



Teachers' Professional Development for Information and Communication Technologies Integration in the Algerian Higher Education: Attitudes and Challenges

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Abstract

One of the latest innovations in the field of education is the integration of Information and Communication Technologies (ICTs) as they are believed to be important potential grounds to sustain education reform efforts. Therefore, the quality of teachers and their continuing professional education remain central to the achievement of quality education. The present paper seeks to unveil EFL University Algerian teachers' attitudes towards professional development in ICTs integration as well as identifying the main challenges facing them. This study is carried out in an (EFL) English as a Foreign Language context with eight (8) English as a Foreign Language teachers at the Department of English of Mouloud Mammeri University of Tizi-Ouzou, Algeria. This work relies on the quantitative approach which describes the results developing quantitative data. The measurement tool that is used is a questionnaire which is administered to (8) Eight English as a Foreign Language teachers. The findings of this study reveal that the reciprocal relationship between research and practice is a necessity in teachers' professional development for ICTs integration. However, teachers face many barriers such as lack of access to quality digital content. To this end, it is recommended that teachers' professional development (PD) in Information and Communication Technologies (ICTs) integration in the Algerian higher education should foster training in the adaptation to the evolution of change of the profession of teachers.

Keywords: Information and Communication Technologies (ICTs), professional development (PD), attitudes; (EFL) English as a Foreign Language context, challenges

1. Introduction

Education is an important part in modern life, and it has been so for a long time. The continuous striving for better teachers and better schools has taken many different paths. One such path involves the use of Information and Communication Technologies in teaching and learning. In this respect, Information and communication technology performs a leading role in training teachers to learn how they can enhance their pedagogical skills and content knowledge. Recently, Information and Communication Technology has become a basic need of human life across the world and no field can work effectively without its support. In the current era of science and technology, many changes are taking place in the field of teacher education and training.

In today's context, education is increasingly recognized as a community-oriented activity, and the quality of teachers is closely linked to their continuous participation in high-quality professional training. Gebremeskel et al. (2016) emphasized that information and communication technology helps in creation, acquisition, sharing, dissemination, transformation, support and recognition of knowledge, skills and provides access for improving students learning outcomes and enhancing professional competency of teachers. There is growing interest in developing schools as learning organizations, and in ways for teachers to share their expertise and experience more systematically. Homiakova, Arras, and Kozik (2017) said that one feature of advanced education is the use of Information and Communication Technologies which are becoming more and more important in the teaching of topics with different main focuses. In education, Information and Communication Technologies play a vital role to improve teaching and learning process. Thereby, using information and communication technologies help teachers get ready for the challenges of teaching, encourages learning, and helps them learn more about how to use information and communication technology tools in the teaching and learning process (Cox, & Marshall, 2007). More importantly, teachers serve as the foundation of the education system, and alongside them, professional development form an integral part of the educational framework. That is to say, professional development helps teachers in seeking further knowledge and enhances their pedagogical skills they require for successful teaching and learning processes. It significantly contributes to enhancing teachers' skill sets and expertise levels. Therefore, information and communication technology in education and training occupies a vital role to improve teaching and learning processes. As such, the use of information and communication technology facilities in teacher training programs has become necessary in classrooms and teachers are considering it the most important pillar for better students' learning. Meta-analytic review of several research studies Mills and Tincher, (2003); Proctor, Watson and Finger (2004) pointed out that need of further ICT training for teachers is the most significant factor for improving professional competency in their subject matter knowledge (Russell, Dwyer, Bebell and Tao, 2007). However, the process of integrating technology into education and training cannot be accomplished overnight. This requires the continuous professional development of teachers, enabling them to effectively use information and communication technologies to improve the teaching process and facilitate the enrichment of students' knowledge. Thus, Teacher professional development is an essential tool to trigger changes in teachers' beliefs and attitudes. In this regard, Day's defined professional development as the process by which teachers review, renew and extend their commitment as change agents to the moral purposes of teaching' (2004, p. 13). In this context, Guskey identifies three main goals of professional development: 'change in the classroom practices of teachers, change in their attitudes and beliefs, and change in the learning outcomes of students (2002, p. 383).

In the Algerian educational landscape, the importance of integrating information and communications technology (ICT) within the broader framework of education, especially in

the field of teaching English as a foreign language, has been steadily rising. However, the limited application of information and communication technology in the Algerian higher education stems primarily from the inadequacy of accessible information and communication technologies, coupled with the lack of comprehensive professional development opportunities for teachers. Thus, the constant evolution of the Algerian educational system, intertwined with dynamic technological progress and social and economic requirements, compels teachers to align themselves with these multifaceted challenges.

