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The Challenges of Adopting CALL in Iranian Universities: Voices of Professors, Students, and IT Support Engineers

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Abstract

The optimal implementation of Computer Assisted Language Learning (CALL) in Iranian EFL higher education faces some challenges despite its incremental growth. It is, therefore, necessary to investigate the current challenges affecting university professors' and students' adoption of CALL in Iranian EFL contexts. For this purpose, data were collected through semi-structured interviews with three purposeful sampling groups of participants, both before and after the temporary shutdown of the educational sector due to COVID-19 spread. Therefore, 33 interviewees—university EFL professors, students, and Information Technology Support Engineers (IT-SE)— took part in an interview which took approximately 90 minutes for each, conducted in person or over WhatsApp and Skype platforms. All the interviews were audio recorded and transcribed for thematic analysis by the first researcher and an assistant researcher. The obtained results highlighted nine major categories of themes that indicated the obstacles and challenges of optimal CALL implementation. These challenges are related to 1) technological dimension, 2) teacher dimension 3) student dimension, 4) software and hardware dimension, 5) sanctions and filtering dimension, 6) curriculum dimension, 7) the nature of e-learning dimension, 8)

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socioeconomic and cultural dimension, and 9) university administrators' dimension. It was the sanctions and filtering dimension, the nature of e-learning dimension, and the socioeconomic dimension that were exclusive to this study. Each of these major themes includes a set of minor themes. The results can contribute to educational planners, curriculum and material developers, and teachers to develop education programs for optimal CALL implementation in Iranian EFL higher education by removing the challenges.

***Keywords*:** EFL higher education, CALL implementation challenges, professors' voices, students' voices, IT support engineers' voices

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1. Introduction

In recent decades, the growing use of computers and the internet in English as a Foreign Language (EFL) context, coupled with netizens' drift toward ICT tools, has driven educational stakeholders to take advantage of this potential (Ozkan & Koseler, 2009). In other words, the benefits of integrating computers into language learning have prompted educational practitioners and authorities to pay considerable attention to the importance of CALL in higher education. Particularly when nations were under COVID-19's firm grip, they took drastic measures to ensure that the teaching and learning process continued (Murphy, 2020; Seyyedabadi et al., 2022; Chau & Hieu, 2023). These measures included the implementation of Emergency Remote Teaching (ERT) (Hodges et al., 2020) and the fostering of distance learning technology to keep the educational process going (Weeden & Cornwell, 2020). In fact, ERT is different from online learning. Still, even if these terms could be used interchangeably and convey identical concepts, the existing opinions on the role of ICT and e-learning have produced diverse perspectives (Abbasi et al., 2020). Whatever the future of e-learning would be, the studies before or during the emergence of COVID-19 show that some challenges hinder the better, high-quality implementation of e-learning in an educational context, particularly EFL (Adnan & Anwar, 2020; Aminullah et al., 2019; Baylor & Ritchie, 2002; Dhawan, 2020; Farrah & Al-Bakry, 2020; Jacobsen & Lock, 2005; McGrail, 2005; Warschsuer & Meskill, 2000).

CALL, as a specialized and specified subset of integrating technology, especially computer use in language teaching and learning, has also undergone the same process. While the merger between e-learning and foreign language learning theories and practices provide ample learning opportunities for education at a macro level and for teachers and learners at a micro one, it has been implied in different studies (Afshari et al., 2013; Jahromi & Salimi, 2013; Mei et al., 2017; Mohammadi & Masoomi, 2015; Park & Son, 2009; Rahimi & Yadollahi, 2011; Ramazani et al., 2013) that sole technological developments are not sufficient to facilitate teaching and learning foreign languages. Obtaining a glimpse at the CALL implementation literature both before and after the closure of universities due to the outbreak of COVID-19, it can be seen that prior to the spread of COVID-19 in Iran, despite the overarching positive tone and attempts made by CALL professionals, the educational sector of Iran, like most countries, benefited only partially from the supplementary and facilitating use of ICT tools and CALL in their language teaching/learning (Tafazoli, 2021a). However, with the outbreak of COVID-19, and the closure of the

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educational sector, ERT was seen as a viable and urgent temporary solution for professors and students, which differs from CALL.

This study contributes to the existing literature by identifying challenges that affect optimal CALL implementation in EFL higher education based on university stakeholders' opinions. It offers insight into how professors, students, and IT support engineers perceive CALL and identifies potential barriers to its implementation. The study's finding can help inform the development of optimal CALL implementation models tailored to the needs of EFL higher education. This study will provide those responsible for the management and development of CALL with helpful information to evaluate the challenges of optimal CALL implementation in Iran's EFL context and set the educational programs accordingly. It is also expected that the emerging challenges can bear some potential for further instructional theorizing on optimally benefiting from CALL in an Iranian EFL setting. It is clear that to pave the ground for more efficient use of CALL, barriers should be identified and removed (Fiddin & Bustami, 2021). For this purpose, the following research question was put forward:

RQ: What are the CALL implementation challenges in the Iranian EFL higher education context?

2. Literature Review

2.1. CALL Challenges in the Non-Iranian EFL Context

The availability of technology alone does not guarantee its practical integration into education. Therefore, in addition to accessibility, the literature highlights other essential factors for successfully integrating ICT into educational settings. Specific to the EFL context, the literature identifies several barriers to implementing CALL.

Training is an influential factor in influencing teachers' attitudes regarding technology and encouraging them to incorporate it into their teaching methods (Arkin, 2003). According to Thomas and Graham (2019), insufficient training negatively impacts online teachers' use of ICT. Similarly, based on the findings of Alkahtani (2011), EFL teachers' perceptions of CALL integration in their classes are influenced by the technical support and teacher training they receive from the institute. Han (2008) also identified several barriers to implementing CALL, including a lack of training for teachers and students, financial concerns, and technological issues.

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Another barrier to using CALL is a lack of technical and theoretical knowledge. As Lam (2000) found, teachers without these two types of knowledge cannot use computers in language instruction. Likewise, Winke and Goertler's (2008) research showed that this absence of knowledge applies to students. They found that many university students lack the necessary knowledge and computer skills for language learning. According to Schmidt (1995), as cited in AlKahtani (2007), professors fail to utilize technology due to a lack of familiarity with its operation despite knowing its importance to educational institutions. Among the barriers to teachers' use of computers, Lu (2006) reported that education technology skills, funding for teaching through technology, and the acceptance of technology are the impediments to CALL integration.

