tutorials, tasks that allow students to use technology, and computer literacy modules or courses can help students develop their digital literacy skills and reduce the learning curve and resistance to technology.

Paraphrasing is most of the time the first solution students think of when they think of to avoid plagiarism, yet students still suffer with it whether it is because of language proficiency, critical thinking, or just relying on grammar tools too much to do it for them. Although students can know plagiarism when they see it, they still lack the skills or strategies needed to steer away from it. Best solution to avoid plagiarism is training students on knowing what establishes it and how to deal with it in their study (DeVoss, 2002; Vernon, Bigna & Smith, 2001 as cited in Larsson & Hansson, 2013, p. 63). They also mention that peer assessment is another tool for preventing plagiarism along with having discussions with students about plagiarism. These prevention strategies relate to this recent digital age where plagiarism is everywhere.

Most teachers and educators nowadays are getting familiar with digital literacy, yet there is a heavy amount of them that prefer the classical way of teaching without integrating technology. Thus, adopting technical knowledge, as stressed by Mishra and Koehler's (2006) TPACK framework, is critical for effectively using technology in an educational environment to develop digital literacy competency (Mardiana, 2024, p. 9). Her study shows that lecturers

with greater levels of digital literacy can create more dynamic and engaging learning environments, which leads to better student results.

1.8 Previous Studies

Lin Chenhui, Geethanjali Narayanan, Harrinni Md Noor, and Jin Ruixuan (2024) explored how technology-assisted writing strategies relate to second-language academic writing anxiety among 140 Chinese EFL scholars recruited via email and social media. They employed an online questionnaire that gathered demographic information and assessed use of technological tools during both the planning and problem-solving stages of writing, alongside a validated anxiety scale adapted for academic publishing contexts. The study found that online databases were the most frequently used resource, that only those technological strategies employed in the planning stage showed a clear relationship with writing anxiety, and that neither problem-solving strategies nor participants' age or gender appeared to influence anxiety levels.

Julián Darío Silva-Perdomo, María Soledad Duero, and Jairo Enrique Castañeda-Trujillo from Universidad Surcolombiana (2022) examined students' experiences of English learning in university courses at an institution in southern Colombia. The study shed light on the use of Information and Communication Technologies (ICT) in learning a language. Participants were five students in the advanced level course in the English for General Purposes Program. Information was gathered using a qualitative, narrative approach with individual experiences and in-depth interviews. The key finding showed students tended to have positive experiences with ICT when used independently through such devices as applications, computer games, and music. ICT's use within classrooms was frequently limited and weak due to teachers' lack of adequate training and the use of their usual practices. The study concluded that ICT can only truly aid in the acquisition of EFL if it is properly incorporated into viable pedagogies and by competent teachers.

Miss Zineb Arioua conducted a quasi-experimental study in 2023 at Kasdi Merbah University, Ouargla, Algeria, to examine whether technology resources, specifically Grammarly, had the potential to enhance the writing skill of EFL students. The study consisted of a sample of 20 second-year LMD students of the Department of Letters and English Language. Students were initially instructed on essay writing in accordance with traditional practices, then trained using Grammarly. Pre- and post-test essays were used to assess their writing ability before and after the intervention. The analysis of the essays

showed a dramatic score increase in the post-test, the result enhanced in grammar, vocabulary, coherence, and cohesiveness, reflecting that Grammarly can efficiently facilitate the development of EFL students' writing ability.

Yabukoshi and Mizumoto's (2024) study was designed to investigate the types of devices and reference tools Japanese university EFL students employed voluntarily to support their academic writing at three stages-planning, drafting, and revising-and identify the problems they encountered in using them at these stages. The subjects were 54 sophomore students, between the ages of 19 and 21, enrolled in business-related majors at a Japanese university, who were all intermediate-level EFL students enrolled in a compulsory English academic writing course in a computer classroom. The research instruments included a writing task requiring students to compose a classification essay over three weeks, with freedom to use any devices and reference materials, followed by a survey administered after each writing stage.

The survey, adapted from Choi's (2016) Writing Resources Inventory and conducted in Japanese, gathered quantitative data on device and resource usage and qualitative data on students' reported difficulties. The main findings were that the most widely used devices throughout all stages of writing were smartphones, upon which the majority of the students relied on online dictionaries and machine translation tools such as Google Translate. There was less use of PCs and pocket electronic dictionaries, whereas paper-based resources, especially the course textbook, were used extensively in planning and drafting. Reported difficulties by students were all centered on organization, text production, and error correction, referring to the cognitive load of academic writing. The study highlights the overwhelming use of smartphones and a limited range of online tools within Japanese EFL learners' writing processes and suggests the need for pedagogical practices that accommodate these learners' specific difficulties in technology-enhanced writing contexts.

1.9 Conclusion

All in all, technology and ICT incorporation into the education system ushered in a new era of transformative learning and research. This chapter has shown that digital technologies, ranging from web-based learning platforms to artificial intelligence-based tutoring systems, are improving the outcomes of teaching, accelerating academic research, and expanding access to knowledge. However, with all these advances, challenges like technological challenges, the danger of overdependence, economic constraints, and academic integrity issues remain. Educators, decision-makers, and institutions in the future must cope

with these challenges while creating an environment that balances technological innovation with the development of the student's cognitive and metacognitive abilities. The second chapter is going to deal with EFL Master 2 students' use of ICT tools in dissertation writing. It provides an overview of the research design, sample population, and data collection process. The findings are presented, followed by discussion and analysis. Recommendations include using more ICT and having more training to enable integration.

Chapter Two: Research Design, Procedures, and Data Analysis

2.1 Introduction

This chapter is formulated to explore Second-year EFL students' information technology use in dissertation writing. It focuses on the effects of ICT tools on academic writing while investigating their benefits and difficulties. The researcher's centre of attention was on both the practical and hypothetical side, making sure to cover the varied procedures of the research process conducted at Tlemcen University. It starts with presentation of the research design with the inclusion of the type of research, sample population, and a description of different instruments and methods used to collect and analyse data. This chapter demonstrates the results accumulated from the instruments for discussion and analysis. Lastly, recommendations and suggestions are provided to promote more use and training for ICT tools in academic writing.

2.2 Research Design

Research design is like a mind map made up of different specific steps the researcher uses to organise his work which ultimately leads to answers for his research questions. It is crucial to create an error-free research design so that the researcher could test his hypotheses and answer questions. It is known that a research design makes the exploration of a topic reliable and credible, yet the success of that exploration comes down to some aspects such as identifying the purpose and type of research while also considering what type of data to collect and methods to collect it.

The case study is a "detailed examination of an event (or series of related events) which the analyst believes exhibits (or exhibit) the operation of some identified general theoretical principles" (Mitchell, 1983, p. 192 as cited in Rhee, 2004, p.72). Therefore, a case study was conducted to collect quantitative and qualitative data since it explores and understands issues or phenomenon in a real-life context. The researcher wants to know and understand Master 2 EFL students' ICT use in dissertation writing and how it affects their writing proficiency. This is an explanatory and descriptive investigation composed of questions about the technological elements or factors that influence the dissertation writing process among university students.

2.3 Sample Population

The importance of selecting an appropriate sample population for research is that it can effectively represent the entire population researched. As Creswell (2018) puts it: "Stratification means that specific characteristics of individuals (e.g., gender—females and males) are represented in the sample and the sample is representative of the actual proportion in the population of individuals with certain characteristics." (p. 247). This method ensures that key demographic or relevant characteristics are included proportionally, thus making the study more valid and generalizable. Without adequate sampling, conclusions may be biased or fail to represent significant viewpoints, diminishing overall reliability of the study.

Master 2 university students are the case study chosen since they are the ones concerned with writing their dissertations. In addition, in this technologically enhanced educational landscape, the frequency of using ICT tools goes up exponentially at this stage because it helps their dissertation writing process. Thus, a sample of 47 students from the four Master 2 branches (Didactics, Linguistics, Translation, Literature and Civilization) of the English department was selected to participate in the questionnaire. A manageable and representative subset of the population was provided, enabling the researcher to draw meaningful conclusions about the broader group's use of ICT in dissertation writing.

2.4 Research Instruments

Instruments of research are the tools or techniques that the investigator uses to collect data and measure it along with analyzing it in order answer his research questions and reach his objectives. The kind of instrument used is chosen by the research objectives, the data needed (qualitative or quantitative), and the ease of access to the sample. Questionnaires are created and utilized to collect large amounts of data from a wide range of respondents while being often inexpensive to administer, need minimal training to construct, and can be readily and rapidly examined once finished (Birmingham & Wilkinson, 2003).

Simply put, a questionnaire is "a set of questions for obtaining statistically useful or personal information from individuals" (Merriam-Webster, 2025). It should be proven dependable and well-grounded by the investigator to make conclusions related to the study. The researcher used one instrument that is a questionnaire for both students and teachers because he was concerned with numbers and stats. A questionnaire ensures the gathering of data needed rapidly whether they are quantitative or qualitative especially when the sample is of considerable size. The responses collected from the questionnaire reflect the sample's

views from different angles along with their experience about the topic in order to be analysed rapidly and cost-free as the definition showed.

2.4.1 Students' Questionnaire

The data collection process of this exploration begun with a questionnaire addressed to Master 2 EFL students of the four branches of the department of English in the University of Abou Bakr Belkaid in Tlemcen, Algeria, 47 of which responded. Eighteen questions were included in the questionnaire directed at collecting information and details about EFL learners' ICT use in dissertation writing. The responses of the students provide a reflection to the various factors that affect their dissertation writing process during their last year in university.

2.4.1.1 Description

The questionnaire addressed to Master 2 EFL students was composed of a set of questions that focused on particular details. The first question identified what primary hardware the student use or rely on when writing their dissertations. This question explored accessibility, preference, and potentially socioeconomic factors influencing device choice. Next, the second question tried to understand which digital writing tools are favored. It helped assess students' software literacy and compatibility preferences. The third question measured the frequency of using internet-based resources for academic research, providing details into students' digital habits and dependence on online tools.

Then, the fourth question is one that complemented the first and second question by seeking the "why" behind the preferences of devices and software. It explored the motivations and conditions from confidence, demographics, field of study, and much more aspects that guided students to choose a certain tool. In addition, the fifth question gauged learners' perceptions about the educational impact of digital tools on their writing abilities including subjective improvement and potentially measurable benefits.

Speaking about confidence, the sixth question assessed the students' technological self-efficacy or their trust in their capacity to effectively use technology for academic tasks. This question is closely related to question five, yet it focused on their confidence and competency rather than perceived improvement. Moreover, the seventh question identified the academic platforms students used reflecting on how they looked for information and figured out their level of digital literacy. The eighth question calculated how frequently learners engaged in discussions through social media platforms and explored the informal learning

environments and peer support systems. It is similar to question three as both of them explored the frequency of digital use; however, the latter was about research tools and the former was about academic communication. Further, the ninth question investigated their critical thinking skills in digital literacy or how they assessed the reliability of certain digital academic content.

Heading to the tenth question, it was concerned with understanding the support tools like grammar checkers, citations managers and plagiarism detectors that helped in writing. The eleventh question looked at how students managed the notes or content they employed in writing whether digitally or physically. Both of these questions dealt with tools used in the writing process but question ten was broader talking about any writing aid while question eleven focuses on organizational strategies. Question number twelve recognised barriers that may have influenced the effective use of technology in academic writing and question thirteen explored the methods students relied on to overcome technological problems. While both addressed difficulties using technology, question twelve focused on the challenges that exist but question 13 on how students respond.

The fourteenth question assessed whether students had formal or informal instruction in using digital tools for academic purposes showing preparedness and institutional support. Question number fifteen recognised students' unmet needs and preferred ways of assistance like workshops and tutorials and one-on-one help to develop their use of writing technologies. Moreover, question sixteen tried to understand how students engage in collaborative writing or feedback using digital platforms like shared documents, messaging apps, or online workspaces. Question number seventeen collected students' point of view on the evolving role of technology in academic writing including AI tools, automation, and future trends. Lastly, question number eighteen, offered an open-ended zone for respondents to explain and elaborate on personal experiences, ideas, and challenges not caught by the structured questions.

2.4.1.2 Procedure

The questionnaire was directed to Master 2 EFL university students at Abou Bekr Belkaid University of Tlemcen. Data collection process took a long time as master students' studying schedule was not a light one. The researcher asked permission from the delegate of each English department branch to send a questionnaire via their Facebook Messenger groups for a faster data collection. 47 students from the branches completed the questionnaire, and all of the replies were examined without exception.

The questionnaire gave a specific description about the nature and importance of the work. The questionnaire's questions that were provided to explore the aspects and elements that influence the degree of ICT use. The reason behind sharing this questionnaire was to collect information about the experiences, preferences, challenges, and needs regarding the use of ICT in dissertation writing. The formulation of the questions included close-ended multiple-choice, multiple-choice with an "other" option, open-ended, rating scales, combination, and lastly yes/no questions to ensure clarity and ease of response while covering a range of relevant topics related to ICT use in dissertation writing.

2.4.2 Teachers' Questionnaire

The collection of the responses show the experience and different opinions of the teachers concerning the matter of ICT in dissertation writing.

2.4.2.1 Description

This questionnaire was targeted towards Master 2 teachers of the four branches of the department of English in the University of Abou Bakr Belkaid in Tlemcen, Algeria, ten teachers responded. Nine questions were included in the questionnaire directed at collecting EFL teachers' opinions and insights about different aspects of integrating technology into the dissertation writing process.

The first question inquired whether teachers modified instruction to meet students with varying levels of tech proficiency. The second question evaluated how frequently the teachers helped students choose the right digital tools for dissertation work. Subsequently, the third question intended to identify particular digital tools (citation software, grammar checkers) instructors told students to use. The fourth question examined learners' difficulties during integration of technology into academic writing.

Also, the fifth question asked if technology enabled improved teamwork and feedback in dissertation work with an "If yes, why?" follow up question that asked for reasons for trusting technology's teamwork advantage. The sixth question investigated the causes that rendered students overly dependent on digital technologies rather than developing autonomous capabilities. The seventh question is a measure question that ranked the extent to which teachers considered technology to be important during the dissertation process. The eighth question asked for the classroom advice teachers gave to students on how to use technology better in

writing. The ninth and last question asked about methods for assessing the degree to which technology is improving students' academic writing quality.