Hence, this study endeavors to explore the diverse perspectives held by teachers concerning professional development and aims to discern the primary challenges confronted by English as a Foreign Language (EFL) teachers in integrating information and communication technologies (ICTs) at the university level. Therefore, the research will draw conclusions from the attitudes of English as a Foreign Language teachers to gauge their inclination towards endorsing professional development initiatives within the scope of information and communication technology integration as a fundamental facet of university education. Furthermore, the study seeks to emphasize the importance of promoting professional growth in this field, with the assumption that such initiatives are instrumental in promoting the skillful use of information and communication technology tools.

1.1. Research Questions

To reach the objectives of this work, the following questions are developed:

Q1: What are the English as a Foreign Language teachers' attitudes towards professional development in information and communication technologies integration at University.

Q2: What are the English as a Foreign Language teachers' professional development challenges they face in information and communication technologies integration at University?

2. Research Design and Methodology

2.1. Context of Investigation and Sample Population

The study's target population comprised a total of eight (8) participants, predominantly consisting of English as a Foreign Language teachers across various academic levels during the academic year 2022/2023, specifically selected as the primary subjects of this research. The research has been conducted within the confines of the Algerian University, specifically within the Department of English at Mouloud Mammeri University of Tizi Ouzou. The participants have been sampled using a purposive sampling method, meaning that all respondents have been deliberately selected due to their capacity to provide direct and pertinent insights in response to the research inquiries.

2.2. Data Collection Tools and Procedures

With the primary objective of revealing the attitudes of English as a Foreign Language teachers regarding the integration of information and communication technologies (ICTs) in their professional development, this study employs a mixed-method approach. This approach involves the simultaneous gathering of both quantitative and qualitative data from a cohort of Algerian English as a Foreign Language teachers. The purpose is to identify their perspectives on professional development in information and communication technologies integration and to elucidate the obstacles they confront in this process. A questionnaire instrument, comprising three distinct sections containing a combination of open-ended and closed-ended questions, has been administered to a total of eight English as a Foreign Language teachers across various academic levels within the Department of English at Mouloud Mammeri University of Tizi-

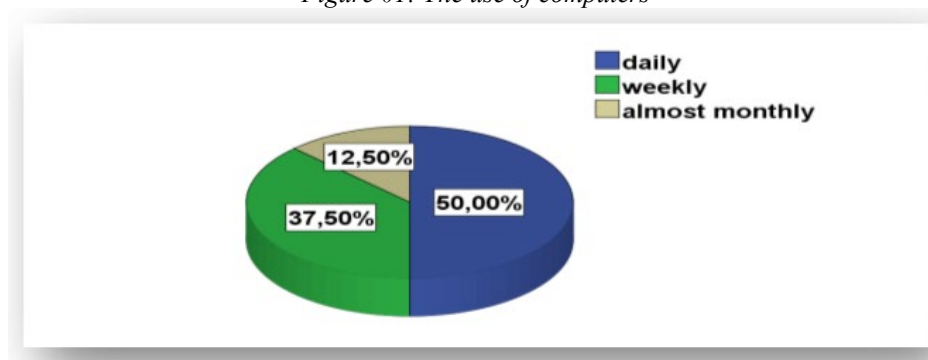
Ouzou. The initial segment of the questionnaire focuses on capturing participants' background information, followed by a section that delves into the teachers' understanding and attitudes towards information and communication technologies integration. The final segment addresses the challenges encountered by English as a Foreign Language educators in the integration of information and communication technologies. Each section of the questionnaire is carefully constructed with a specific set of items tailored to its respective theme. Additionally, the quantitative data is processed using the Statistical Package for the Social Sciences (SPSS), while the qualitative data derived from the open-ended questions is subject to analysis employing the methodology of Qualitative Content Analysis (QCA).

3. Results

3.1. Information and Communication Technologies Integration and Attitudes

Q1. How often do you use computers in your daily life?