The linguistic difficulty of the materials and teachers' perceptions of computers' inadequacy to meet students' needs are among the challenges that teachers face when integrating computers into language education (Lam, 2000). Additionally, Warschauer et al. (1996) assert that some teachers may prefer the traditional role of the teacher as an expert, implying that teachers' unwillingness to use technology stems from their discomfort with giving up their expert role rather than their lack of computer knowledge.

Likewise, students' preference for traditional methods of instruction halts the use of technology in education. According to Roy et al. (2020), most students prefer face-to-face education rather than online education, which makes teaching online even more difficult. To implement CALL effectively, Tayebinik and Puteh (2019) emphasized the importance of understanding and considering students' learning styles.

The availability of hardware and software are one of the most influential aspects of using computers in teaching. As Lam (2000) asserts, teachers become unaware of the benefits of computers when they lack access to software programs. The study conducted by Leh (1995) showed that even when American teachers expressed a positive attitude toward using technology in the classroom, they rarely utilized it due to a lack of access to computers and limited technical knowledge.

Further, some researchers argue that student-instructor interactions are critical to online educational success (Cheng, 2011; Selim, 2007). Along with interaction, many other factors impact online learning effectiveness (Al-Fraihat et al., 2020; Davis et al., 1989; Fathema et al., 2015). For example, Mumtaz (2000) stated that the most salient barrier to using digital technology in teaching for professors is lack of time for using computer technology. The other challenges were the absence of online pedagogical

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knowledge, lack of technical knowledge, inadequate funding for the initial courses, development costs, the amount of time needed to utilize technology in the classroom, insufficient technical support, insufficient technology-enhanced classrooms, and lack of on-site support.

Likewise, Lee (2000) categorized the barriers impeding the practice of CALL into four categories of financial barriers, accessibility of computer hardware and software, technical and theoretical knowledge, and technology acceptance. As identified by Brantmeier (2003), three significant factors hinder the full integration of technology. These factors include the time commitment required to create and use materials, the rate of technological change, and technical difficulties.

Socio-cultural issues also influence CALL integration. Dewachi (2002), for example, notes that cultural barriers prevent computer and internet use in education. Additionally, Chen et al. (1999) consider cultural perceptions to be crucial in teachers adopting ICT.

2.2. CALL Challenges in the Iranian EFL Context

A large body of research can be found by searching the keyword CALL in search engines. However, only a limited number of these studies dealt with the challenges of CALL implementation in Iran. Furthermore, most studies on CALL implementation have explored a small range of barriers and generally emphasized EFL teachers' perspectives. The perspectives of students and IT support engineers have been a relatively neglected area of research.

Among CALL adoption challenges, attitude is one of the issues studied in the literature. For instance, Ghobadi and Yeshodhara (2013) examined the attitudes of EFL teachers in using educational technology in Iran. The study revealed that negative attitudes had a significant impact on Iranian EFL teachers not using educational technology in their classrooms. CALL integration is not solely based on teachers' attitudes. Other factors such as access to the required resources, and adequate teacher training have impact on its integration. In this regard, Hedayati and Marandi (2014) explored the obstacles from Iranian EFL teachers' point of view and categorized barriers into facilities, teachers, and learners. The results showed that very few Iranian EFL teachers used digital technology in their classes almost seven years ago.

Studies conducted by Dashtestani (2014a; 2014b) pointed to Iranian teachers'

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computer literacy level and possible difficulties. In a qualitative study, Dashtestani (2014a) found that besides the teacher trainers' insufficient computer knowledge to train EFL CALL teachers, lack of necessity and requests from EFL teachers to use computers in their teaching hampered teachers' computer literacy progress. Similarly, Dashtestani (2014b), in a mixed-methods study, found that teachers' computer literacy level was inadequate for CALL implementation.

In a similar vein, recent literature reveals further obstacles to CALL adoption in the Iranian context. For instance, Dashtestani (2020) identified inappropriate technological infrastructures, lack of credibility of online course certificates, lack of practical content in the lessons, and absence of human interaction as additional challenges.

Due to the unexpected employment of online education during the COVID-19 pandemic, Iranian researchers have paid much greater attention to the existing CALL challenges to pave the way for its optimal implementation. In line with the mentioned obstacles Shahnama et al. (2021) explored EFL teachers' problems during an online English intermediate-level course. The results showed that some challenges are platform limitations, internet connection, and students' and teachers' unpreparedness for online education. In another attempt to identify the obstacles hindering the successful integration of CALL in the teaching/learning process, Tafazoli (2021a) reported teachers' inadequate knowledge of online teaching, and lack of technological facilities and equipment as problems in online teaching. Similarly, Meihami (2021) stated that insufficient infrastructure and passivity in training CALL educators impede successful CALL integration.

A review of some of the recent and previously done studies confirms that researchers focused mainly on teachers' attitudes toward CALL. Furthermore, some aspects of challenges related to CALL implementation were discussed in studies about teachers' problems. Further evaluation is needed to identify other factors influencing attitudes toward CALL. However, it is important to consider the students' perspective and their experiences in using CALL in the classroom. Considering this gap, the current study aims to develop a clear picture of optimal CALL implementation from the perspective of EFL professors, students, and IT-SE.

3. Methodology

The present qualitative study explored the challenges of optimal CALL

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implementation in the Iranian higher education EFL context. Semi-structured interviews were carried out with three groups of university EFL professors, students, and IT support engineers to examine the barriers. Also, the data in this study was collected both before and after the closure of universities due to the outbreak of the COVID-19 pandemic. Since the data collection process coincided with the outbreak of COVID-19 and the temporary replacement of face-to-face instruction with distance learning, data were collected during these periods. As a result of the unexpected use of technology in education, it is necessary to conduct a verification to determine the reliability of the data and to check any discrepancies that may arise.