2.4.2.2 Procedure

The questionnaire was concerned with Master Two EFL university teachers at Abou Bekr Belkaid University of Tlemcen. Same as the students' questionnaire, the data collection process was lengthy since the teachers teach all levels from First Year Licence students to Master Two. E-mails were sent via Gmail to teachers from the researcher with the questionnaire attached for a faster data collection. All answers of the ten teachers were examined without exception.

These questions studied EFL teachers' point of views about various factors of ICT implementation into the academic writing process. This questionnaire collected information addressing issues, challenges, collaboration and feedback, appropriate digital tools, and so on regarding the use of ICT in dissertation writing. Questions include close-ended (yes/no), frequency-based, rating, and open-ended that are both solution-oriented and exploratory, to avoid ambiguity and make sure the responding process is clear.

2.5 Results

The researcher used one research instrument to explore Master Two EFL learners' ICT use in dissertation writing. Thus, the next title includes a description of the collected data from both questionnaires where analysed, summarized, and arranged results of the study are shown.

2.5.1 Students' Questionnaire Analysis

The section presents the result of the questionnaire given to students to explore how learners utilize digital tools and platforms for academic writing. The findings gave insight into students' preference, pattern of usage, and challenges with ICT for their academic work.

Question 1: Used Electronic Devices

Respondents were asked which electronic device they use most frequently for writing. The figure summarises the results.

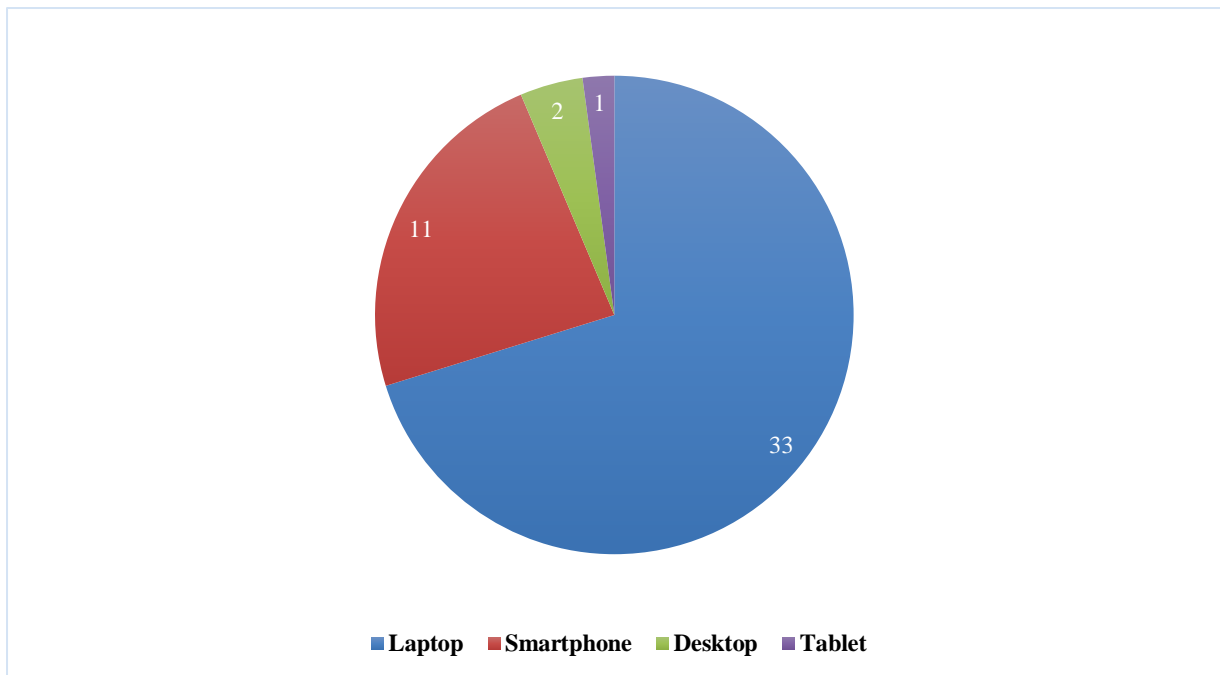


Figure 2.1: Used Electronic Devices

The majority—33 out of 47—reported primarily using laptops, making them the dominant choice. This preference underscores laptops’ balance of portability and functionality, offering a comfortable and efficient writing experience for extended periods. Smartphones were the second most commonly used device, cited by 11 respondents. Their popularity likely stems from their convenience and suitability for quick tasks or note taking on the go. However, their small screens and limited typing comfort make them less ideal for longer writing sessions. Desktop computers and tablets were the least used, possibly due to their stationary nature or lack of ergonomic and functional support for regular academic writing.

Question 2: Preferred Software/Application

Participants were asked to identify their preferred software for writing. The figure summarises the results.

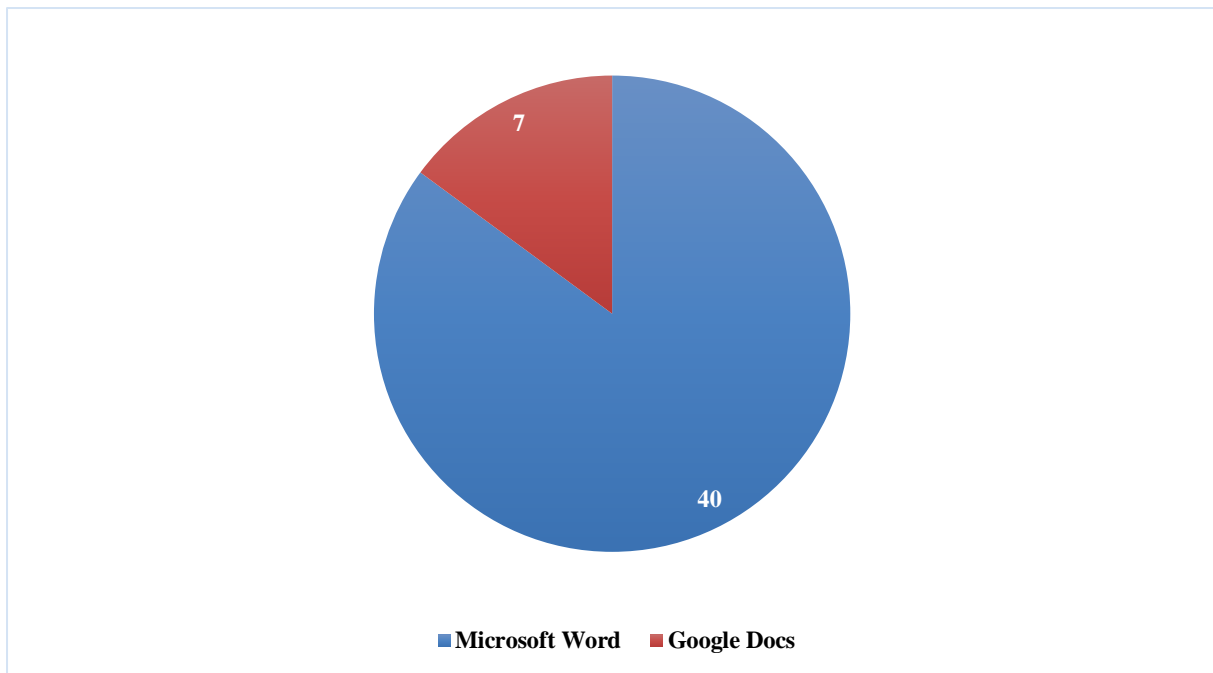


Figure 2.2: Preferred Software/Application

Microsoft Word emerged as the clear favorite, selected by 40 out of 47 students. This reflects the program’s familiarity, comprehensive feature set, and longstanding presence in academic and professional environments. Its cross-platform compatibility and versatility further solidify its appeal. Some students indicated using alternatives like Google Docs, which are valued for real-time collaboration and cloud-based accessibility. Despite these advantages, these alternatives remain secondary to Microsoft Word for most users.

Question 3: Online Tools

Students were asked about the frequency of their use of online research tools. This figure represents the writing development as perceived by students, showing that a large number of students perceive that technology has improved their writing abilities through such things as grammar suggestions, citation tools, and online resources.

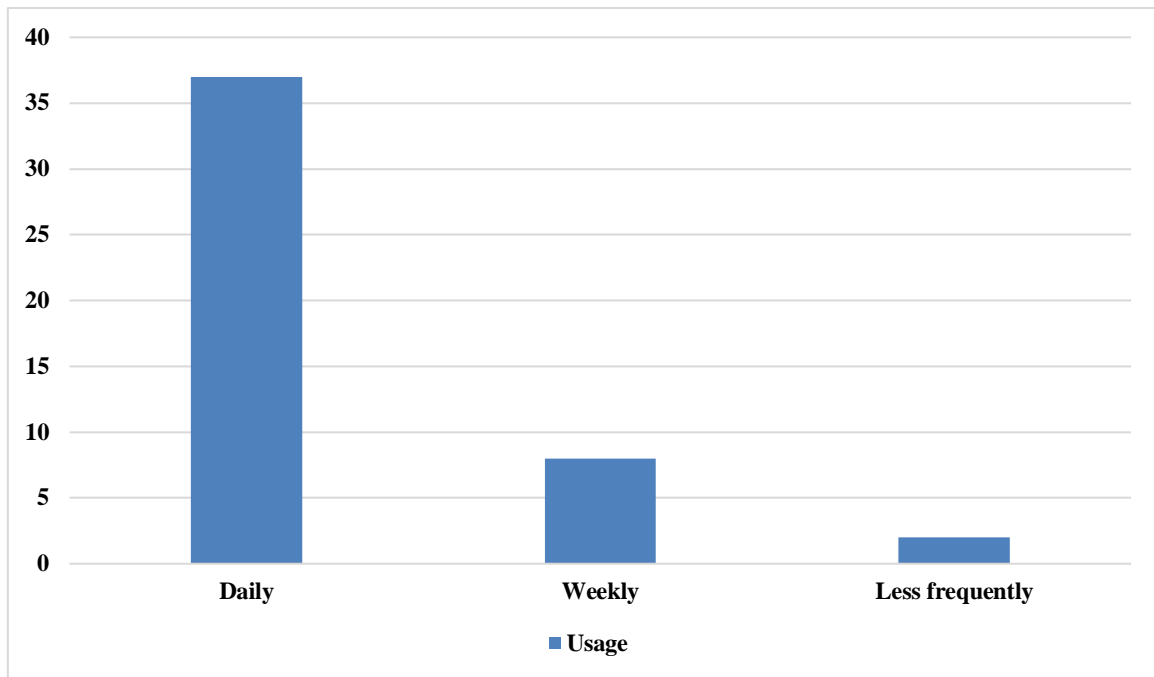


Figure 2.3: Online Tools Usage Frequency

A substantial majority (37 respondents) reported daily use, highlighting the integration of online research into their academic routines. Eight respondents reported weekly usage, and only a few used these tools less frequently. These patterns suggest variability in study habits, academic demands, or personal preferences regarding digital research practices.

Question 4: Influencing Factors

The figure presents students' levels of confidence in determining online sources' credibility, depicting an almost equal number of respondents who felt confident versus those who did not.

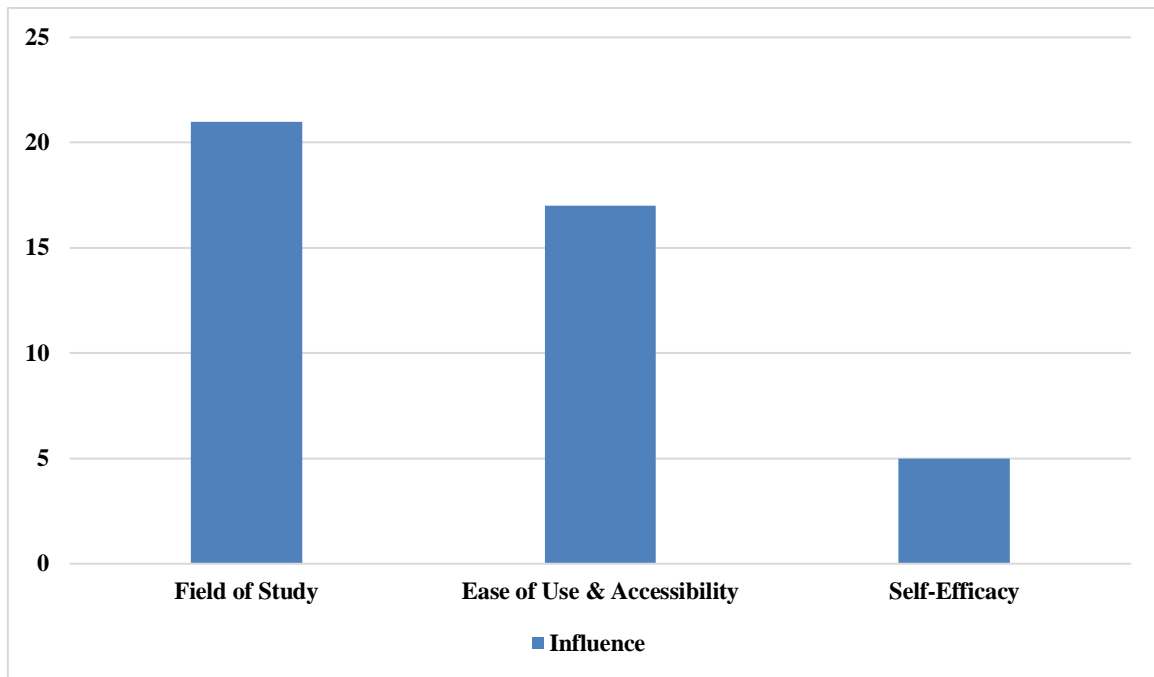


Figure 2.4: Influencing Factors

When asked which factors influence their choice of ICT tools, students cited field of study (21), ease of use and accessibility (17), and self-efficacy (5) as the most significant. Ease of use and accessibility were particularly important, as students prefer intuitive, multi-platform tools. The relevance of the field of study suggests that certain disciplines necessitate specialized software, while self-efficacy reflects the impact of students' confidence in their ability to use particular tools effectively.

Question 5: Improvement of Writing

Students were asked whether technology has improved their writing skills. This figure exhibits the degree to which students engage with digital writing tools, be they grammar and spell checkers or plagiarism checkers, with the great majority claiming that they have.