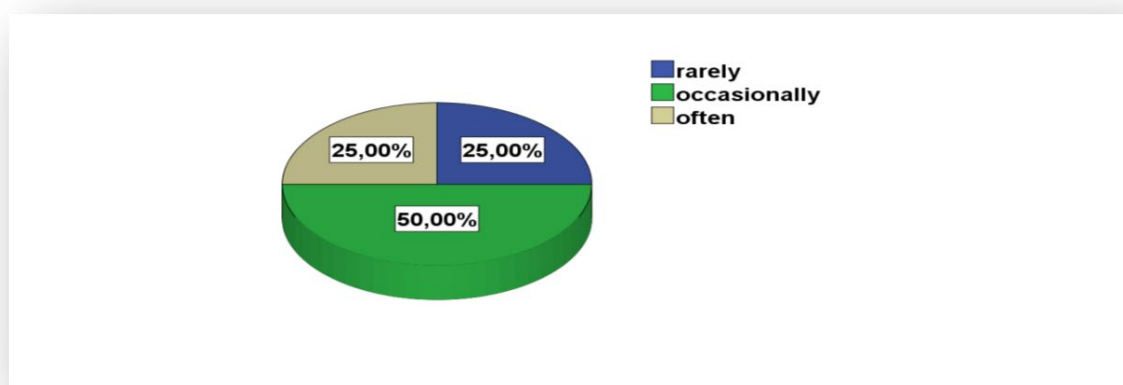
Figure 01: The use of computers



The data depicted in the initial pie chart indicate that a majority of participants, comprising (50%), incorporate computer usage into their daily routines. Additionally, a significant proportion, representing (37.7%), engage with computers on a weekly basis, while a smaller segment, accounting for (12.5%), utilizes computers on a nearly monthly basis.

Q2. How frequently do you incorporate information and communication technology tools in your teaching practices?

Figure 02: The incorporation of information and communication technology tools into classroom instructions

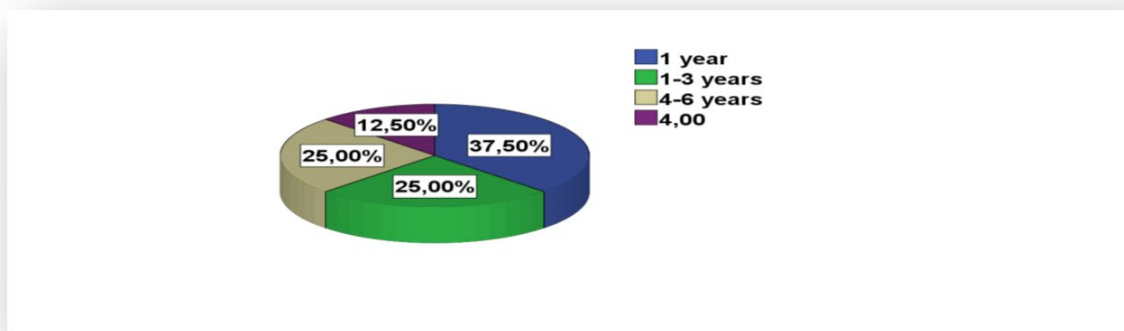


As evidenced in the findings, a considerable proportion of the participants (50%) occasionally integrate information and communication technology tools into their teaching methodologies,

while a smaller subset **(25%)** often or rarely incorporates integrate information and communication technologies within the context of classroom instructions.

Q3. How many years in total have you been using information and communication technology for educational purposes?

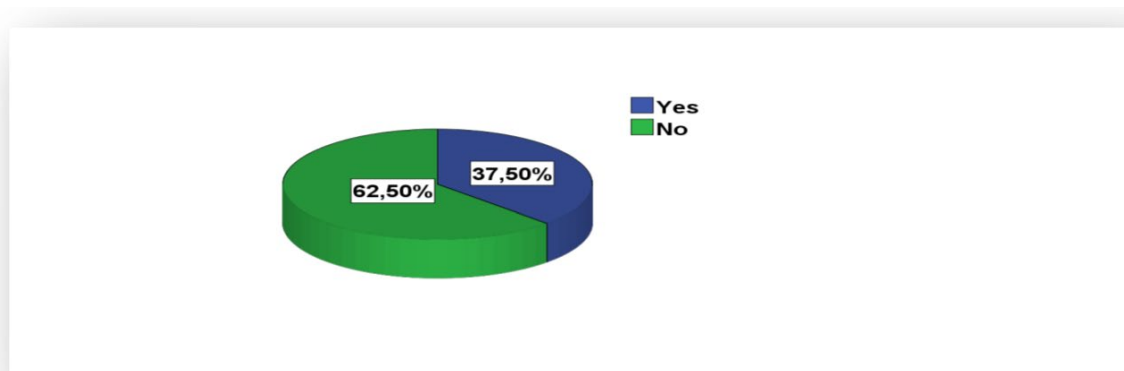
Figure 03: Years of experience in using information and communication technology for educational purposes



The statistics presented reveal that the majority of teachers **(37.5%)** used information and communication technology for one year. In contrast, answers **(25%)** of participants include use extending from one to three years and four to six years, while a smaller segment of teachers **(12.5%)** have used information and communication technology for more than six years.