3.1. Participants

A pool of 33 Iranian EFL university professors, students, and IT support engineers participated in this study from Tehran University, Sharif University, Tarbiat Modares University, Shahid Rajaeei University, Amir Kabir University, Iran University of Medical Sciences, University of Mohaghegh Ardabili, and Alzahra University. It is important to note that among these 33 participants, 6 of them participated in this study after the pandemic. To be more precise, three teachers and three students were asked to respond to interview questions after the pandemic to check for potential changes in viewpoints. Of the study participants, thirteen were university students, thirteen were teachers, and the remaining seven were IT support engineers. The number of participants in each group was set based on Morse (1994), who suggested that at least 6 participants with relevant knowledge would be sufficient for qualitative studies. Since the interviews had to be conducted with those who had experience in CALL, those professors and students who had participated in CALL classes or workshops were invited to take part in this study. Therefore, the sampling method used in this study was purposeful.

Nearly eighty percent of university students and professors were females; however, this ratio was the opposite among the IT support engineering group. The age ranges of the participants were as follows: professors, 35-55; students, 30-40; and IT support engineers, 28-45. The students' and professors' average years of experience in learning and teaching EFL was 20, and the IT support engineers' average years of experience was 15 years. Among the 13 university professors, 12 had Ph.Ds. in TEFL, and one held a master's degree. The students who were interviewed were all Ph.D. candidates, with the exception of three who had defended their dissertations

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during the process of data collection. Among the 7 participants in the IT support engineer's group, five held a master's degree, and two had Ph.D.

3.2. Instrumentation

3.2.1. Semi-structured interview

Based on the concepts retrieved from the relevant literature as well as the researchers' and a CALL expert's comments, interview questions were formulated to uncover as much information as possible. Interviews were conducted with three distinct groups of university EFL professors, students, and IT support engineers. The university EFL professors and students responded to eight semi-structured interview questions, and IT support engineers answered six questions presented in appendices A and B, respectively.

3.3. Procedure

To investigate the challenges of optimal CALL implementation in the Iranian EFL context, three university stakeholders— EFL students, professors, and university IT support engineers— were taken into account through individual semi-structured interviews. More specifically, the first researcher conducted, interviews each of which took approximately 90 minutes, in person or via the WhatsApp and Skype platforms. The responses of all interviewees were recorded in audio format, transcribed, and analyzed via the thematic analysis method. Moreover, to evaluate the content validity of interview questions, a CALL expert with twenty years of experience working with CALL and training CALL professors checked them out; therefore, they were revised and somewhat reworded to optimize their suitability.

3.4. Data Analysis

Regarding data analysis, inductive thematic analysis was used. One of the most widely used approaches to conducting thematic analysis is Braun and Clarke's (2006) six-step process. This process involves familiarizing oneself with the data, coding the data, generating themes, reviewing and refining the themes, defining and naming the themes, and finally, producing a report. By following these steps, researchers can stay focused on the data and avoid potential preconceived notions that could lead to confirmation

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bias. In this study, as the first step, the interviews were transcribed and read multiple times, and the initial concepts were written. Second, the transcripts were reviewed to ensure that all the relevant information was included. Then specific phrases and sentences were highlighted to identify the relationship between different concepts and then, possible corresponding codes were written. After reading the transcripts repeatedly, the created codes were reduced into specified categories of themes by finding clear patterns. Finally, the emerging themes were validated by comparing them to the transcripts. This was done to ensure accuracy and identify any missing data or possible discrepancies that might not be readily apparent. Therefore, based on the related literature review and the opinions of a CALL expert, semi-structured interviews were conducted to answer the research question on the "challenges of optimal CALL implementation in the Iranian EFL higher education context".

Further, some strategies, such as inter-rater comparisons and triangulation, were employed to ensure the trustworthiness of the qualitative data, including its dependability, confirmability, transferability, and credibility (Ary et al., 2010). Following Lincoln and Guba (1985), the present study employed some strategies, including code-recoding, data triangulation, and investigator triangulation, to evaluate the credibility of the qualitative data. According to Denzin (1978), data triangulation and investigator triangulation are among the four basic types of triangulation, which give insights into the research problem from multiple perspectives and levels. As mentioned, the data of this study were collected from different samples of participants (EFL professors, EFL students, and IT support engineers) and time (before and after the breakout of COVID-19). To meet the investigator triangulation, an assistant researcher with a Ph.D. in TEFL recoded the data and analyzed the detected themes to assure the reliability of the content. Moreover, to assure the accuracy of the gathered data before the outbreak of Covid-19, the interview sessions were repeated after the outbreak and the reopening of universities. Transferability, as the other component of trustworthiness, refers to the extent to which the findings are generalizable or applicable to other contexts. This was ensured by a clear statement of the research setting and the participants' characteristics in this study. To set the third factor of trustworthiness—dependability— in this study, the researcher provided a detailed description of the study's design and methodology to ensure the readers of the clear, traceable, and logical process (Tobin & Begley, 2004) of the research. Finally, the last component of trustworthiness is confirmability, which verifies that the findings of study are based

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on participants' words rather than potential researcher bias (Tobin & Begley, 2004). As defined by Guba and Lincoln (1989), confirmability is established when the remaining three components of trustworthiness are met.

4. Results and Discussion

The present study provided a complete picture of optimal CALL implementation challenges in the Iranian higher education EFL context. Therefore, in-depth analyses of data gathered through interviews were presented to answer the research question. The extracted themes from each group of interviewees were compiled into nine categories. Each major theme has its minor themes and some of the minor themes include sub-themes. All these themes found in the study are presented in table 1, and each of them has been discussed below.

Table 1

Themes Derived from All Three Groups of Interviewees

Major Themes	Minor Themes	Subthemes
1. Technological Dimension	Internet connectivity	1.1 Absence of affordable and low internet tariffs 1.2 Limited internet quotas 1.3 Frequently disconnected internet 1.4 Low speed internet
2. Teachers' Dimension	1. Professors' insufficient theoretical and practical technological and pedagogical knowledge 2. Professors' age limit 3. Professors' negligence and resistance to change 4. Teachers' lack of motivation 5. Absence of high-quality teacher training programs 6. Absence of CALL teacher community 7. Lack of incentivizing and rewarding mechanisms for teachers	1.1 Unsatisfactory level of teachers' digital, computer, media and internet literacies 1.2 Teachers' low level of experience and practice on CALL