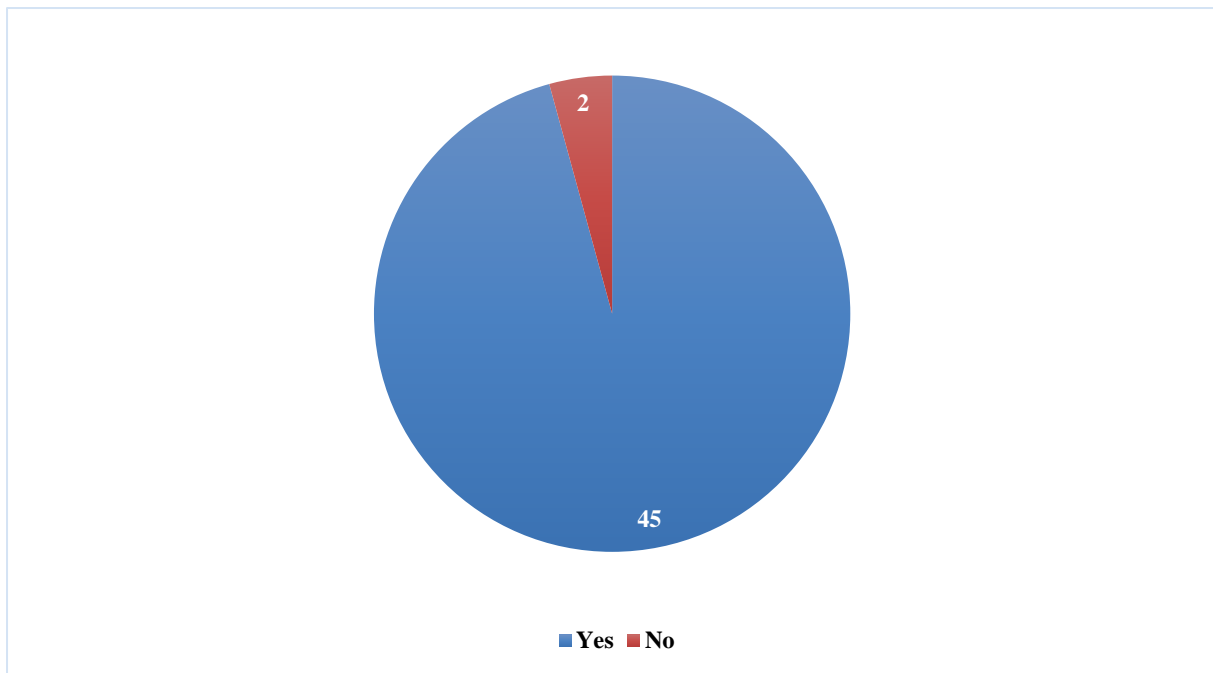


Figure 2.5: Improvement of Writing

The vast majority (45) responded affirmatively, while only two disagreed. Key reasons included access to online writing resources, instructional content, and the supportive features of writing software (e.g., grammar suggestions, templates, formatting tools). Tools like spellcheckers, citation generators, and collaborative platforms were also credited for enhancing efficiency and reducing errors.

Question 6: Confidence in Using Technology

Responses varied regarding students' confidence in using technology for academic purposes. While many expressed high confidence, others reported moderate or neutral feelings. This variation likely stems from differences in exposure, training, and prior experience. While frequent use builds competence, some students may still be adapting to technological demands in academic settings.

Question 7: Used Online Platforms

The figure summarises the results.

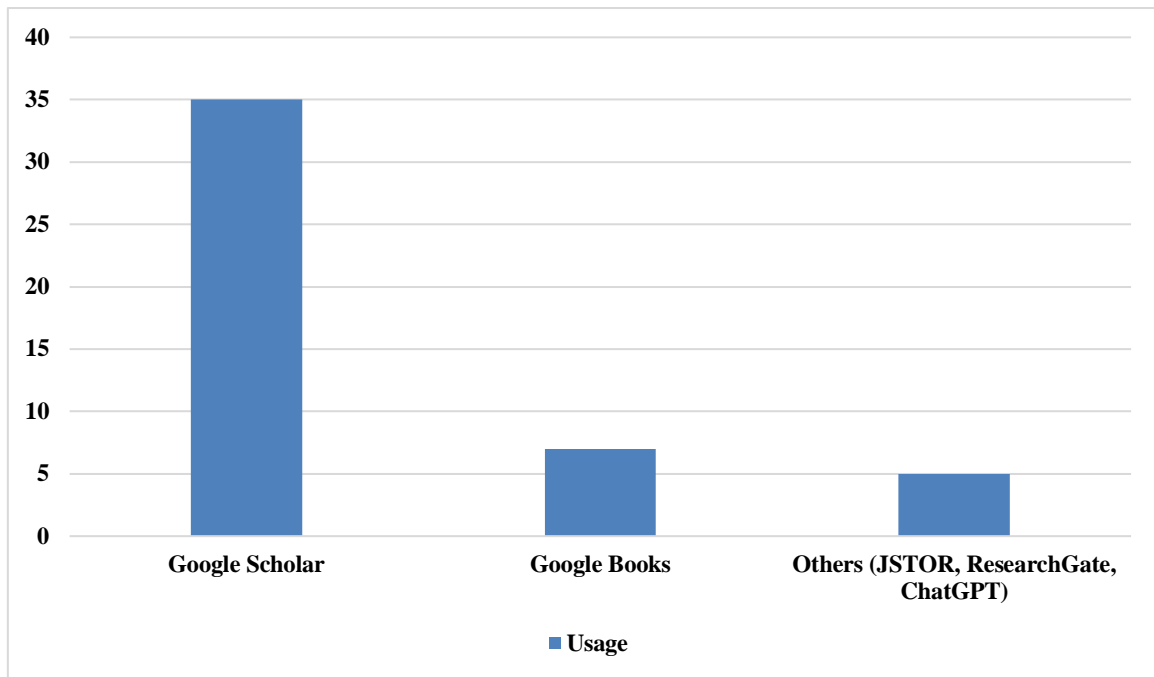


Figure 2.6: Used Online Platforms

When asked which platforms they use most frequently for research, 35 out of 47 students cited Google Scholar, reflecting its popularity and accessibility. Google Books followed with 7 responses. Other platforms mentioned included JSTOR, ResearchGate, and ChatGPT. This diversity suggests that while mainstream platforms dominate, students also explore both traditional and emerging digital tools for research.

Question 8: Discussions on Social Media/Forums

Students were asked whether they use social media or forums for academic discussions.

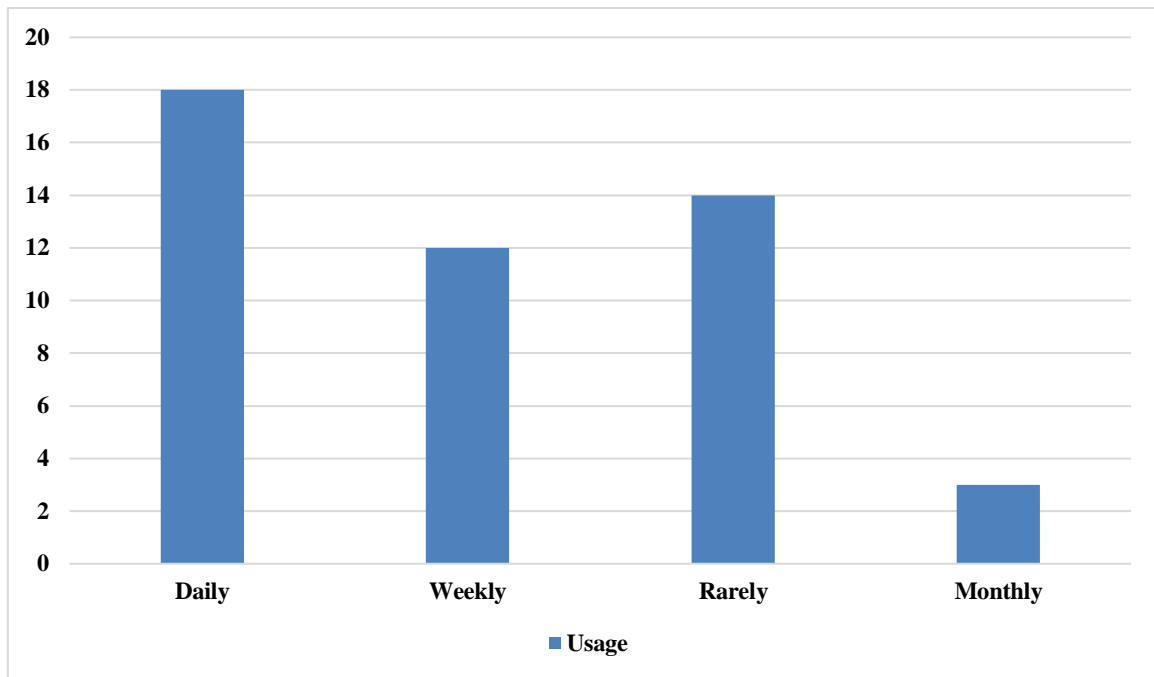


Figure 2.7: Discussions on Social Media/Forums

Eighteen reported daily use, twelve weekly, fourteen rarely, and a few monthly. Despite some engagement, these platforms are not viewed as primary channels for scholarly discourse. Students seem to prefer structured and credible sources such as academic databases and digital libraries for formal academic interactions.

Question 9: Online Sources' Credibility

Students were asked about their ability to evaluate online source credibility.

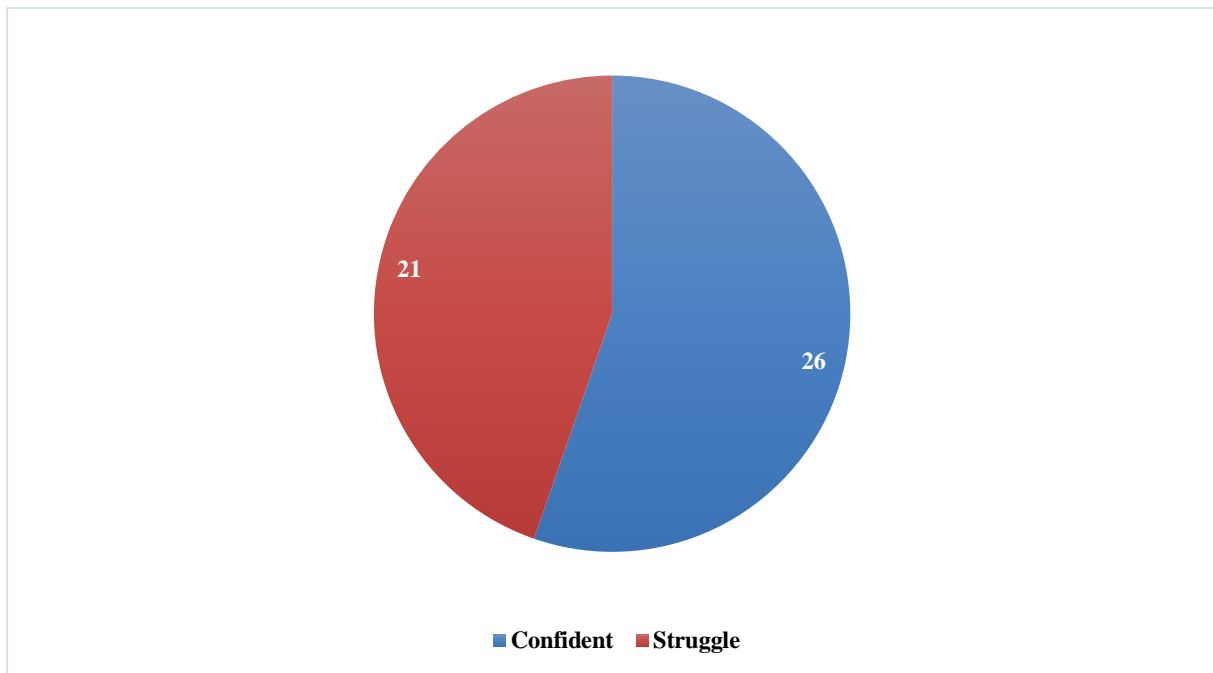


Figure 2.8: Online Sources' Credibility

Responses were nearly evenly split: 26 felt confident, while 21 struggled. This suggests a moderate level of information literacy among participants. While many can identify trustworthy content, a significant portion may benefit from targeted instruction in assessing source credibility in the digital age.

Question 10: Writing Tools

This figure exhibits the degree to which students engage with digital writing tools, be they grammar and spell checkers or plagiarism checkers, with the great majority claiming that they have.

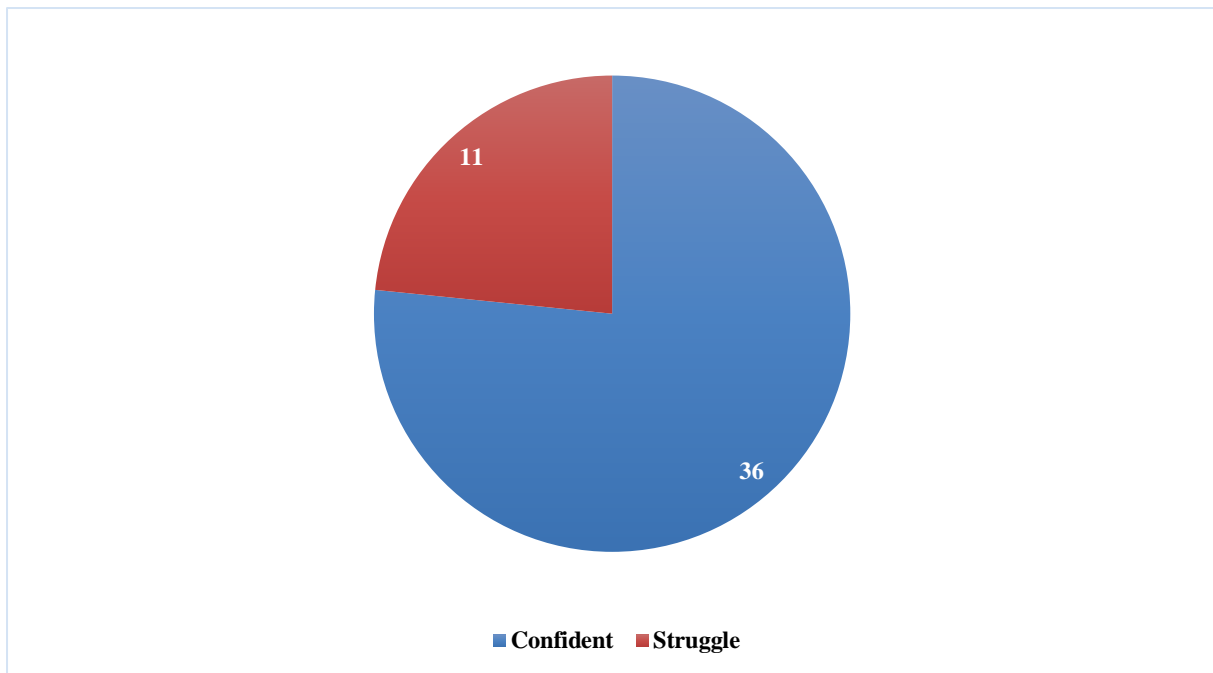


Figure 2.9: Writing Tools Usage

Most respondents (36 out of 47) reported using digital tools like grammar checkers, plagiarism detectors, and citation managers. These tools are valued for improving clarity, accuracy, and academic integrity. A smaller group reported not using such tools, possibly due to confidence in their writing abilities, skepticism about automated systems, or lack of awareness of available resources.