Q4. Have you participated in any training on the educational use of information and communication technology?

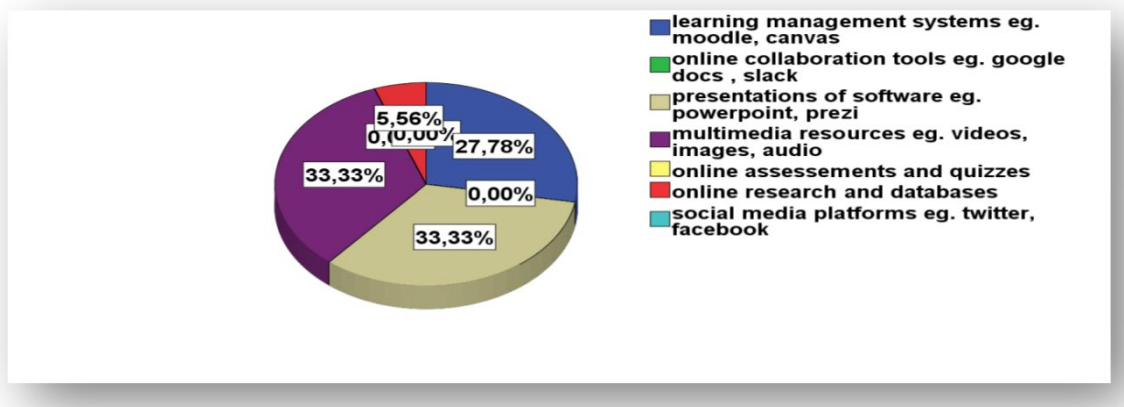
Figure 04: Educational training in Information and communication technology use



The data depicted in the results highlights that a substantial majority of the participants **(62.5%)** affirm their lack of involvement in any form of training related to the educational utilization of information and communication technology, whereas the remaining respondents **(37.5%)** indicate the contrary.

Q5. Which information and communication technology tools do you currently use in your teaching?

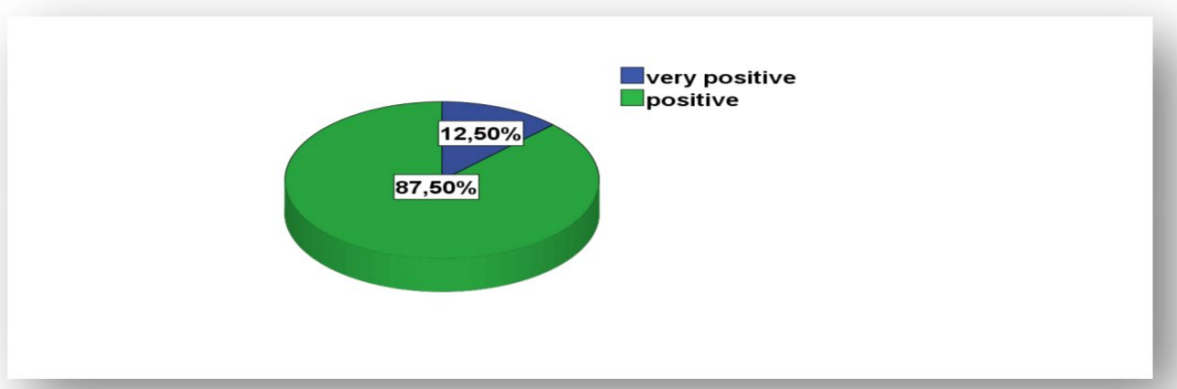
Figure 05: Information and communication technology tools current use in teaching



The current pie chart delineates that the principal share of the participants (**33.3%**) currently employs multimedia resources, such as videos and presentation software, while a slightly smaller subset (**27.78%**) utilizes learning management systems. Conversely, only a minimal segment of the target population (**5.55%**) reports using online research and databases. Notably, none of the participants utilize online assessment and quizzes or social media platforms (**0%**).

Q6. How do you perceive the impact of information and communication technology integration on students' learning?