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Major Themes	Minor Themes	Subthemes
3.Students' Dimension	1. Learners' lack of motivation and willingness to use CALL 2. Learners' unfamiliarity and absence of technological knowledge 3. Learners' low English language proficiency 4. Learners' misperception of the formality of CALL 5. Absence of student training programs on the use of computers in language education	
4. Nature of e-learning Dimension	1. Absence of socio-emotional and soft skills in online learning 2. The complexity and incompleteness of in-use technology	
5.Curriculum Dimension	Incompatible and inconsistent language curriculum with CALL requirements	
6. Software and Hardware Dimension	Limited and low-quality software and hardware	
7. Sanctions and Filtering Dimension	Inhibiting the role of sanctions, blocking and filtering both from inside and outside of borders	1.1 Lack of access to the original software 1.2 Prohibition on attending online courses held in other countries 1.3 International monetary payment problems 1.4 Prohibition of exchanging and purchasing of educational content
8. Socioeconomic and Cultural Dimensions	1. Linear relationship of knowledgeable teacher and the recipient student 2. Parents' negative beliefs and misperceptions toward CALL and its effectiveness 3. Families' financial problems in terms of providing the necessary equipment for online learning	

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Major Themes	Minor Themes	Subthemes
	4. Inconsistency between the target culture's norms with source conveyed cultural ones 5. Incompatibility between technological patterns of interactions with students' learning styles and cultural issues	
9. University Administrators' Dimension	1. The overall policy of the educational system in Iran 2. University administrators' lack of knowledge and awareness of educational technologies' usefulness 3. Inauthenticity and disvalue of e-courses certificates 4. University officials' resistance toward change and their willingness to homogenize prototypes 5. Insufficient allocated funds for the provision of educational facilities 6. Absence of professional and multi-disciplinary group for content production 7. High implementation, improvement and boosting cost of technology for universities	

4.1. Technological Dimension

The first major category of derived themes was technological dimension, which dealt with the quality of information technology infrastructure and ICT equipment needed for CALL. As the data indicate, all three groups of participants stated that information technology infrastructure and ICT equipment were of poor and insufficient quality. In other words, expensive internet tariffs, limited internet quotas, frequently disconnected internet and low-speed internet hamper the tendency to use the computer in learning and teaching. The following comment was made by a student: "*Lack of high-speed internet, adequate bandwidth, and cheap or free internet tariffs cause frequent interruptions during the class" (Student 12).*

Comparison of the findings with those of other studies (Atai & Dashtestani, 2013; Dashtestani, 2012; Dashtestani, 2020; Marandi, 2010; Hedayati & Marandi, 2014; Meihami, 2021; Shahnam et al., 2021; Tafazoli, 2021a; Tafazoli, 2021b) confirms that technological barriers impede optimal CALL implementation in the EFL context. Literature shows that technological issues are common impediments to successful CALL use in the EFL setting, regardless of country or region (Brantmeier, 2003; Han,

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2008; Leh, 1995). Such challenges can impede even the most well-planned and implemented CALL programs. Furthermore, the consistent findings across all these studies corroborate the evidence that technological challenges remain a significant issue in contemporary EFL classes.

4.2. Teachers' Dimension

A further hindrance was the professors' insufficient theoretical and practical technological and pedagogical knowledge regarding using computers in their teaching. This lack of knowledge meant that professors found it difficult to implement the use of computers in their classrooms effectively. As noted in the interviewees' responses, the unsatisfactory level of professors' computer, media, and internet literacies and their low level of computer experience and practice, prevent optimal CALL implementation. Hence, professors should be equipped with the knowledge and skills of this new paradigm "as a collection of skills, competencies, and knowledge of how to use (multi-) disciplinary knowledge, pedagogical techniques, and technological tools…to repurpose (subvert) them for their needs" (Kereluik et al., 2011, p. 15). The following comment was made by a professor: *"In Iran, most professors need to familiarize themselves with technology, what educational technology is, when to use it, and when to avoid it" (Professor 8).*

This study supports the evidence that professors play an essential role in the integration of technology in language teaching and learning (Hubbard, 2008). It has been found that for optimal CALL implementation, professors must be knowledgeable about computers and be able to provide guidance and support to students. The findings of the study are similar to previous studies (Atai & Dashtestani, 2013; Hedayati & Marandi, 2014; Jahromi & Salimi, 2013; Leh, 1995; Lee, 2000; Saidi & Afshari, 2021; Schmidt, 1995; Shahnam et al., 2021; Tafazoli, 2021a; Tafazoli, 2021b; Warschauer et al., 1996) on teachers' roles in technology-based language learning and teaching.

A further issue related to the teachers' dimension category includes professors' age limits. Concerning this dimension, the findings indicated that the relationship between professors' age limits and their use of technology is inverse. Thus, professors' tendency to use CALL decreases as they age: "*One of the reasons that foster this weakness is the aged professors, and it can be said they are digital immigrants" (Professor 12).*

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This study presents new findings regarding age. To be more specific, previous studies have looked at the relationship between professors' age limits and their attitudes toward CALL. For example, Tafazoli et al. (2019), who examined some demographic factors, including age, on professors' and students' attitudes toward CALL, found that gender, education level, and age of professors and students did not affect attitudes toward CALL. However, this study looks closely at how age limits shape how professors interact with CALL in their classes. In addition, the findings of this study could provide helpful insight into how age limits can be used to optimize the use of CALL in the classroom.

Professors' negligence and resistance to change was the next challenge associated with the teachers' dimension. The findings highlighted that most professors prefer to stay comfortable in their comfort zone with their accustomed teaching method because using CALL creates a significant additional workload for them. This increase in workload can be daunting, which is why many professors prefer to stick to their traditional teaching methods. A professor noted the following in an interview: *"Professors stand against all changes. They think that if they adapt themselves to these changes, it will place more burden on them. Therefore, they prefer to neglect it or do it carelessly" (Professor 4).*

This finding of the study suggests that, despite the technological advancements of CALL, there is still an underlying reluctance among professors to implement the potential of these tools entirely. The result of the study on professors' resistance is consistent with the data obtained from previously conducted research on CALL challenges (Marandi, 2010; Warschauer et al., 1996).

The next challenge in the teachers' dimension major theme category relates to professors' lack of motivation. Motivation, defined as an eagerness to pursue a goal or fulfill a task (Keller & Litchfield, 2002), appears dim in perceived results. This lack of motivation stems from various factors, such as low salaries, administrative paperwork, lack of recognition and respect, lack of resources, and lack of job security. Furthermore, the study indicated that professors are not sufficiently motivated to improve their CALL skills and knowledge, implement technology in their classes and even participate in CALL teacher training programs: "*Professors are disinterested in participating in technology-enhanced classes, and there should be someone to push them" (IT-SE 3).*

This result is in accord with the recent study (Meihami, 2021) indicating that the lack of EFL professors' motivation to participate in CALL teacher training

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programs is a roadblock to optimal CALL implementation. However, other studies (Pinner, 2012) indicate EFL teachers' high intrinsic motivation to use CALL in their classes.