Question 11: Notes and References

This figure illustrates students' choices when it comes to note-taking and reference organization, with the hybrid physical/digital means topping the list.

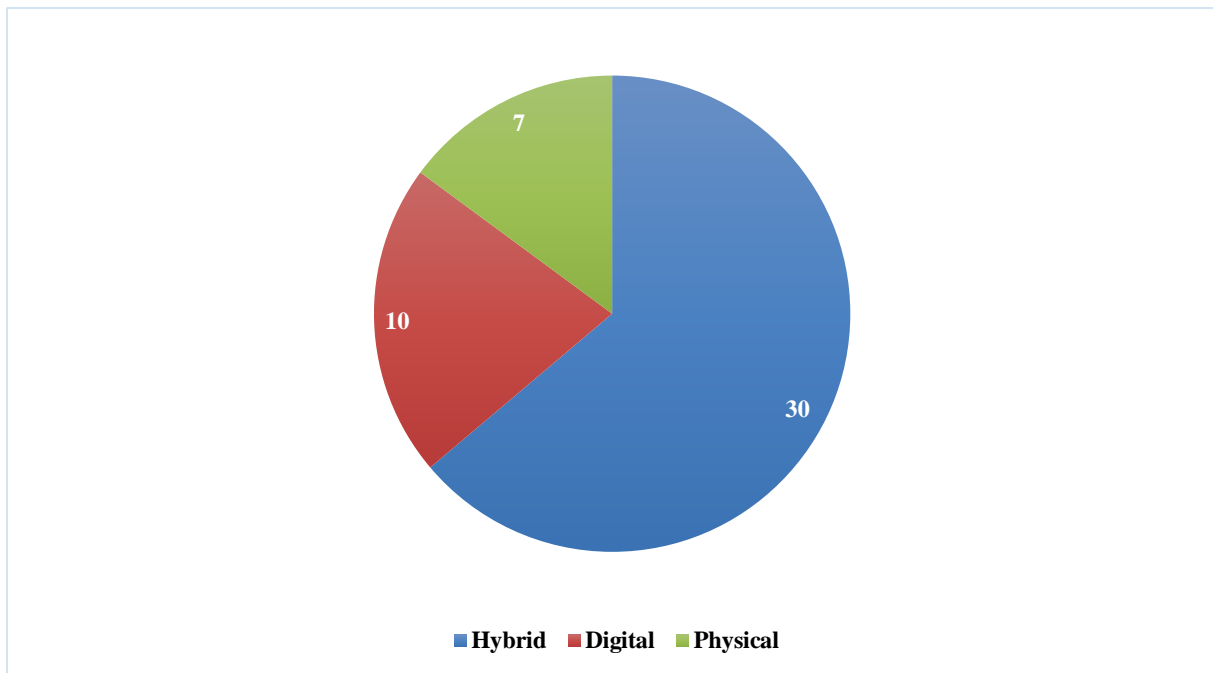


Figure 2.10: Notes and References Organization

When asked about organizing notes and references, 30 students preferred a hybrid approach, which is combining physical and digital tools. Ten relied solely on digital methods, citing efficiency and searchability, while a few favored physical notebooks, valuing the tactile nature of handwriting for idea development.

Question 12: Challenges

The most reported challenge in using technology for writing was distraction from online content (21 respondents). Technical issues (11) and lack of familiarity with tools (10) were also significant barriers. These issues highlight the importance of digital discipline, technical infrastructure, and proper training in supporting students' writing processes.

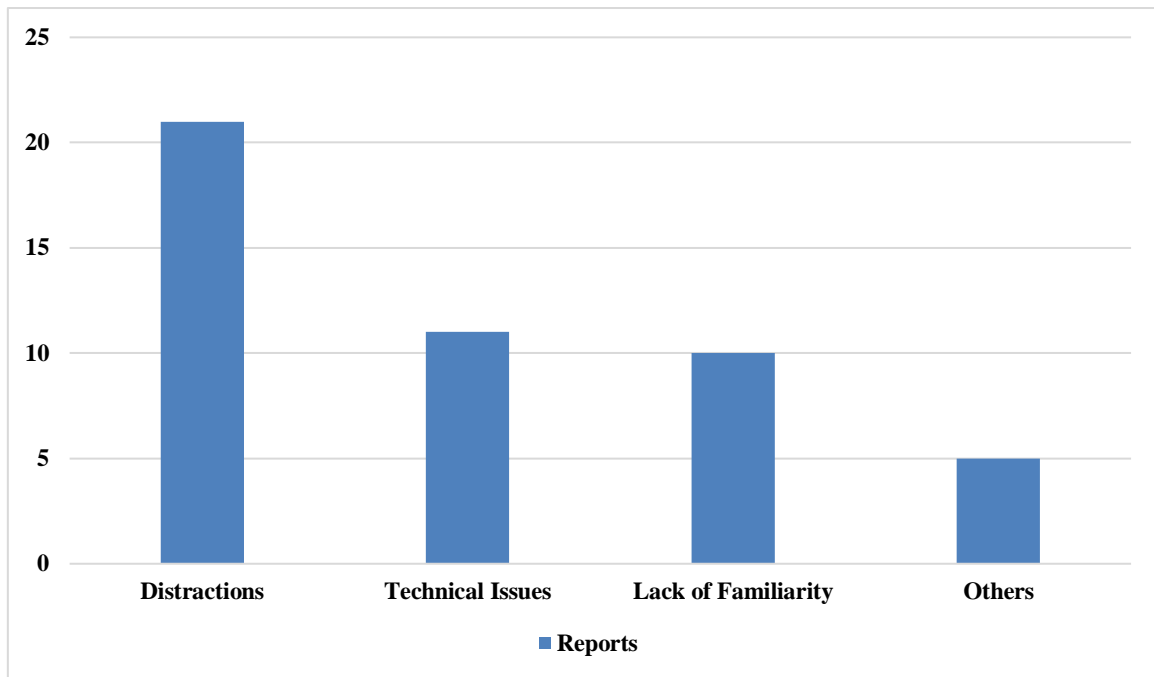


Figure 2.11: Challenges

When asked about organizing notes and references, 30 students preferred a hybrid approach, which is combining physical and digital tools. Ten relied solely on digital methods, citing efficiency and searchability, while a few favored physical notebooks, valuing the tactile nature of handwriting for idea development.

Question 13: Technical Issues

To address technical difficulties, many students reported self-troubleshooting or seeking solutions online. Others turned to peers, instructors, or IT support.

Some opted to switch platforms or tools, underscoring adaptability and the need for accessible, user-friendly technologies.

Question 14: ICT Training

This figure demonstrates that very few students have ever received any kind of formal ICT training for academic writing, thereby reiterating the training gap.

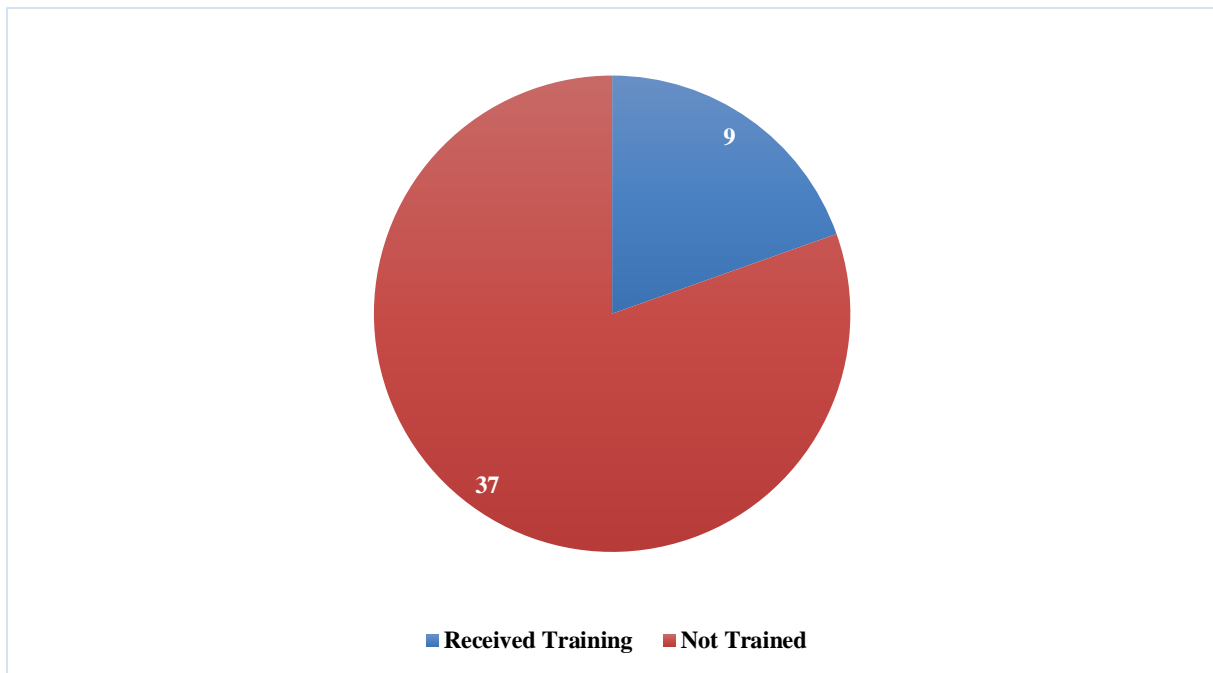


Figure 2.12: ICT Training

Only 9 respondents reported receiving formal ICT training for academic writing, while 37 had not. This indicates a substantial training gap, as most students acquire digital skills informally. Integrating structured ICT instruction into academic programs could improve tool usage and confidence.

Question 15: Support Type

Students were asked what kind of support they would find most helpful in dissertation writing. Responses emphasized the value of brainstorming tools, ongoing writing guidance, and access to digital resources.

Technical training and research assistance were also frequently mentioned, particularly in areas such as citation management and academic database navigation.

Question 16: Peer Collaboration

The figure depicts that some students collaborate digitally with peers using applications such as Microsoft Teams and Google Docs, while others prefer to work on their own.

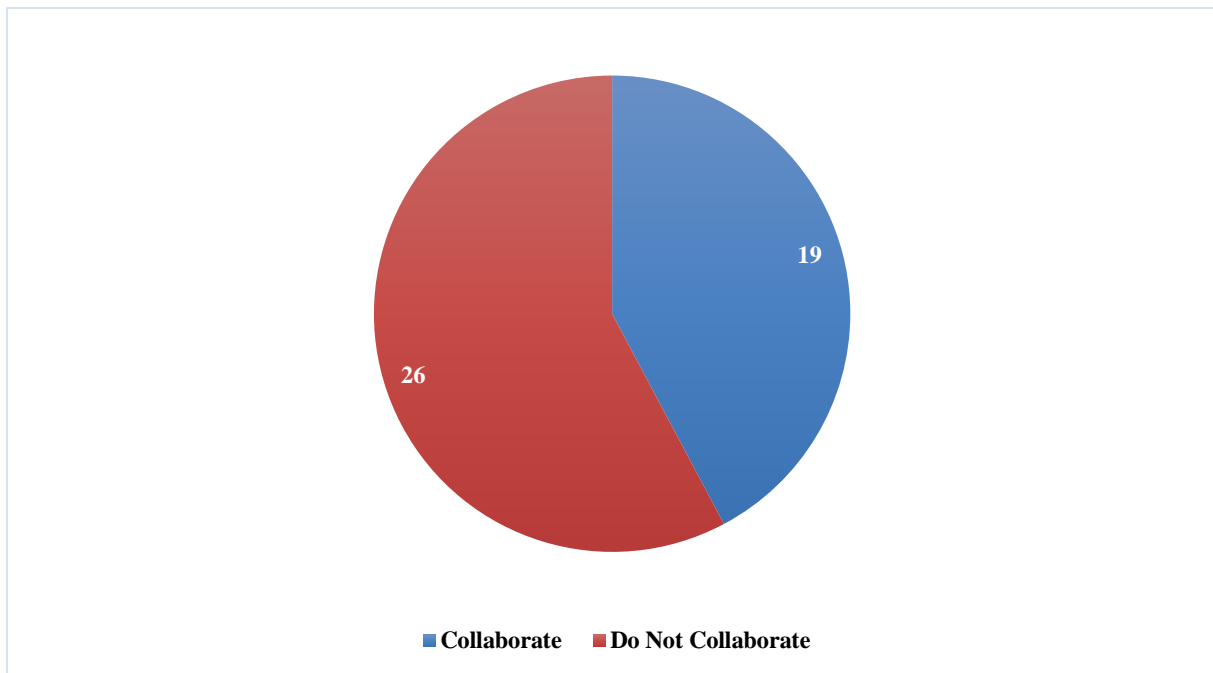


Figure 2.13: Peer Collaboration

Nineteen students reported engaging in digital peer collaboration using tools such as Microsoft Teams, Zoom, Google Docs, and email. These platforms supported document sharing, feedback, and group writing. However, 26 students did not collaborate digitally, citing preferences for independent work or unfamiliarity with collaborative tools.