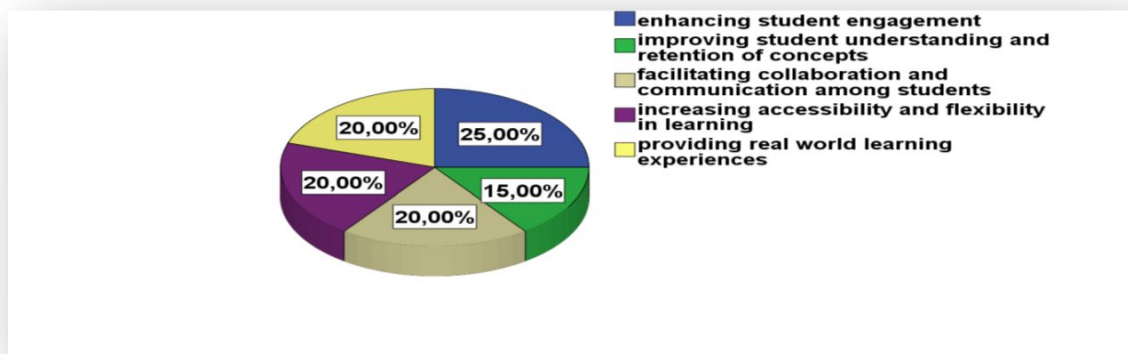
Figure 06. The impact of information and communication technology on students' learning



From the showcased findings, it becomes apparent that a significant proportion of the respondents (**87.50%**) perceive the integration of information and communication technology as having a positive impact on students' learning. Furthermore, a smaller subset (**12.5%**) of participants express a highly positive viewpoint regarding the impact of information and communication technology on students' learning.

Q7: What are the main benefits you see in integrating information and communication technology in higher education?

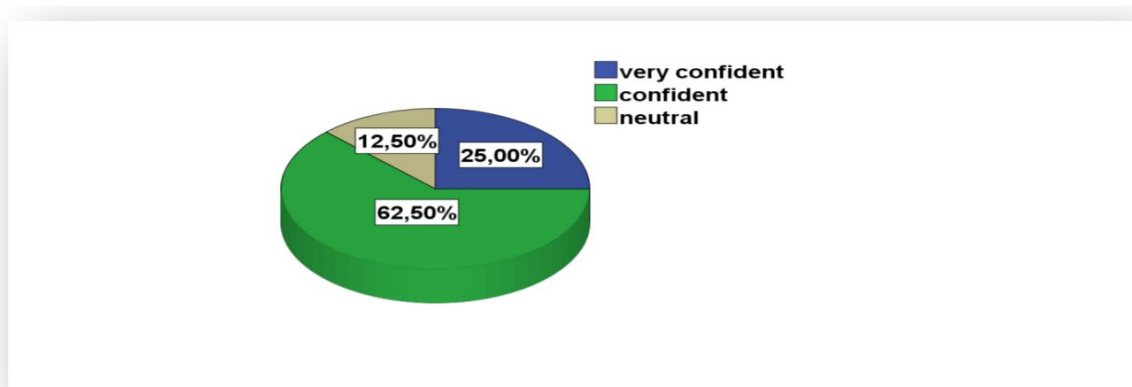
Figure 07: Benefits of integrating information and communication technology in higher education



The pie chart above reveals that a quarter of the participants (**25%**) identify enhancing student engagement as the primary benefit of information and communication technology integration in higher education. Additionally, a subset of respondents (**20%**) highlights facilitating collaboration and communication among students, increasing accessibility and flexibility in learning, and providing real-world learning experiences as major advantages of information and communication technology integration. Conversely, another subset (**15%**) emphasizes the improvement of student understanding and retention of concepts as a crucial benefit of information and communication technology incorporation.

Q8: How confident do you feel in using information and communication technology tools for teaching?

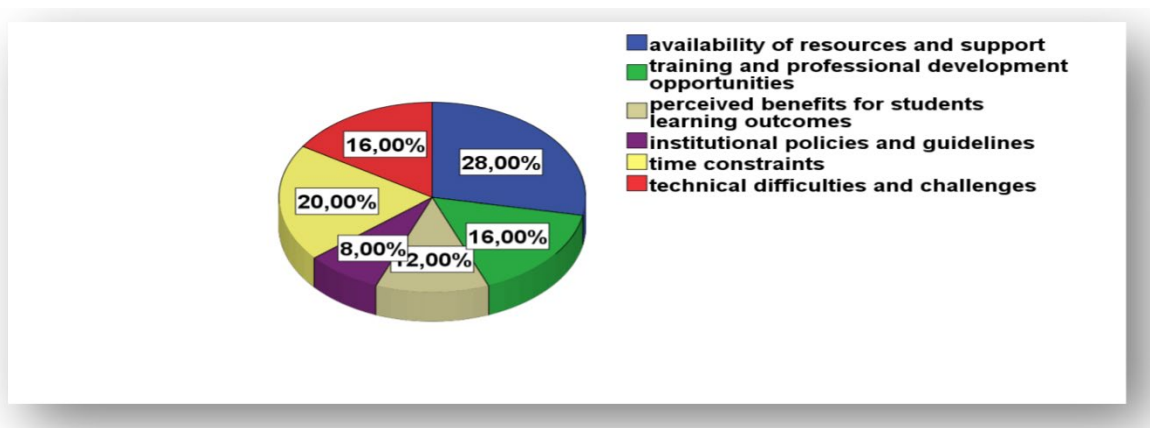
Figure 08: The degree of Confidence in using information and communication technology