The fifth highlighted theme in the teachers' dimension category hinged on the absence of high-quality teacher training programs in the Iranian EFL context. Professors need training programs to shift from face-to-face teaching classes to technology-integrated ones. These programs should include professors' technological needs (Cosmah & Saine, 2013) and be comprehensive (Lotherington et al., 2016). The following comment was made by a professor: *"We are lagging behind in the context of professor education in CALL and professional development" (Professor 2).*

Comparison of the findings with those of other studies (Alkahtani, 2011; Han, 2008; Hedayati & Marandi, 2014; Lam, 2000; Marandi, 2010; Meihami, 2021; Tafazoli, 2021a; Tafazoli, 2021b; Thomas & Graham, 2019) confirms the necessity and the need for CALL teacher training programs. In this vein, Hedayati et al. (2018) reported that TESOL courses in Iranian universities, whether bachelor's or master's, do not provide CALL teacher training programs. Hedayati et al. (2018) pointed out that despite some reports regarding the teaching of CALL in a small number of universities, it was perceived that not only were these courses largely theoretical and no hands-on practices were offered, but also CALL was not considered a separate course.

It is necessary to clarify that although CALL has been opened up as a separate field of study for EFL M.A. students at Alzahra state university and Tabaran institute of higher education since 2020, the researchers are concerned with the pervasive number of CALL training courses available at other universities and state or private educational institutes.

The absence of the CALL teacher community was considered the sixth hindrance in the teachers' major theme category. As for the necessity of a local CALL teacher association, respondents reported that establishing such an association could provide opportunities for collaboration and knowledge sharing, resulting in more effective implementation of CALL. As a result, teachers will be informed of talks, workshops, or seminars on CALL. Similarly, Marandi (2010) identified the absence of a learning community for professors as a challenge to optimal CALL implementation.

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The next highlighted impediment in the teachers' major theme category relates to the lack of incentives and rewarding for professors. Based on the interviews, the lack of incentives and appreciation can seriously undermine the quality of teaching and decrease professors' motivation and interest. As a result, universities need to establish a system that properly recognizes and rewards the achievements of professors: "*Also, we have problems with rewarding and encouraging mechanisms for professors to learn computers and CALL. A pay rise would be an example of such a mechanism" (Professor 3).*

According to Yaghoubinejad et al. (2016), the lack of reward for English professors in the non-CALL context is considered one of the demotivating factors. Previously published studies have failed to address the effect of professors' incentives and appreciation on CALL implementation in the Iranian EFL context. Therefore, it is essential to uncover how incentives and appreciation from professors can help promote CALL implementation in this context.

4.3. Students' Dimension

By exploring the interviewees' answers, it was found that although professors are the prominent influencers in setting up computer-assisted language classes, they are not the only ones. The interviews revealed that students also strongly influence the development of computer assisted classes. This influence is based on various factors such as students' technological knowledge, motivation, misperception on formality of CALL, the level of English language proficiency and absence of training programs. The results of this study indicated that the learners' lack of motivation to use computers in language learning is one of the roadblocks to optimal CALL implementation: "*It is tough to keep students focused on the taught material. They are not motivated, and most of the time, they express their dissatisfaction in different ways. A disengaged and demotivated learner can impact the whole atmosphere of the class" (Professor 5).* Moreover, a student commented as follows: *"Most of the time, students are not motivated to participate in class activities leading to the minimum amount of work in the classes" (Student 8).*

Khatoony and Nezhadmehr (2020) also found that a challenge for technology integration in Iran is students' failure to pay attention to and be motivated toward online classes. Additionally, according to Warschauer (1996), students are not willing to use computer-assisted language learning because they may not have the

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necessary skills to use computers effectively or have limited experience in using computers for language learning, which can further contribute to their lack of motivation.

Within the 'student dimension' major theme category, the second highlighted challenge relates to learners' lack of technological knowledge and experience of CALL. As stated by the interviewees, students are familiar with computers and generally possess a basic knowledge of computers; however, they are inexperienced and incompetent in educational subjects.

Our students are believed to be digital natives; being a digital native is one thing, and knowing that using technology adequately for learning is something else. Most of the students did not know how to use the websites even though I had to teach them how to surf the net, google something, and trust some websites and not others. They could not distinguish between reliable and unreliable sources. (Professor 8)

The challenge of lack of knowledge and experience with CALL can lead to students feeling overwhelmed and ill-equipped to use available technological tools and resources for language learning (Supratman & Wahyudin, 2017), causing them to become disengaged with the subject (Burke & Fedorek, 2017). Additionally, the lack of technological know-how can lead to students having difficulty understanding and effectively using CALL (Nguyen & Habok, 2021). The results concur with previous studies (Dashtestani & Hojatpanah, 2021; Mabayoje et al., 2016), which reported students' low technological skills and, therefore, low levels of use of technologies when learning English. Additionally, in their study, Hedayati and Marandi (2014) found that the digital literacy level of learners was a challenging barrier to CALL. However, in the current study, it was found that besides the low level of digital literacy, learners' low level of internet literacy and lack of experience with CALL still count as barriers.

Regarding low English language proficiency, interviewees stated that when learners are incompetent in English, they may face some problems. For example, they would have difficulties following and comprehending the professor's explanation and the instructions for applications or LMSs since they are in English. Furthermore, due to their limited English language skills and difficulty communicating in English, they are reluctant to participate actively in class activities. This is in support of studies conducted by Dashtestani (2020), Hedayati and Marandi (2014) and Lam (2000).

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The interviewees further reported a misperception among students about the formality and efficiency of CALL. Many students think CALL is fun, so they do not take lessons seriously. They tend to underestimate the potential of CALL as an effective teaching method. This may be because CALL is not perceived as a tangible and formal substitute for regular education for them. The following comments were made by a student in this regard: *"I had some students who rarely trusted using the internet as a helpful tool for learning, or thought it was just for fun, they had very negative attitudes toward doing these in class" (Professor 13).*

Similar results were reported by Dashtestani and Hojatpanah (2021), who reported that students perceived technology as a recreational and non-educational tool. The authors found that students had a limited understanding of the potential for CALL to enhance their learning. They viewed it as a supplementary tool rather than an adequate replacement for traditional teaching methods. As a result, they did not engage with CALL to its full potential, which prevented them from reaping the full benefits of the CALL approach.