Question 17: Students’ Perspectives on the evolving role of technology

Most students expressed confidence that technology will continue to influence academic writing positively. They highlighted enhanced efficiency, accessibility, and the benefits of advanced AI tools like ChatGPT and Google Scholar.

However, some raised concerns about potential over-reliance on technology, which might hinder originality, critical thinking, and creativity.

Question 18: Additional thoughts or experiences regarding ICT use

In closing, students shared personal reflections on the role of ICT in their academic writing. Many praised technology for simplifying complex tasks such as accessing databases and formatting citations.

However, they also noted drawbacks, including distractions and ethical concerns—particularly with AI use. A recurring theme was the importance of balancing digital support with independent thinking and maintaining academic integrity.

2.5.2 Teachers' Questionnaire Analysis

The section gives the responses of teachers to a questionnaire concerning their views on students' uses of technology in academic writing. It highlights the challenges, the practices guiding learners through those challenges, and the more general role of ICT and dissertation development for EFL learners.

Question 1: Addressing Technological Proficiency among EFL Learners

Teachers were asked whether they account for varying levels of technological proficiency among EFL students in their instructional practices. This figure shows that most teachers consider students' different levels of tech skills when planning lessons to support fair learning.

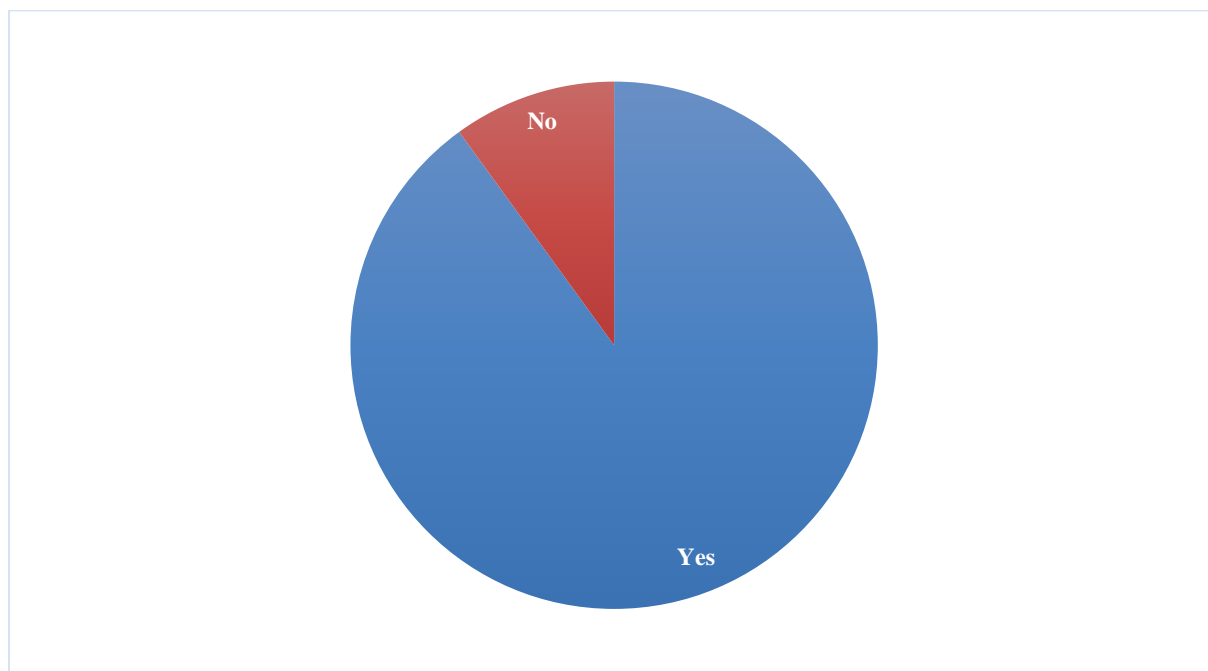


Figure 2.14: Addressing technological proficiency among EFL learners

Nine out of ten respondents affirmed that they do consider these differences when planning and delivering lessons. This widespread acknowledgment suggests a strong awareness among educators of the digital divide that may exist within a single classroom. By recognizing these disparities, most teachers appear to differentiate instruction or offer scaffolding to ensure equitable access to learning opportunities. Such efforts might include providing additional support to students with limited digital skills, incorporating tutorials, or assigning tiered tasks based on technological competence. These strategies not only help bridge the gap between more

and less tech-savvy students but also promote a more inclusive and supportive learning environment.

Question 2: Guidance in Selecting Digital Tools for Writing

Teachers were asked how frequently they assist EFL learners in choosing appropriate digital tools for dissertation writing. The figure shows how often teachers help students pick digital tools with two-thirds giving occasional help and one-third doing it regularly

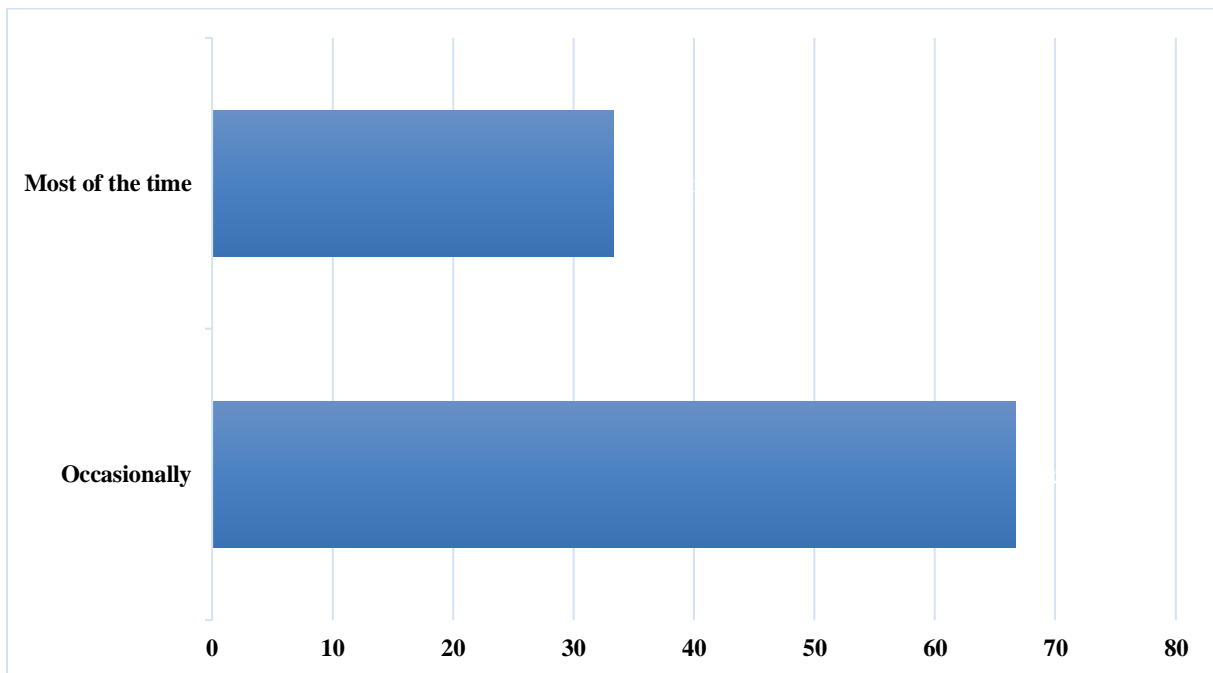


Figure 2.15: Guidance in selecting digital tools for writing

Two-thirds reported offering guidance occasionally, while one-third indicated doing so most of the time. This pattern reflects a moderate level of involvement in helping students navigate digital resources such as reference managers, grammar checkers, and collaborative writing platforms. While this support is valuable, the inconsistency suggests that not all students receive equal or sustained guidance. Consequently, institutions may need to implement structured support systems to ensure equitable access to digital resources. Additionally, professional development for educators could enhance their ability to recommend and integrate these tools more effectively.

Question 3: Types of Digital Tools Encouraged

When asked about the types of digital tools they recommend, teachers provided a diverse range of responses. This figure lists the types of digital tools teachers suggest including grammar checkers and research databases showing different ways they teach.

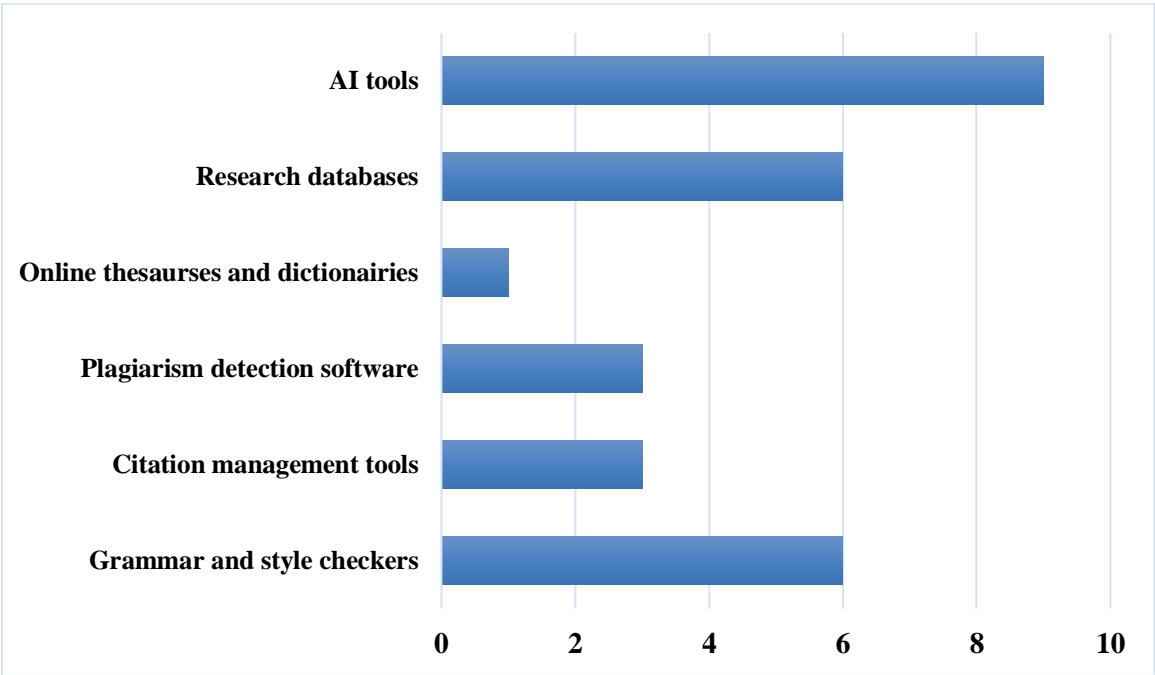


Figure 2.16: Types of digital tools encouraged

Commonly mentioned tools included grammar checkers and academic research databases, though no single tool dominated. This diversity likely reflects contextual flexibility, allowing educators to tailor their suggestions to individual students’ needs or specific writing tasks. However, the lack of standardized guidance may cause confusion particularly for EFL students who benefit from clear and structured support. These findings point to a potential need for a more unified framework that balances adaptability with consistency in digital tool integration.

Question 4: Challenges in Using Technology for Academic Writing

The figure shows some challenges teachers notice with students. These include things like students relying too much on software and worries about plagiarism.

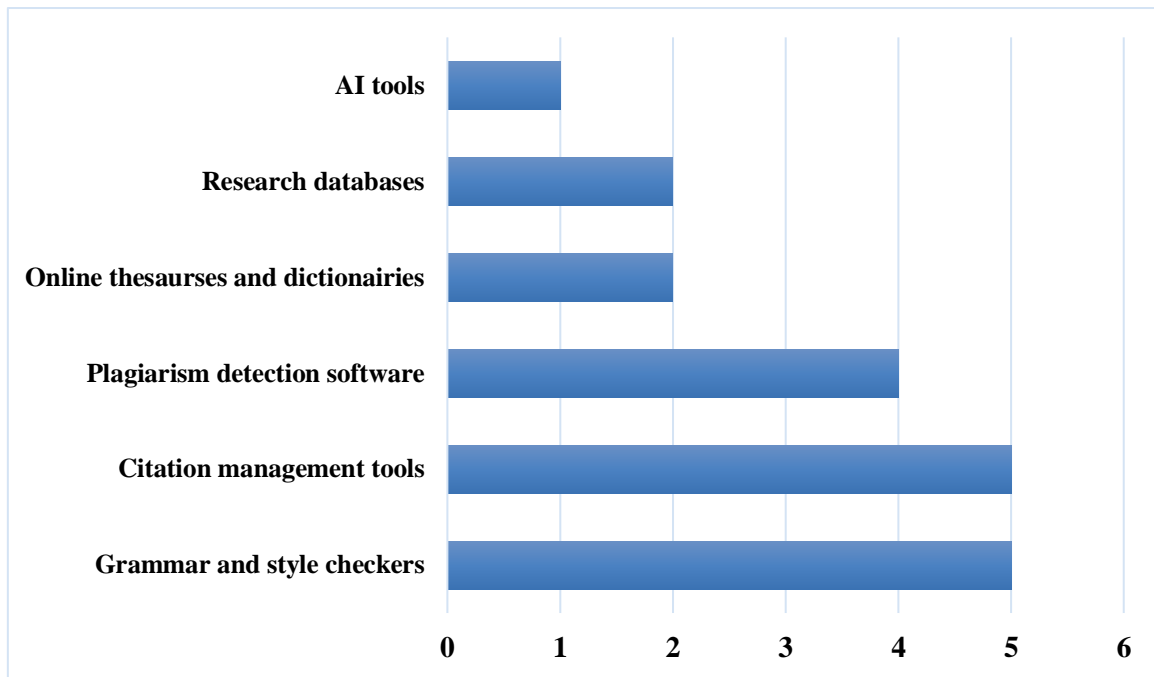


Figure 2.17: Challenges in using technology for academic writing

Teachers identified several common challenges faced by EFL students when using technology for academic writing. Chief among these were over-reliance on tools such as grammar and paraphrasing software, and concerns related to plagiarism. These issues underscore both pedagogical and infrastructural gaps. Pedagogically, there is a clear need to strengthen instruction in academic writing, citation practices, and critical engagement with digital tools. Students must learn not just how to use these tools, but also when and why to use them to support their own thinking. On the infrastructural side, disparities in access to reliable internet, up-to-date devices, and necessary software remain significant barriers to effective technology use.