The pie chart above illustrates that a quarter of the participants (**25%**) feel highly confident in using information and communication technology in their teaching practices, whereas a larger majority (**62.5%**) express confidence. A smaller segment (**12.5%**) remains neutral regarding their confidence in using information and communication technologies.

Q9: What are the factors that influence your decision to integrate information and communication technology in your teaching?

Figure 09: The factors influencing information and communication technology integration in teaching

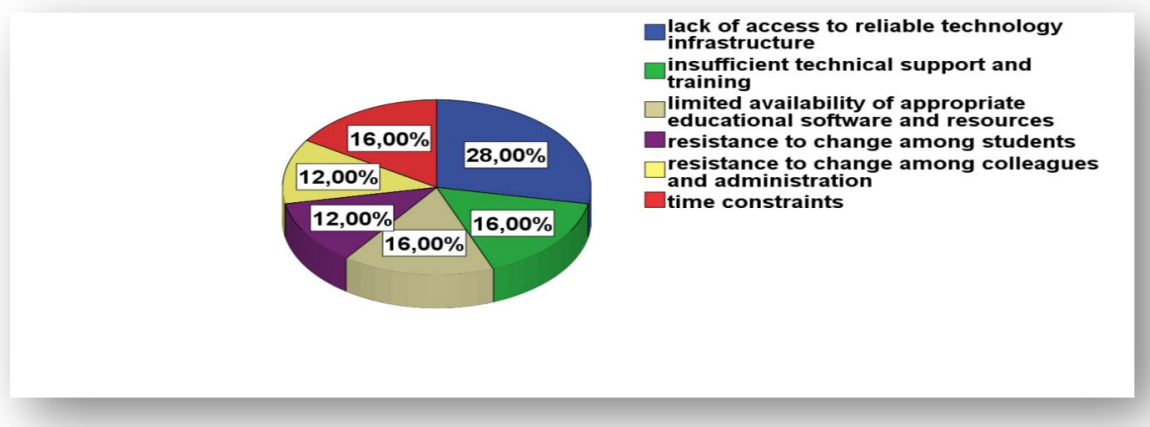


The findings outlined above underscore the factors influencing information and communication technology integration in teaching. According to the results, the availability of resources and support is perceived as a primary influencing factor by (28%) of the respondents. An additional subset (20%) emphasizes time constraints as another significant factor, while (16%) prioritize training and professional development opportunities. Furthermore, (12%) consider perceived benefits for students' learning as a distinct factor, and (8%) emphasize institutional policies and guidelines.

3.2. Challenges in Information and Communication Technology Integration

Q10: What are the main challenges you face when integrating information and communication technology in higher education?

Figure10: Challenges of information and communication technology integration



These findings indicate that a lack of access to reliable technology infrastructure is identified as a prominent challenge by the majority of participants (28%). Moreover, (16%) of the respondents cite various challenges, including insufficient technical support and training, inadequate educational software and resources, and time constraints. Additionally, (12%) of the participants perceive resistance to change among students, colleagues, and administration as the primary challenges associated with information and communication technology integration.

Q11: Do you have any suggestions or recommendations for improving the integration of information and communication technology in higher education?

This question solicits the views of the participants regarding potential recommendations for enhancing the integration of information and communication technologies (ICTs) in the context of higher education. Notably, the respondents articulate similar perspectives in their responses. Specifically, they underscore the significance of acknowledging the challenges faced by

students in accessing certain platforms and participating in online courses. Furthermore, they emphasize the imperative of equipping students with comprehensive training in the utilization of information and communication technology tools, particularly emphasizing the Moodle platform. This emphasis reflects the widely held belief among the teachers that the efficacy of information and communication technology integration hinges upon the proficiency of both teachers and learners. Furthermore, a pertinent suggestion raised by one of the teachers involves the provision of essential resources and tools to facilitate improved teaching and learning outcomes within the realm of information and communication technologies.