It is also important to note that training programs on the use of computers in language education should not be restricted to professors; learners should also be equipped with the skills and competencies necessary for CALL. Furthermore, training should be tailored to meet students' needs, making them confident and competent in computer use. Therefore, to assist students, educational authorities should plan to offer training courses and workshops: "*Students' digital literacy and knowledge about CALL are low. Students should be offered at least one offline package to learn how to work with the basics of technology and computers in education" (Student 12).*

Exploring the related literature to date, the researchers perceived that the importance of CALL training programs for students has not previously been studied in similar research. As a result, there is limited knowledge about the extent to which CALL training programs can help students develop their language skills and how to implement them in the classroom best. The only partially related study was Dashtestani's (2013) study which concluded that EFL students lack training in using electronic dictionaries.

4.4. Nature of E-Learning Dimension

The rise of computers and the Internet has opened up online education. Although it

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has its advantages, there are some drawbacks to this form of education. Some studies (Almahasees et al., 2021; Bernard et al., 2009; Drašler et al., 2021; Gautam, 2020) argue that online learning cannot provide the personal and social interactions that are crucial for learning and are provided in the traditional education.

The interviewees in this study noted that the absence of face-to-face interaction with a teacher or peers detracts from the computer-assisted learning experience. This was seen as one of the downfalls of CALL classes, as it is difficult to replicate the dynamic atmosphere of a physical classroom environment that encourages collaboration. Thus, the absence of socio-emotional and soft skills in learning through computers is a challenge to CALL implementation. In a comment made by one of the IT-SE, the following was said: *"Some e-learning systems' designs are a way that you are flipping through a thousand-page book; without interaction with a person or a tool, and they are completely uninteresting and insipid" (IT-SE 7).*

This finding emphasizes Dashtestani's (2014a) and Dashtestani's (2020) studies, which stated that a lack of personal contacts and interactions limits the successful implementation of CALL.

Respondents also noted that the complexity and incompleteness of in-use technology negatively affected the overall learning experience by reducing users' willingness to participate. Additionally, this complexity makes using technology time-consuming, challenging, and difficult for users to comprehend and utilize: "*My friends also faced a problem during their CALL experience: the complex and demanding nature of used LMSs and professor-prescribed apps" (Student 3).*

A review of the related literature indicates that EFL studies focusing on CALL challenges ignore the issue of the difficulty and complexity of in-use technology. This is because the focus is usually on the pedagogical implications or the efficacy of implementing technology rather than on the usability and user experience of the tool. However, this is an important issue, as the technology used in EFL classrooms may not be user-friendly and may be difficult for students and teachers to use. This could lead to frustration and a lack of motivation to use technology, which could have a negative effect on language acquisition. Therefore, this new finding adds to the existing literature.

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4.5. Curriculum Dimension

The next challenge fits into the curriculum dimension. The results of the study showed that when asked about respondents' perception of the relationship between the current curriculum and CALL principles, all participants were of the opinion that the current language curriculum used in EFL courses is incompatible with CALL implementation requirements. This incompatibility is due to the incorrect merging of face-to-face language teaching and learning methodologies with CALL practices. One professor commented as follows: *"The materials, methods, or syllabi which were applicable and useful in the face-to-face classes can't be necessarily functional and exploitable in online classes" (Professor 2).*

The findings of this study have highlighted the need for language learning syllabi tailored to incorporate CALL. While some studies (Dashtestani, 2012; Langone et al., 1998; Marandi, 2010; Tafazoli, 2021a; Tafazoli, 2021b) have considered the importance of curriculum, the lack of alignment between current language learning syllabi and CALL requirements is an ongoing concern. Therefore, updating language-learning syllabi to include and integrate CALL is essential for learners to succeed in their language-learning endeavors.

4.6. Software and Hardware Dimension

Low quality and limited hardware and software are considered the next impediment to the integration of CALL into the teaching and learning process. Further, the interviewees pointed out that if the technical devices and software are not up to the required standards, they may not be able to support the desired outcomes. One professor made the following comment: *"The devices in the multimedia laboratory are frozen and have problems, or the software you want to install at that moment cannot be installed" (Professor 12).*

This finding is in line with previous research (Dashtestani, 2012; Dashtestani, 2014a; Jahromi & Salimi, 2013; Lam, 2000; Lee, 2000; Marandi, 2010; Saidi & Afshari, 2021; Tafazoli, 2021b) that showed lack of access to adequate technology resources hinders the effective use of CALL.

4.7. Sanctions and Filtering Dimension

Another emerging challenge was the effect of sanctions and filtering on CALL

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implementation. Interviewees were of the opinion that imposed sanctions, and domestic blocking are restrictive. By the same token, interviewees commented that being banned from using technological and educational services due to political issues encompasses varied difficulties, such as lack of access to the original software, disallowance to attend online courses held in other countries, international monetary payment problems, as well as prohibition of exchanging and purchasing educational content. As stated by one of the IT-SE: *"The next restriction is the existing filtering and sanctions. Most of the time, we are unable to attend courses being held in other countries" (IT-SE 6).*

It is important to note that this was the interviewees' opinion though the policy makers may have been right due to other aspects. Furthermore, the previous studies on the challenges of CALL have not examined the influence of sanctions and filtering as an impediment to CALL implementation until now. By examining the effects of these new findings, this study will provide a better understanding of CALL implementation challenges.

4.8. Socioeconomic and Cultural Dimension

Among the derived themes associated with the socioeconomic and cultural dimension, interviewees expressed their concern about the culturally dominant linear relationship between omniscient professors and students in face-to-face classes. They said that this relationship has brought about learners who are mostly passive recipients and depend on professors for every practice. This educational environment and the existing stereotypes between professors and students could impede effective CALL implementation. A professor made the following comment: *"Our students are followers, not thinkers. They are not autonomous and team-worker, which are necessary points for an e-learning classroom" (Professor 3).* Additionally, one of the students also commented that: *"We still have this culture that professors give lectures and students listen, and take notes. This is a kind of determined and fixed learning culture that stops the use of technologies in classes" (Student 10)*

This finding is in line with Saidi and Afshari (2021), that the dominance of traditional teaching approaches interrupts the use of CALL in language teaching and learning.