Question 5: Collaboration and Feedback among Students Working on Dissertations

Educators were asked whether they believe technology enhances collaboration and feedback among students working on dissertations. This figure shows teachers' up front views on tech's place in making student work-together better along with comments during thesis writing.

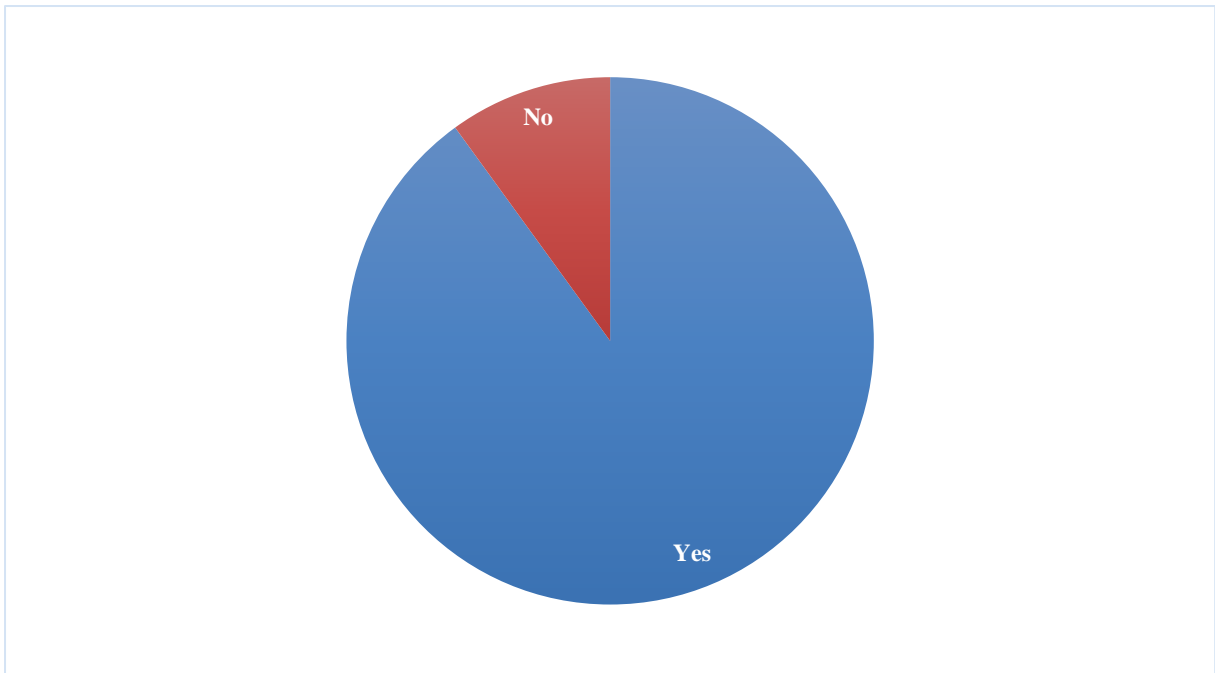


Figure 2.18: Collaboration and feedback among students working on dissertations

Most respondents responded positively. This affirms the potential of digital tools such as shared document platforms, annotation tools, and peer review systems to improve the quality of student work through timely and diverse feedback. Teachers noted that these tools also help students develop their writing style, access relevant resources, and manage complex tasks like data analysis. These findings highlight a valuable opportunity for institutions to integrate collaborative technologies more deeply into curriculum design and delivery.

Question 6: Over-Reliance on Technology

The figure shows teachers' thoughts on reasons why learners often lean much on tech highlighting simple copying and quick info access.

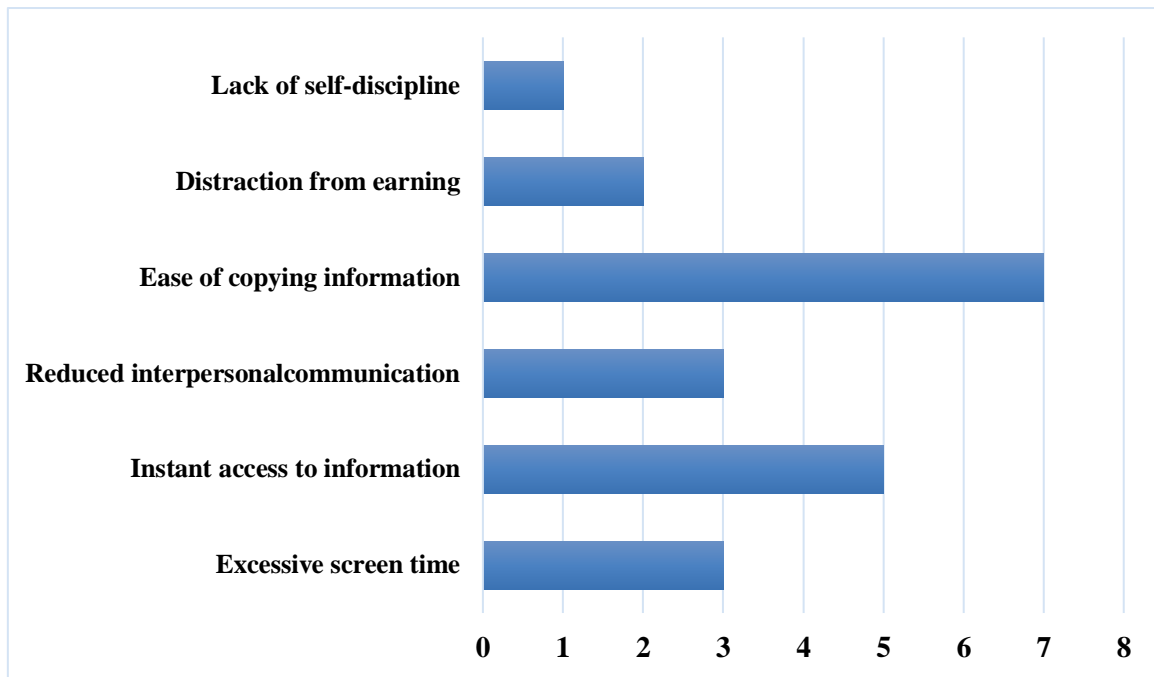


Figure 2.19: Over-reliance on technology

When asked why students tend to rely heavily on technology, teachers cited several factors, including the ease of copying content and the instant availability of vast amounts of information. While convenient, these features may encourage superficial engagement with academic material and hinder the development of independent thinking and original writing. Addressing this issue requires more than just access to tools since educators must also foster digital literacy grounded in critical thinking. Teachers play a vital role in helping students shift from passive to active, ethical, and reflective use of technology.

Question 7: ICT’s Role in Assisting EFL Learners during Their Dissertation

Teachers were asked to rate the significance of information and communication technology (ICT) in supporting EFL learners during the writing process. This figure shows teachers’ scores of ICT’s value in helping EFL learners most giving its role as key.

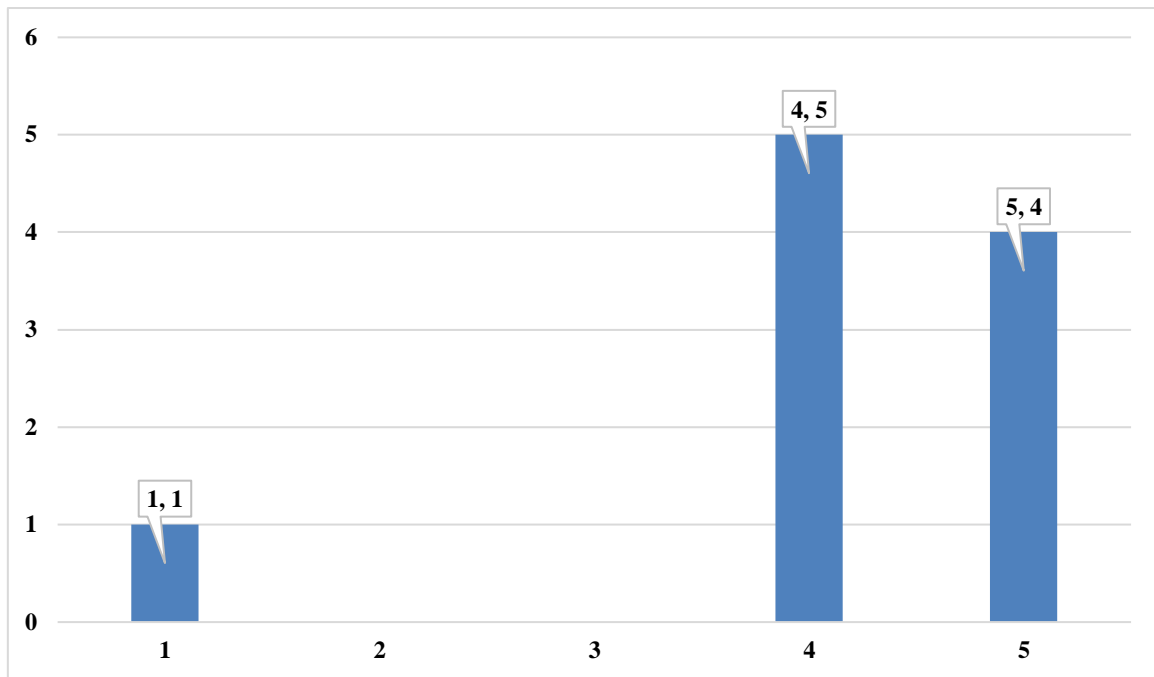


Figure 2.20: ICT's role in assisting EFL Learners during Their Dissertation

Most respondents rated its role as highly significant, giving scores of 4 or 5 out of 5. This consensus reflects a strong belief in the value of ICT for improving efficiency, enhancing access to resources, and facilitating dynamic feedback and collaboration. However, a small number of teachers assigned lower ratings (1 out of 5), likely reflecting situational constraints rather than disagreement with ICT's potential benefits. These constraints may include limited access to technology, inadequate training, or curricular misalignment.

Question 8: Strategies EFL Students Use to Better Integrate Technology into Their Writing

Teachers were also asked to suggest strategies students could adopt to better integrate technology into their dissertation writing. The recommended approaches were multifaceted, emphasizing both practical skills and critical awareness. This chart reveals most teachers feel technology improves cooperation and feedback during dissertation writing. Citing technologies like shared documents and peer review systems are transformative when it comes to student involvement and writing quality.

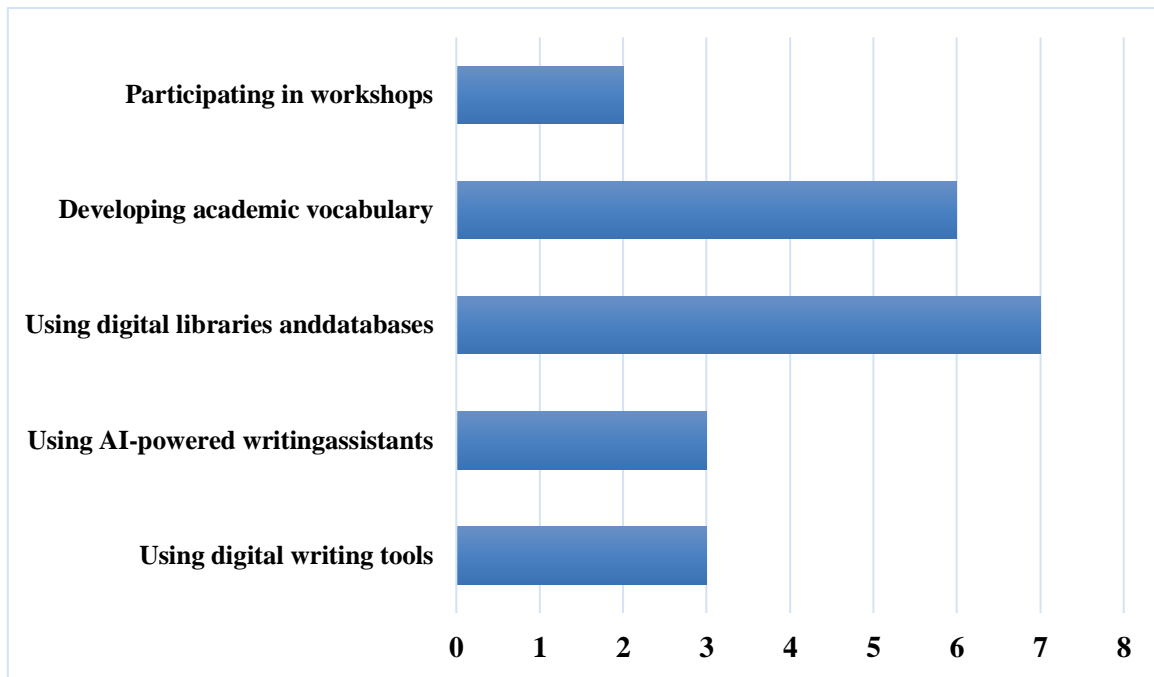


Figure 2.21: Strategies EFL students use to Better Integrate Technology into Their Writing

Suggestions included efficient use of academic databases, citation management tools, writing support software, and developing digital literacy to evaluate online sources critically. These strategies align with contemporary academic support models that balance technical proficiency with cognitive development. Embedding these practices into dissertation courses or workshops could help standardize support and promote deeper engagement with writing tasks.

Question 9: Evaluation of the Impact of ICT on the Quality of Students' Dissertation Writing

Finally, teachers described the steps they would take to evaluate ICT's impact on dissertation quality. Almost all of the instructors evaluated ICT as extremely important in this table, underscoring its usefulness for resource access, efficiency, and teamwork. A small minority cited situational constraints like limited access or training. The figure summarises the results.