4. Discussion

The present investigation is geared towards examining the attitudes of educators concerning their professional development and delving into the core challenges encountered by English as a Foreign Language teachers in integrating information and communication technologies (ICTs) at the university level. The insights derived from the administered questionnaire have effectively addressed the central research inquiries. The data obtained from the responses underscores the critical need for teachers to possess adept skills in incorporating information and communication technologies into their pedagogical practices, thereby necessitating comprehensive training programs. Consequently, a fundamental issue that hinders the effective integration of information and communication technologies into educational practices is identified, emphasizing the pivotal role of equipping teachers with the requisite information and communication technology tools and training to realize successful integration outcomes. These results reflect those of Majoka et.al (2013) who conducted a multiple case study examination of the role of a course, information and communication technologies in Education (p. 42), in employing technology for instructional purposes. Data collected through survey and semi-structured interviews revealed that lack of continuous training was one of the factors that impeded teachers from integrating technology. Moreover, training should include collaborative learning activities, integrate practical tasks using technology, and build connection to classroom experiences (McCarney, 2004).

Correspondingly, the qualitative analysis of the open-ended questions in the questionnaire reveals the teachers' assertion that the proficiency of students in information and communication technologies is as crucial as that of teachers. Notably, the lack of foundational information and communication technology skills among students poses a substantial obstacle to the effective implementation of information and communication technologies in teaching, thereby impeding the overall educational process. Moreover, the findings highlight the affirmative influence of information and communication technologies on enhancing teachers' professional competence, particularly in the realms of evaluation and assessment, fostering effective teaching and learning practices. This study supports evidence from previous observations; Peralta and Costa (2007) conducted a multiple case study in five European countries (i.e., Greece, Italy, Portugal, Spain, and the Netherlands) and invited 20 randomly selected teachers from each country to participate in the focus group discussions. These discussions were conducted in a semi-structured format and allowed participants to share their experiences and ideas about technology use in lessons. Using an a priori coding system, Peralta and Costa discovered that lack of teachers' technology competence was one of the main barriers in making use of information and communication technologies for instructional purposes. Therefore, limited information and communication technology knowledge and skills make teachers feel nervous about adopting technology, especially when students know much more about computers than teachers themselves (Becta, 2008).

Furthermore, the study's findings underscore the significant impact of teachers' competence, motivation, and confidence in utilizing information and communication technology, shaping

the positive correlation between these attributes and their perceptions of information and communication technologies integration in education. Likewise, active encouragement of teachers' participation in the school's information and communication technology initiatives is seen to expedite the integration process. Conversely, the study implies that a lack of confidence and expertise could have adverse implications for both teachers and students, potentially hindering student engagement and learning outcomes. This finding concurs with those of Bauer and Kenton (2005) who applied a mixed-method approach to study the classroom experience of 30 tech-savvy teachers who employed technology within teaching and learning. A great number of these teachers who used information and communication technologies in the classroom considered themselves as highly confident and showed a significant relationship between knowledge, skill and confidence, the combination of which shapes self-efficacy. Hence, the degree of information and communication technologies integration in the teaching process is contingent upon the teachers' attitudes and perceptions, as optimistic attitudes are believed to foster seamless integration. This was confirmed by Ertmer et al. (2012), who labeled teachers' attitudes toward information and communication technology to be one of the main hindrances to educational technology. Analysis of the interview data of 12 teachers disclosed that once teachers realized the impact of technology on student learning they were more willing to employ it in everyday classroom activities (Ertmer et al., 2012). In other words, teachers with positive attitudes are open and ready to embrace the change, whereas those with negative attitudes resist it.

Nonetheless, the research brings to light a host of persisting challenges faced by educators. Particularly, the inflexible and limited time available to teachers, owing to their demanding schedules, emerges as a primary constraint. Additionally, inadequacies in information and communication technologies infrastructure and insufficient resources impede the effective integration of information and communication technologies, with facilities playing a pivotal role in facilitating a conducive teaching and learning environment. A study by Balanskat et al., (2007) categorized the factors that hinder teachers from information and communication technology use into teacher- level, school-level and system-level barriers. Teacher-level barriers comprise lack of teacher information and communication proficiencies; lack of teacher self-assurance; lack of academic teacher training; lack of follow-up of innovation and lack of training programs. The school-level barriers entail lack of information and communication technology infrastructure; outdated or poor hardware; limited access to information and communication technology; inadequate project-related experience; absence of information and communication technology plans of integration into school's policy and the system level barriers comprise stiff construction of traditional pedagogical systems; traditional appraisal; restricted curricula and restrictive managerial form. Consequently, it is imperative to highlight the significance of instituting supportive school policies and practices aimed at addressing these fundamental challenges, thereby enabling educators to effectively navigate these hurdles and achieve successful information and communication technologies integration.