In addition to the student-professor linear relationship, according to the statement of the participants, parents' negative attitude toward CALL emerged as the second

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cultural hurdle in socioeconomic and cultural dimensions, which stops CALL implementation in education. Generally, parents are concerned about their children's education and look for the best way of education. However, these days due to the COVID-19 outbreak and, therefore, the urgent use of remote teaching, parents have become more conscious of e-learning as a point in the educational approach continuum. Based on the participants' statements, parents hold negative attitudes and misperceptions toward CALL and its effectiveness. Interviewees mentioned that parents think their children have limited ability to differentiate between useful and suitable content with inappropriate content and junk on the net. In other words, parents worry about their children's inadequate self-regulation in using the Internet and computers. An interviewee said this: *"I think families' negative attitude toward e-learning is a deterrent factor. Families believe that e-learning is useless and their children do not learn in this form of education" (Professor 12).*

This finding is consistent with Liando et al.'s (2021) work that deals with parents' negative beliefs about the values and benefits of online learning and their preference for face-to-face learning. This point, however, was overlooked in the studies about CALL challenges in the Iranian EFL context.

The next challenge in the socioeconomic and cultural dimension category relates to environmental and technological inconveniences and distractions. The interviewees' comments highlighted that an unsupportive home atmosphere and frequent surrounding distractions bring about difficulties in concentration and fulfilling CALL class tasks. One interviewee made the following comment: *"Learners lose their concentration due to home-related inconveniences or environmental noises mostly. Besides this, technology also brings about some distractions" (Professor 12).*

The results of the present study are consistent with those of Paisal et al. (2022), which indicates that learners prefer face-to-face classes due to less disturbance and distractions; however, this dimension is overlooked in the Iranian EFL context. Therefore, this research may shed light on the fact that distractions and disturbances negatively impact CALL implementation, as they can disrupt the flow of learning and prevent learners from fully engaging in the material.

The next impediment in the socioeconomic and cultural category refers to families' monetary status and its effect on e-learners' performance. Online learning requires pertinent devices to be effective; however, not all families can afford these expenses. Low-income families are less likely to be successful at preparing and providing these

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services for their e-learners. An interviewee commented as follows: *"Due to financial problems, not all families can afford a good device and high-speed internet connection" (Student 12).*

This finding supports the work of Chen et al. (2021), which stated that a family's socioeconomic status could affect students' learning. However, past research in the Iranian EFL CALL context failed to consider families' financial status and its effects on e-learners' accessibility to necessary gadgets. This study goes beyond the scope of previous research, providing evidence that financial status does play a critical role in students' ability to benefit from technology-enhanced language learning.

Learning style was the next challenging factor in the socioeconomic and cultural category. According to Pappas (2015), to have a more practical and personal e-learning class, professors should integrate a wide range of online exercises and activities into their e-learning courses. Having this variety allows learners to get the most out of e-learning courses: *"The technologically prescribed patterns of communication are based on cultural and societal issues, which seem incompatible with students' cultural issues and learning styles" (Student 5).*

Tayebinik and Puteh (2019) emphasized the importance of understanding and considering students' learning styles. Although there is growing literature regarding the challenges to CALL implementation, the literature does not provide any evidence on the effect of students' learning styles on CALL in Iran. Therefore, this study bridges the gap by showing that learning styles can influence how students interact with CALL.

Inconsistency between the norms of the target culture and the source culture is considered the next impeding factor in the socioeconomic and cultural category. In other words, the overall results highlighted that the available content on the internet and software transfer cultural norms, which are inconsistent with the native culture. A student commented as follows: *"Surely cultural aspects affect technology in a huge way. Classrooms are sometimes limited by our cultural and social norms. The used content and tool somehow bring some cultural and social norms which are against ours" (Student 6).*

This finding accords with earlier studies (Marandi, 2010), which showed the blocking of websites with inappropriate content.

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4.9. University Administrators' Dimension

The final category of major themes calls attention to the role of university administrators and education decision-makers in optimal CALL implementation in the EFL context. The first challenge in this category deals with the overall policy of the educational system in Iran. According to the respondents, the domestic policy of the Iranian educational system is reflected in the homogenous perspective of university officials, administrative bureaucracies, and limited procedures.

To have an influential CALL program, the policy-makers, and educational decision-makers, need to provide the necessary hardware, software, and infrastructures. They have to renew the existing rules and limitations; they have to provide chances for both professors and students to be trained and improve. (Professor 3)

Although research has been carried out on challenges to successful CALL implementation, no study investigates the role of university administrators and educational decision-makers. In addressing this issue, the study contributes to the literature by exploring the role of university administrators and educational decision-makers in successful CALL implementation.

Interviewees also reported that university administrators and educational decision-makers lack awareness and knowledge of computers' usefulness in humanities disciplines, which impedes progress toward benefiting from technology in English language teaching/learning. In an interview with interviewees, the following comment was made: *"There are still people in managerial positions who are not aware of the importance of using technology in education, especially in the humanities" (Professor 7).*

Since the educational authorities' awareness is neglected in the literature, this study may fill a literature gap by demonstrating the role of educational authorities in mediating the implementation of CALL in EFL contexts.

The study also demonstrated that the invalidity and disvalue of e-learning certificates negatively affect CALL adoption. The following comment was made by one of the IT-SE: *"Unfortunately, e-learning has been valued neither during K12 nor higher education; therefore, the certificates are not as equally valued as face-to-face education" (IT-SE 5).*

This finding is consistent with Dashtestani's (2020), which emphasized the lack of

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credibility of course certificates and employers' lack of interest in employing graduates of online courses.

There are other impediments related to the university administrators' category, including their resistance to change and their willingness to use standardized prototypes, which promote the dominance of traditional language teaching methods.