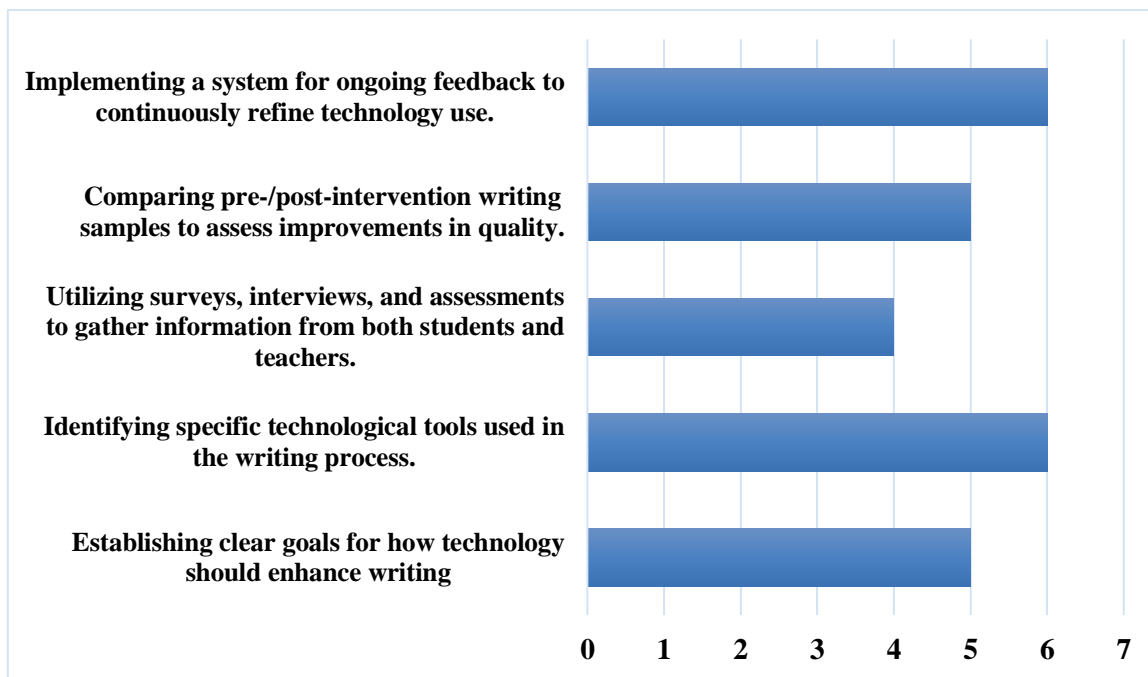


Figure 2.22: Evaluation of the impact of ICT on the Quality of Students' Dissertation Writing

Their responses combined both qualitative and quantitative methods, such as tracking improvements in writing structure and coherence, analyzing digital tool usage, gathering student feedback, and comparing pre- and post-ICT performance data. This comprehensive approach reflects an understanding of the complex relationship between technology and academic writing. It also suggests a path forward for institutions to formalize these evaluation strategies through longitudinal research or case studies to better understand the long-term effects of ICT on writing outcomes.

2.6 Data Interpretation

The results from both the teacher and student surveys illustrate how Master Two EFL students from Tlemcen University employ ICT devices in writing their dissertations. These results confirm the assumptions posed at the beginning of the study, which argued, as did the other ICT in education studies, that although there are positive repercussions of ICT tools in students' academic writing, students in all likelihood encounter other problems like technical challenges, lack of training, and dependence on technology. Students integrated ICT tools into the dissertation writing processes and accordingly they do find these tools useful.

Most students reported often using computers, Microsoft Word, Google Scholar, grammar checkers, and other digital resources to do their work. This is representative of a wider shift in scholarly writing practices, which is accompanying national and international

trends. The satisfaction students express regarding the ease, availability, and effectiveness of these tools indicates that ICT enhances academic productivity and effectiveness. Furthermore, peer collaboration through ICT platforms, which is a prime facet of academic writing, remains underexplored. This implies that despite the presence of collaborative technologies, many students either prefer to work in isolation or are, in fact, unfamiliar with how to utilize these collaborative tools.

Students often use programs like Microsoft Word, Google Scholar, and grammar checkers, and while the majority of them believe ICT improves their writing, many still face technical glitches, distractions, and a lack of digital confidence. Teachers backed these observations by pointing the integration benefits and downsides of ICT. In short, this discussion validates all the key assumptions of the research work that: ICT tools are in fact widely used and generally perceived as helpful, but their educational impact is curtailed by superficial use, poor training, and an overreliance on digital aids. There needs to be a cohesive institutional-level solution in place of structured training, more digital literacy instruction, and teacher involvement to facilitate a more critical, ethical, and efficient usage of ICT in academic writing.

2.7 Suggestions

The integration of Information and Communication Technology (ICT) in dissertation writing has transformed academic research, offering new tools for efficiency, collaboration, and innovation. However, the effective use of ICT requires strategic planning, institutional support, and ongoing professional development. This section presents comprehensive suggestions to maximize the benefits of ICT in dissertation writing, drawing on diverse scholarly perspectives and practical examples.

2.7.1 Digital Literacy and Research Skills

This title emphasizes the basic need for students and faculty to be familiarised and trained in digital skills, from software tools to wider institutional digital abilities and continuous faculty growth.

2.7.1.1 Comprehensive Digital Training

One of the most critical factors in leveraging ICT for dissertation writing is the development of digital literacy among students and supervisors. As highlighted by Alenezi et

al. (2023), digital tools can be utilized by educators to enhance learning experiences, benefiting both students and instructors, and allowing for the improvement and expansion of teaching techniques. Therefore, universities should implement structured digital literacy programs tailored to postgraduate research needs. These should cover:

- Reference management software (Zotero, EndNote, Mendeley)
- Data analysis tools (NVivo, ATLAS.ti)
- Collaborative writing platforms (Google Docs, Overleaf)

This subsection makes the very fitting point that digital literacy training should be provided based on research needs of postgraduate students. It then lists some very pertinent tools for academic writing and collaborative research like Zotero, NVivo, Overleaf, etc. The more practical orientation of the recommendation would indicate the institutional actions to head towards developing ICT competence.

2.7.1.2 Digital Capability

Kähkipuro (2017) emphasized on the fact that an institution to be able to flourish in the increasingly digital world, these criteria may be organized into a prioritized set of competencies to give a more accessible manner to deal with change. He also stated that those capabilities are:

- Basic Capabilities: Essential for a sustainable digital future; failing to implement these will “seriously affect the institution’s future in the digital world.”
- Standard Capabilities: Required to remain competitive; define the norm for future higher education institutions.
- Advanced Capabilities: Provide competitive advantage; not all institutions need all advanced capabilities, but those who do can differentiate themselves.

This subtitle is systemic in nature, emphasizing the institutional readiness level through a hierarchical framework (Basic, Standard, and Advanced Capabilities). This strategic approach balances the more individual digital training by integrating technological competencies into a process of institutional transformation to ensure sustainability in the long run. Referencing Kähkipuro (2017) strengthens the argument that digital planning must be structured and prioritized within higher education institutions.

2.7.1.3 Faculty Development and Support

Upon dissertation supervision, faculty members require continuous training in ICT tools to provide efficient support to their students. Hicks (2014) points out that a strong faculty support system should provide for a variety of needs, such as technical skill acquisition, instructional strategy training, and opportunities for networking and cooperation with faculty members (p. 272). Furthermore, she stresses that continuous professional development helps faculty members move from simply using the technology toward integrating the technology in creative and thoughtful ways into their teaching practices (p. 274). This means that faculty development initiatives should focus on both technical skills and pedagogical strategies for integrating ICT into research supervision.

2.7.2 Access to Digital Resources & Infrastructure

This title focuses on the importance of equal and fair access to digital tools and services, institutional spending, and the possibility of MOOCs and OERs to add resources that are more academic.

2.7.2.1 Institutional Investment in Research Technologies

Robust digital infrastructure is of paramount importance for ICT integration. Hence, universities should fund:

- High-speed internet and secure remote access via VPNs.
- Licensed academic databases and e-journals.
- Data sharing institutional repositories.
- Cloud collaboration tools.

➤ Alternative Perspectives

After a thorough research, Martin et al. (2020) highlighted the motivational benefits of technology. They found that for motivation to integrate digital technology, faculty rated benefit to learning as the most influential factor having received the highest mean rating indicating that it is the strongest motivator, while reappointment, promotion, and tenure were the least influential factor (p. 80). On the other hand, unequal access to digital resources may itself increase educational inequalities.

DiMaggio et al., (2004). raise the question regarding how internet access and use might influence educational attainment and achievement, making it a central issue for both

researchers and policymakers when it comes to the impacts of the digital divide. They argue that, in terms of public policy, the digital divide is a concern only to the extent that getting online impacts internet users' life prospects and ability for civic involvement. They also stated that if the benefits of internet access and use are limited to the already privileged, the argument for government involvement to address inequality in access to digital technology is similarly weaker (p. 2).

Yet, the present inequalities in access point to the fact that many students including those in remote or under-resourced places could be left behind. Thus, organizations must actively work toward guaranteeing equal access to both the internet and digital means, while accepting the fact that meaningful participation in education is increasingly dependent on such access, reinstating academic fairness in the process.

2.7.2.2 Massive Open Online Courses (MOOCs) & Open Educational Resources (OER)

The use of MOOCs and OER can supplement traditional resources, offering flexible learning opportunities. As Stracke et al. (2019) highlight, OER provide several significant benefits, including increased access to high quality and relevant learning materials, which can enhance the productivity of both students and educators. Moreover, the adaptable nature of OER fosters active participation, empowering students to take more involved roles in their own educational processes.

Additionally, they stated that OER contribute to capacity building by equipping institutions and educators with low-cost or free resources, enabling them to develop competencies in content creation and instructional design. From this foundation, MOOCs can be seen not only as a form of OER but also as transformative tools within the broader concept of Open Education. As emphasized in the OpenEd Quality Framework, MOOCs extend the potential of OER by innovating educational practices and expanding access to learning on a global scale (Stracke et al., 2019).

2.7.3 Collaborative and Interdisciplinary Research Environments

This title encourages using online spaces and digital help for building teamwork across fields and places.

2.7.3.1 Virtual Research Communities

ICT enables the creation of virtual research communities, where students and supervisors can collaborate across disciplines and geographies. Platforms such as ResearchGate, Academia.edu, and institutional forums facilitate:

- Peer feedback and knowledge exchange.
- Access to diverse expertise.
- Opportunities for co-authorship and networking.

➤ Scholarly Insights

Wenger et al. (2002) describe communities of practice, as “Communities of practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” (p. 4). In their view, members may not work together every day, yet they meet because they cherish the connections. They exchange information, insights, and advice, assist one another in problem solving, discuss issues, goals, and requirements, and collaborate to develop ideas.

Virtual communities, supported by ICT, extend these benefits to the digital realm as Hrastinski, 2008 mentioned. In his work, he references Haythornthwaite’s work on three types of communication important for building and sustaining e-learning communities, which are content-related communication, planning of tasks, and social support.

2.7.3.2 Interdisciplinary Collaboration

Digital tools help students cross subject lines letting them bring different viewpoints into their dissertations. Take data visualization software for example, it allows humanities students to work with numbers giving them a fuller grasp of tricky topics. On the other side, science and social science students can use tools like digital archives, ethnography software, and text analysis platforms to look into context, meaning, and story structure.

These technologies push for using many methods, so students can tap into the strong points of various fields and take on more well-rounded research approaches. In addition, teamwork platforms such as shared digital workspaces, citation managers, and online project management tools boost talk and idea sharing among students and advisors from different academic backgrounds making the research process even richer.

2.7.4 Promoting Ethical and Responsible Use of ICT

This title highlights the important role in keeping academic honesty, guarding data and making right actions when using ICT in learning places, mostly for groups of students who are at risk.

2.7.4.1 Academic Integrity and Data Security

Relying more on ICT in research raises questions about academic integrity, plagiarism and data privacy. Thus, institutions should offer detailed guidelines to use digital tools in academic environments. For instance when students use websites like Turnitin to check for plagiarism, they need to learn how to use them the right way. They should understand that these tools are meant to promote unique and honest writing, not to dodge academic checks. Push students to look at similarities with a criticality, make changes to their works, and give credit to all their sources.

Educators should also highlight that using these technologies means respecting people's privacy, properly using feedback, and keeping academic honesty throughout the writing process. They should instruct students in data protection and responsible data management. While Marković et al., 2019 continued to elaborate about the General Data Protection Regulation (GDPR) that: the main recommendation to student organizations is to conduct lectures and fairs on that theme (p 150) They were also brief about the round table in Brussels (2017), the fact that personal data protection is equally important for professors on themselves not only students because they do not understand its significance sufficiently (p. 152).

Educators should encourage transparency in research procedures as Kapiszewski and Karcher (2021) point out that the discourse on research transparency has only recently started, concretely describing what it is (p. 285). These involve pre-registration to register upfront research plans before collecting data, and methodological appendices that spell out exactly how data have been managed as well analyzed. In addition, when it comes to historical work, they show that logs from archival research shed light on how sources are picked and used. In qualitative studies, appendices that break down coding help explain the coding steps and choices made. Researchers might also keep journals for reflection and do debriefing talks to keep track of research decisions especially when working in teams. Sticking to reporting rules make sure methods are shared. Together, these approaches boost how open and thorough scholarly research is (p. 286-287). It's key to push for openness in how research is done.

2.7.4.2 Assistive Technologies

ICT's Assistive Technologies (AT), has a significant impact on helping students with disabilities in higher education. It boosts their academic involvement social integration, and mental health. McNicholl et al. (2019, p.1) state that AT can change lives allowing students to take part more in university life, both in studies and social activities. The research stresses that disability support staff need to meet students' AT requirements to improve their overall learning experience. What is more common is that ICT devices adapted as helpful tools can create a more welcoming environment and lessen the stigma linked to disability. The authors also describe AT as tools made to boost functioning and independence increasing participation not just in education but also in jobs and community life (p. 2).

2.7.5 Research Methodology and Writing Processes in ICT

This title helps with a look at literature review and data analysis,, making the work process better, accurate, and more careful.

2.7.5.1 Digital Tools for Literature Review & Data Analysis

The use of specialized software may greatly facilitate the efficiency of the literature review and data analysis phases of academic research. Systematic review software like Covidence and Rayyan help greatly in screening and handling big volumes of literature so that the researcher can manage references, track decisions, and work toward maintaining transparency in the review process. Such platforms are highly recommended for conducting large-scale and replicable systematic reviews. Furthermore, NVivo and ATLAS.ti are qualitative data analysis softwares that increases the efficiency and scope of interpretations of textual, audio, and visual data. Such programs code large text-based datasets, analyze patterns and themes, and create visualizations for better interpretation.

