

## AFFORDANCES OF COMPUTER-ASSISTED LANGUAGE LEARNING IN HIGHER EDUCATION: A QUALITATIVE INQUIRY

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**ABSTRACT:** Computer-Assisted Language Learning (CALL) has become a rudimentary part of English language education because of its positive impacts on students' language skills achievements. Despite all its advantages, most teachers do not employ CALL frequently in language education, especially in Iran. Thus, the current qualitative study aims to explore the enablers and barriers of the uptake and effective use of CALL by higher education language teachers in terms of teacher education, contextual factors, and individual teacher factors. The participants were 66 English language teachers in Iran who responded to an open-ended online survey. To make a sound decision, I applied the Delphi method to validate the instrument. Then, content analysis was applied to classify data and align them into the main themes. One of the key findings of this study is that language teachers require appropriate CALL teacher education and professional development courses which meet their real needs.

**KEYWORDS:** Computer-Assisted Language Learning (CALL), Qualitative inquiry, CALL teacher education, CALL professional development, Higher education

### *POSIBILIDADES DEL APRENDIZAJE DE IDIOMAS ASISTIDO POR ORDENADOR EN LA ENSEÑANZA SUPERIOR: UNA INVESTIGACIÓN CUALITATIVA*

*RESUMEN:* El aprendizaje de idiomas asistido por ordenador (más conocido como CALL, por sus siglas en inglés) se ha convertido en una parte fundamental de la enseñanza del inglés por sus efectos positivos en los logros del alumnado en materia de competencias lingüísticas. A pesar de todas sus ventajas, la mayoría de los profesores no emplean CALL con frecuencia en la enseñanza de idiomas, especialmente en Irán. Por lo tanto, el presente estudio cualitativo tiene como objetivo explorar los facilitadores y las barreras de la adopción y el uso efectivo de CALL por parte de los profesores de idiomas de Educación Superior en términos de formación del profesorado, factores contextuales y factores individuales del docente. Los participantes fueron 66 profesores de inglés de Irán que respondieron a un

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*cuestionario de respuesta abierta en línea. Previamente, se aplicó el método Delphi para validar el instrumento. A continuación, se realizó el análisis de contenido para clasificar las respuestas y alinearlas en los temas principales. Una de las principales conclusiones de este estudio es que los profesores de idiomas necesitan cursos adecuados de formación de profesores de CALL y de desarrollo profesional que satisfagan sus necesidades reales.*

*PALABRAS CLAVE: aprendizaje de idiomas asistido por ordenador, CALL, investigación cualitativa, formación y desarrollo profesional del profesorado en CALL, Educación Superior*

## 1. INTRODUCTION

The application of technology in language education is called ‘Computer-Assisted Language Learning (CALL)’ (Tafazoli et al., 2020), which could be portrayed as an educational trend in response to the demands of language teachers and students in the world immersed in technology. A variety of terms have been utilized over the years to describe technology implementation in language learning and teaching (e.g., Technology-Enhanced Language Learning (TELL) and Computer-Aided Language Instruction (CALI)). However, among them, CALL is the most widely accepted one (Bax, 2003; Levy, 1997; Levy & Hubbard, 2005; Son, 2018; Warschauer, 1996; Warschauer & Healey, 1998).

The positive effects of CALL on language learning are reported by many scholars regarding oral skills (Hwang et al., 2016; Wang et al., 2018), reading comprehension (Yang & Qian, 2020), writing (Awada et al., 2020; Li, 2018; Wu et al., 2020), vocabulary (Hsieh, 2020; Tsai, 2019), pronunciation (Pourhosein Gilajkani & Sabouri, 2017), English for Specific/Academic Purposes (ESP/EAP) (Ma, 2020), interactions (Börekci & Aydin, 2020), motivation (Lamb & Arisandy, 2020), and attitude (Tafazoli et al., 2018, 2020).

However, despite its advantages, the integration of technology in language education has faced many challenges (Alexander et al., 2019). For example, language teachers’ resistance to implementing CALL is assumed to be a deterrent as teachers believe that teaching with technology is ineffective and establishing effective classroom practices through CALL is not possible (Fatemi Jahromi & Salimi, 2013). This integration seems complicated in developing countries like Iran, where teachers and students struggle with a lack of resources and required literacies (Tafazoli, 2021ab).