Interviewees stated that, besides professors' unwillingness to leave their face-to-face teaching comfort zones and learners' tendency to stick to accustomed educational environments, university officials also prefer to follow and maintain conventional methods of teaching and learning, *"University officials, like the dean of the faculty and education affairs manager, sometimes try to improve e-learning implementation; however, they are stopped by senior officials and policymakers" (IT-SE 6).*

Reviewing the related literature, the researchers found no clear evidence of EFL authorities' and decision makers' resistance to CALL. In other words, those studies which investigated the role of EFL authorities in CALL pointed to the lack of support from EFL authorities to improve EFL professors' computer literacy (Dashtestani, 2014a) or their low attention to the internet in EAP courses (Atai & Dashtestani, 2013).

The next highlighted challenge is the lack of funds allocated for the provision of educational facilities and the high cost of technology implementation for university administrators. This issue not only limits technology implementation but also raises the question of its true worth and value to university administrators. In other words, interviewees stated that the expense of improving and boosting infrastructures is perceived as unnecessary by universities since they do not get an early return on profit from them: *"Financing and providing the necessary budget for buying requested ICT tools and e-learning facilities is a constant problem" (IT-SE 6).* Additionally, interviewees mentioned, *"Due to the high-cost gap between face-to-face education and e-learning, most universities and educational institutes do not invest and spend their budget" (IT -SE 2).*

This finding is consistent with previous studies (Tafazoli, 2021b), which highlighted the expensive CALL requirements (Tafazoli, 2021b) and the high costs of equipping educational sectors with learning technologies (Dashtestani & Hojatpanah, 2021). Further, the findings support studies (Han, 2008; Lu, 2006; Tutunis, 1991) that point to financial barriers. Therefore, prioritizing economic support for educational institutions is important to the successful integration of CALL in the classroom. This is because

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the cost of integrating CALL in the classroom can be quite high, and educational institutions may not have the resources to implement it without external support. Economic support can help to cover the cost of the equipment and other resources necessary to implement CALL successfully in the classroom.

The next challenge in the university administrators' dimension is the absence of an IT support team. Any tech-related issue, such as computer breakdown, slow or disconnected internet connection, or software problems, require a strong IT support team to help professors and students. Therefore, its absence can cause several technology interruptions in the process of computer use in teaching and learning. The respondents believed that the IT support team provides technical help and advice for professors and students to solve IT problems, and in case of their absence, CALL classes would face difficulties: *"Unfortunately, because there is no IT support team, there is no connection between the IT expert support team and running online courses in our context" (Professor 2).*

This result was in line with the study conducted by Marandi (2010), which showed the inadequacy of technical support. The lack of technical support was also echoed in other studies (Al Kahani, 2011; Levy, 1997; Strudler & Wetzel, 1999), suggesting it is a recurring problem in computer-assisted language learning. The findings further reinforce the notion that improving technical support is essential to providing better instruction.

The participants, on the whole, demonstrated that well-executed content development is a demanding task that necessitates the help of specialists like digital content developers, IT support engineers, EFL professors, and syllabus designers. These specialists can help to develop educational materials that are tailored to the needs of learners, are well-structured, and provide quality content that is easy to understand and use. They can also help to integrate new technologies into the materials to make them more engaging and interactive. One IT-SE stated, *"Digital content requires a team of specialists like IT support engineers, professors, and syllabus designers" (IT-SE 2).*

Lack of a professional and multidisciplinary group of experts for content production was an aspect for which no research could be found. This finding is significant because it highlights the need for a more comprehensive multidisciplinary team of professionals to be involved in the content production process.

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5. Conclusion

Similar to other countries, Iran has implemented CALL to a significant extent. However, to achieve an ideal situation for optimal CALL implementation, it is necessary to identify the challenges that may have interfered with its success. Hence, this study aimed to explore and identify the challenges to CALL implementation in the Iranian higher education EFL context. The acquired results also revealed a variety of barriers to CALL implementation, such as the categories of technology, professor and student, software and hardware, sanctions and filtering, curriculum, the nature of e-learning, socioeconomic and cultural, as well as university administrators' issues. Notably, the study contributes to a better and more complete understanding of the impediments to CALL use in the Iranian EFL higher education context by analyzing EFL professors', EFL students', and IT support engineers' voices.

This study has several practical and pedagogical implications at the macro and micro levels. On a large scale, this research will assist educational planners, policymakers, and curriculum and material developers in considering the existing contextual realities of CALL adoption in the Iranian EFL context. It will also help them develop education programs that reflect those realities. As a result of these findings, educational planners can remove obstacles to achieve optimal CALL implementation in the Iranian language learning higher education system. Furthermore, it is also expected that the obtained results provide some potential for further instructional theorizing on how to implement and improve CALL in an Iranian or any other similar EFL setting optimally. At the micro level, professors and students will benefit from the results of this study. Based on the data, it can be envisaged that the disparity between CALL advances and the current EFL curricula will tend to be zero. Furthermore, removing these hurdles will hopefully enhance optimal performance and motivation to use CALL in EFL higher education.

Further research can be conducted based on the results and delimitations of this study. One of the groups of participants in this study was students, who were all Ph.D. students or candidates. Thus, future studies can include student participants with diverse groups of B.A., M.A., and Ph.D. in the EFL context. Furthermore, future studies may examine the perspectives of EFL decision-makers and administrators in the Ministry of Science and Education and universities. The study also recommends further in-depth qualitative studies, such as classroom observations, to detect precisely the in-hand impediments and difficulties of professors and students using CALL in universities.

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Appendix A

Interview Questions *(Teachers and Students)*

1. Would you please provide a brief introduction on your educational status/ age and teaching experience?

2. How do you personally feel about using ICT? How do you usually use computers and digital gadgets out of the EFL context?

3. What do you think about the use of CALL in English language learning (Merits & demerits)?

4. What kinds of hardships /enjoyments did you experience during using CALL in your teaching or learning in the class?

5. What do you think about the relationship between present language-learning curriculum (syllabus, methodology, textbooks) and CALL exploiting requirements?

6. What technological requirements are necessary to run a CALL class?

7. What macro contextual factors may affect CALL use?

8. How can policy makers play a role in CALL implementation?

Appendix B

Interview Questions *(IT Support Officers)*

1. Would you please provide a brief introduction on your profession / degree and experience?

2. How does your university/ institute make use of e-learning/ technology?

3. What do you think about the expectations of learners and professors in your working field?

4. How do you think your group (learners and professors) could benefit from e-learning/ technology?

5. What do you think about the problems for technology normalization in universities? (what are the hindrances)

6. How can university administrators play a role in e-learning / CALL implementation?

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