5. Conclusion and Recommendations

Today's teachers are constantly faced with challenges. Society is changing, which places new demands on the content of education and teachers' knowledge. Many countries have introduced digital competence to their curricula to prepare students for the digital society. However, integrating technology to fulfil these obligations can be difficult for teachers. The integration can be challenging as teachers must know how to meet the curriculum requirements and the needs of the students.

The readiness of students in the present day necessitates that educators integrate information and communication technologies into scholarly activities which will additionally place learners

in the situation for the twenty first century 21st Century arrangements.

In view of the research results and in accordance with the literature review of this investigation, recommendations have been made concerning the factors preventing the integration of information and communication technology that educational institutions should address before information and communication technologies integration into teaching and learning processes is considered. In this regard, the extent of information and communication technologies integration into the teaching process is fostered by a clear school policy on information and communication technology integration, teachers' technical knowledge, presence of information and communication technology facilities in schools, teachers' professional development and students' training on how to use information and communication technologies striking a balance between theoretical concepts and practical applications for better outcomes.

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Appendices

Teachers' Questionnaire:

We would greatly appreciate if you could answer the following questionnaire, about the teachers' integration of information and communication technologies in higher education, their attitudes, and the challenges they face. Your responses are extremely valuable for the completion of this work and will be treated with great confidentiality.

Thank you for your collaboration.

Section 1: Background

Information Gender:

- Male
- Female

Age:

- 25-30
- 35-40
- 40 above

Years of experience:

- 01-05
- 05- 10
- 10 above

Educational qualification:

- Master of Arts (MA)
- Doctor of Philosophy (PhD)
- Magister

Section 2: information and communication technology Integration and attitudes

1. How often do you use computers in your daily life? (please select one)

- Daily
- weekly
- Almost monthly
- A few times a year
- Never or almost never

2. How frequently do you incorporate information and communication technology tools in your teaching practices? (Please select one)

- Rarely
- Occasionally
- Sometimes
- Often
- always

3. How many years in total have you been using information and communication technologies for educational purposes?

- 1 year
- 1- 3 years

- 4- 6 years
- 6 Above

4. Have you participated in any training on the educational use of information and communication technology?

- Yes
- No

5. Which information and communication technology tools do you currently use in your teaching? (Please select all that apply)

- a. Learning Management Systems (e.g., Moodle, Canvas)
- b. Online collaboration tools (e.g., Google Docs, Slack)
- c. Presentation software (e.g., PowerPoint, Prezi)
- d. Multimedia resources (e.g., videos, images, audio)
- e. Online assessments and quizzes
- f. Online research and databases
- g. Social media platforms (e.g., Twitter, Facebook)

6. How do you perceive the impact of information and communication technology integration on students' learning? (Please select one)

- a. Very positive
- b. Positive
- c. Neutral
- d. Negative
- e. Very negative

7. What are the main benefits you see in integrating information and communication technology in higher education? (Please select all that apply)

- a. Enhancing student engagement
- b. Improving student understanding and retention of concepts
- c. Facilitating collaboration and communication among students
- d. Increasing accessibility and flexibility in learning
- e. Providing real-world learning experiences

8. How confident do you feel in using information and communication technology tools for teaching? (Please select one)

- a. Very confident
- b. Confident
- c. Neutral

- d. Not confident
- e. Not at all confident

9. What are the factors that influence your decision to integrate information and communication technology in your teaching?(Please select all that apply)

- a. Availability of resources and support
- b. Training and professional development opportunities
- c. Perceived benefits for students' learning outcomes
- d. Institutional policies and guidelines
- e. Time constraints
- f. Technical difficulties and challenges

Section 3: Challenges in information and communication technology Integration

10. What are the main challenges you face when integrating information and communication technology in higher education?(Please select all that apply)

- a. Lack of access to reliable technology infrastructure
- b. Insufficient technical support and training
- c. Limited availability of appropriate educational software and resources
- d. Resistance to change among students
- e. Resistance to change among colleagues or administration
- f. Time constraints

11. Do you have any suggestions or recommendations for improving the integration of information and communication technology in higher education?

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