In their literature review about digital technologies employed by students, Pinto and Leite (2020) observed that there lies a good number of digital tools preferred by students to complement learning and the academic research process. Learning Management Systems (LMS) such as Moodle and Blackboard provide a centralized access to academic resources and platforms for communication that are instrumental during the phase of literature review (p. 347). Systems of collaboration with Google Docs as a core and content-sharing apparatus in the form of wikis and blogs are employed by students to collaboratively organize research findings and analyze literature

2.7.6 Reflective and Critical Approaches to ICT Use

This title suggests a thoughtful look at how ICT changes teaching, advising flexible and eclectic teaching methods and using helpful tests to deepen the learning process.

2.7.6.1 Critical Digital Pedagogy

Students should be asked to reflect on both the opportunities and challenges that ICT) present to their academic research and learning. As such, reflexive digital pedagogy is proposed by Köseoğlu et al. (2023), grounded in reflexivity and critical engagement, which means it is an approach which requires one to consider how digital tools shape educational practices. Stommel (2014) and Selwyn et al. (2020) acknowledge that digital technologies do not enter the provision of education neutrally, but they become instrumental within complicit systems of inequalities, informed and constrained by cultural, ethical, and pedagogical factors (p. 6). It is this kind of reflection that would assist students as they work within environments rich with ICTs, where technology often brings promises of efficiency and innovation but can also enhance inequities or depersonalize learning.

Reflexivity should involve the examination of “attitudes, thought processes, values, assumptions, prejudices and habitual actions” (Bolton & Delderfield, 2018 as cited in Köseoğlu et al., 2023, p. 7). An approach that would force students to think not only about what ELT enables in their research, but also what it constrains or leaves out. Bradshaw (2017) explicitly states this as an ethical requirement: how one “recognizes the ways in which culture interacts with learning and technology” (p. 20). This is a glaring omission from standard academic training.

2.7.6.2 Formative Assessment

Formative assessment is an ongoing and cooperative process directed toward gathering information and making use of it to enhance learning and teaching (Rawlins & Leach, 2014; Smith, 2010; William, 2011 as cited in Woods, 2015). The core of this process is the provision of feedback that helps students monitor their progress in bridging the gap between where they presently are in their performance and where they want to be. Learning embeds feedback because learners receive external and internal cues that inform their self-regulated learning.

Research by Nicol & Macfarlane-Dick (2006), Hattie (2013), and Timperley (2007) shows that formative feedback helps learners to clarify goals, assess their current performance, and plan next steps, it is the guidance that helps them understand what they need to do to achieve desired learning outcomes (Woods, 2015). Such feedback can be supported through ICT tools that will be able to provide timely accessible feedback and support learners in goal setting, progress monitoring, and being acquainted with reflective learning practices.

2.8 Conclusion

This chapter explored the methods and conclusions of the usage of ICT tools in dissertation writing among Master Two EFL students at Tlemcen University. The research found that ICT tools play an important role in the academic writing process after conducting a comprehensive case study utilizing student and teacher questionnaires. While its instruments can highly boost writing productivity, mechanisms of feedback, and access to resources, students still tend to use them superficially, without strengthening more intellectual capabilities. They are required to go beyond familiarity and accessibility to encourage authentic, ethical, and pedagogically sound use of technology in writing. Under the adequate type of teacher intervention, training, and motivation, students can become more confident, critical, and creative users of digital technologies throughout their educational careers.

General Conclusion

ICT, has placed itself as a capable agent of change in education having a great impact on academic writing as well, especially during the heavy process of dissertation writing, where it provides the crucial assistance of research, planning, writing, and editing. Language learners require ICT integration in order to overcome linguistic and structural obstacles in writing in a foreign language. That is where online libraries, citation managers, and grammar checkers are invaluable. There are various technological tools for EFL students today aimed at enhancing the academic writing.

With the invention of digital and AI-based technologies, the application of ICT in writing dissertations has shifted very quickly. However, nothing is known about their widespread use and impact on the writing process. The objective of this study was to identify how second-year English as a Foreign Language (EFL) master's students at Tlemcen University used ICT in their dissertation writing. It is more necessary than ever to develop a clear picture of the real uses, advantages, and limits of digital technologies, as they become more and more part of pedagogy. The nature of ICT tools used by EFL learners, their utilization, and problems they face were all investigated in this study. Accordingly, the central research question posed was:

- **To what extent do these students at Tlemcen University utilize Information and Communication Technology (ICT) resources in their dissertation writing process?**

The study also addressed the following research questions:

1. How do second-year EFL Master's students use ICT tools in dissertation writing?
2. What challenges do second-year EFL Master's students face when using ICT tools in dissertation writing?

The following hypotheses were formulated:

1. Second-year EFL Master's students use ICT to draft and format their dissertations, check grammar and plagiarism, manage references, collaborate with peers and supervisors, and access digital research materials.
2. These students may face challenges such as limited digital literacy, restricted access to premium tools, connectivity issues, overreliance on AI, and difficulty integrating ICT effectively into their writing.

A second-year EFL Master's students case study at Tlemcen University was carried out to investigate these. Two questionnaires were used in an effort to gather data, one for students and the other for teachers along with having two chapters in the research work. The theoretical issue, ICT use in academic writing and education, and literature review pertinent were the main issues addressed in the first chapter. Practicable issues like information regarding the sample population, instruments for collecting data, and research design were covered in the second chapter. Results and suggestions on how ICT can be improved among EFL learners were also covered.

ICT facilities, from collaboration and AI tools to grammar checkers and reference management as the results showed, have boundlessly changed the academic writing process. Today's students have unmatched access to digital libraries, international databases, and immediate writing help and feedback accelerating their research and draft process. However, most students merely apply these technologies at the surface level, out of convenience rather than critical or strategic use. They are still held back by reliance upon AI, lack of formal training, and technical constraints from being able to fully leverage more. Teachers stressed the necessity for a balanced and well-lead incorporation that supports learning integrity and critical thinking rather than substituting them in pursuit of acknowledging the benefits and constraints of ICT. Teachers' suggestions highlighted how crucial it is to design teaching structures, which pay attention to intellectual as well as technical dimensions of writing.

Therefore, the study presents an in-depth analysis of Algerian EFL learners' use of ICT for academic writing in the current times. It emphasizes the sheer need for pedagogically led teaching, institutional support, and reflective use of technology. The study presents an educated and pedagogically facilitated use of ICT in secondary school instruction with the integration of theoretical framework and empirical evidence. This is how it becomes not just digital literacy, but also more academic engagement and ethical scholarship. Further research is required that would to explore the long-term study of the effects of ICT integration on

academic writing skills in students, along with the pedagogical implications of its use. Such research could become an important point of consideration for developing more practical, equitable, and pedagogically sound strategies for incorporating ICT tools into academic writing instruction in diverse educational environments.

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Appendices

Appendix A: Students' Questionnaire

This questionnaire's purpose is to explore and better understand Master 2 students' use of Information and Communication Technology (ICT) for dissertation writing. Please, answer the following questions:

Age

.....

Gender

Male Female

1- What kind of electronic devices do you primarily use for dissertation writing?

- Laptop
- Smartphone
- Tablet
- Desktop Computer
- Other: ...

2- Which software or applications do you prefer for writing?

- Microsoft Word
- Google Docs
- Other: ...

3- How often do you use online tools for research?

- Daily
- Weekly
- Monthly
- Rarely

4- Which factors do you think influence the type of ICT tool you use?

- Self-efficacy
 - Demographic attributes (age, gender)
 - Field of study
 - Peer and family expectations
 - Ease of use and accessibility
- Other: ...

5- Do you believe that technology has improved your writing skills?

Yes No

Why?

.....

6- How confident are you in using technology for academic purposes?

.....

7- Which online platforms do you use for research?

- Google Scholar
 - JSTOR
 - DOAJ
 - Google Books
- Other: ...

8-How often do you utilise social media or forums for academic discussions?

- Daily
- Weekly
- Monthly
- Rarely

9- Do you find it easy to evaluate the credibility of online sources?

Yes No

10- Do you use any writing tools?

Yes No

11- How do you organise your notes and references?

- Digital tools
- Physical notebooks
- Both

Other: ...

12- What challenges do you encounter when using technology for writing?

- Technical issues
- Lack of familiarity with tools
- Distractions from online content

Other: ...

13- How do you address technical issues during the writing process?

.....

14- Have you received any training on using ICT tools for academic writing?

Yes No

15- Which type of support would be most helpful to you in using technology for dissertation writing?

.....

16- Do you collaborate with peers using technology?

Yes No

If yes, what are the tools you use for collaboration and feedback?

.....

17- In what ways do you think technology will continue to impact academic writing in the future?

.....

18- Please, share any additional thoughts or experiences regarding your use of information and communication technology in dissertation writing.

.....

Appendix B: Teachers' Questionnaire

This questionnaire aims at gathering insights into different aspects of integrating technology into the dissertation writing process. Please, answer the following questions:

1- Do you address issues of varying levels of technology ability among EFL learners in your teaching practices?

Yes No

2- How often do you guide EFL learners in selecting the most appropriate digital tools for their dissertation needs?

- Never
- Rarely
- Sometimes
- Most of the time
- Always

Other: ...

3- What are the types of digital tools you encourage EFL learners to use while working on their dissertations?

- Grammar and style checkers
- Citation management tools
- Plagiarism detection software
- Online thesauruses and dictionaries
- Research databases
- AI tools

Other: ...

4- In your experience, what are some of the most common challenges that EFL learners face when using technology for writing dissertations?

- Over-reliance on automated writing tools
- Struggles with plagiarism detection softwares

- Language and vocabulary limitations
- Limited familiarity with academic writing conventions in English
- Difficulty in organising sources and notes
- Inconsistent access to digital tools

Other: ...

5- In your opinion, can technology enhance collaboration and feedback among students working on dissertations?

Yes No

If yes, why?

.....

6- In your opinion, what makes students overly reliant on technology?

- Excessive screen time
- Instant access to information
- Reduced interpersonal communication
- Ease of copying information
- Distraction from learning
- Lack of self-discipline

7- Do you think information technology has a crucial role in assisting EFL learners during their dissertation writing process?

Strongly Disagree

Strongly Agree

1 - 2 - 3 - 4 - 5

8- Which of these strategies do you think EFL students should use to better integrate technology into their dissertation writing process?

- Using digital writing tools
- Using AI-powered writing assistants
- Using digital libraries and databases
- Developing academic vocabulary
- Participating in workshops

9- Which steps would you use to evaluate the impact of information technology on the quality of EFL learners' dissertation writing?

- Establishing clear goals for how technology should enhance writing
- Identifying specific technological tools used in the writing process.
- Utilizing surveys, interviews, and assessments to gather information from both students and teachers.
- Comparing pre-/post-intervention writing samples to assess improvements in quality.
- Implementing a system for ongoing feedback to continuously refine technology use.

Summary

This thesis explores the use of Information and Communication Technology (ICT) tools by second-year Master's students in the English Department at Tlemcen University, focusing on their dissertation writing process. It examines the extent and manner of ICT integration, the benefits such tools offer (e.g., grammar checkers, citation managers, AI-based tools), and the challenges faced by these students (e.g., digital illiteracy, over-reliance on technology, lack of training). Using student and teacher questionnaires, the study reveals that while students acknowledge the value of ICT in improving efficiency and accuracy, their use of these tools often lacks critical depth. Educators agree on ICT's potential but stress the need for structured training and ethical use. The research concludes with recommendations for pedagogical reforms, formal ICT instruction, and institutional support to optimize the role of technology in academic writing.

ملخص

تستكشف هذه الأطروحة استخدام أدوات تكنولوجيا المعلومات والاتصالات (ICT) من قبل طلاب الماجستير في السنة الثانية في قسم اللغة الإنجليزية بجامعة تلمسان، مع التركيز على عملية كتابة أطروحاتهم. تبحث هذه الدراسة في مدى وطريقة دمج تكنولوجيا المعلومات والاتصالات، والفوائد التي تقدمها هذه الأدوات (مثل مدققات القواعد، ومديري الاقتباسات، والأدوات المعتمدة على الذكاء الاصطناعي)، والتحديات التي يواجهها الطلاب (مثل الأمية الرقمية، والاعتماد المفرط على التكنولوجيا، ونقص التدريب). باستخدام استبيانات الطلاب والمعلمين، تكشف الدراسة أنه بينما يعترف الطلاب بقيمة تكنولوجيا المعلومات والاتصالات في تحسين الكفاءة والدقة، إلا أن استخدامهم لهذه الأدوات غالبًا ما يفتقر إلى العمق النقدي. يتفق المعلمون على إمكانيات تكنولوجيا المعلومات والاتصالات ولكنهم يؤكدون على الحاجة إلى تدريب منظم واستخدام أخلاقي. تختتم الدراسة بتوصيات لإصلاحات تربوية، وتعليم رسمي لتكنولوجيا المعلومات والاتصالات، ودعم مؤسسي لتحسين دور التكنولوجيا في الكتابة الأكاديمية.

Résumé

Cette thèse explore l'utilisation des outils des Technologies de l'Information et de la Communication (TIC) par les étudiants de deuxième année de Master du département d'anglais à l'Université de Tlemcen, en se concentrant sur leur processus de rédaction de dissertation. Il examine l'étendue et la manière d'intégration des TIC, les avantages que ces outils offrent (par exemple, les correcteurs grammaticaux, les gestionnaires de citations, les outils basés sur l'IA), et les défis auxquels les étudiants sont confrontés (par exemple, l'illettrisme numérique, la dépendance excessive à la technologie, le manque de formation). En utilisant des questionnaires pour les étudiants et les enseignants, l'étude révèle que, bien que les étudiants reconnaissent la valeur des TIC pour améliorer l'efficacité et la précision, leur utilisation de ces outils manque souvent de profondeur critique. Les éducateurs s'accordent sur le potentiel des TIC mais soulignent la nécessité d'une formation structurée et d'une utilisation éthique. La recherche se conclut par des recommandations pour des réformes pédagogiques, un enseignement formel des TIC et un soutien institutionnel afin d'optimiser le rôle de la technologie dans l'écriture académique.