In this paper, I begin the discussion with a brief explanation of English language education status in Iran, and then I move to the status of CALL in the Iranian EFL context. After demonstrating Hong’s (2010) spherical model as a theoretical basis, I explain the method and the study results. Finally, in the conclusion section, the final thoughts are presented.

## 2. ENGLISH AS A FOREIGN LANGUAGE IN IRAN

Iran is a multilingual and multicultural country located in Western Asia. Farsi or Persian is the official language of the country (53%) and other Iranian languages like the Azerbaijani (10%), Gilaki and Mazanderani (7%), Kurdish (7%), Luri and Lari (2%), Turkmen (2%), Balochi (2%), Arabic (2%), and the remainder Armenian, Georgian, and Neo-Aramaic (2%) belong to some social groups and ethnicities living in Iran.

Among all the available foreign languages (e.g., German, French, Russian, and Chinese), English is the most popular foreign language in Iran. Many middle- and upper-middle-class families enroll their children from an earlier age in extra-curricular English courses in private language schools with more fashionable policies and pedagogies to language learning to provide a better professional and academic future for their children.

Also, English plays a vital role in all undergraduate and postgraduate programs. All the students are compelled to take several General English (GE) and English for Specific and Academic Purposes (ESP/EAP) courses. Even in some majors like tourism and hotel management, undergraduate students should take basic and advanced conversational English. Overall, EFL courses' main aim in undergraduate programs is to develop students' vocabulary knowledge and reading comprehension skill. However, in postgraduate programs, EFL courses aim at not only developing vocabulary and reading comprehension knowledge but also enabling students to write academic papers for publication in peer-reviewed journals. Thus, each university should have a department or group of English lecturers for several purposes. Although all of the universities in Iran are seriously involved in language education, the language teachers still follow traditional teacher-centered approaches to language education, focusing on memorizing vocabularies and grammar. Like English, other mentioned foreign languages follow the same teacher-centered methods of audio-lingual (ALM) and grammar-translation (GTM) at universities. However, several private and non-governmental language institutes provide up-to-date, technology- and communicative-based approaches to teaching foreign languages to language learners.

## 3. COMPUTER-ASSISTED LANGUAGE LEARNING IN IRANIAN EFL CONTEXT

The Iranian interest in CALL has been increased recently. Since 2010, the Iranian government has compelled the educational sector to integrate educational technologies and electronic resources to optimize effective teaching and learning. However, a plethora of research (Dashtestani, 2012, 2013, 2014, 2019; Fatemi Jahromi & Salimi, 2013; Hedayati et al., 2018; Tafazoli, 2020; Talae et al., 2017) shows that the Iranian education system has faced many challenges in implementing CALL, including a) language teachers' resistance in implementing CALL as they believe that teaching with technology is not sufficient and establishing effective classroom practices through CALL is not possible (Mollaei & Riasati, 2013), b) developing language teachers' required skills, experiences, and literacies for teaching through CALL (Dashtestani,

2013; Hedayati et al., 2018), c) rethinking teaching practices with teachers who are not willing to change (Mollaei & Riasati, 2013), d) enabling them to repurpose the materials (Fatemi Jahromi & Salimi, 2013; Hedayati et al., 2018), among others.

In this vein, Ashrafzadeh and Sayadian (2015) explored the worries of 91 university instructors for integrating technology in their EFL classes in a sequential mixed-method study. While collecting data, the researchers applied two questionnaires, semi-structured interviews, and focus group discussions. This study's findings revealed that Iranian EFL university instructors are concerned about innovation and want to know more. Also, they have intense and minimal personal worries about innovation and its repercussions (e.g., status, financial, and rewards) and the effects of innovation on students, respectively. Moreover, the participants expressed their worries about the difficulty of understanding and using technology.

With more focus on CALL teacher training in Iranian EFL context, one of the main goals of Hedayati et al.'s (2018) mixed-method study is to find out about EFL language teachers' perceptions of CALL teacher training in Iran. The researchers applied an interview (8 participants) and a questionnaire (78 participants) to collect data from participants in private language schools in 22 cities in Iran. The study's finding revealed that most of the participants had not engaged in any types of CALL preparation courses, neither at their university programs nor in the language institutes, and they have to have self-training by attending CALL workshops due to a) lack of CALL training offered by the institutions, b) lack of CALL credits at higher education, c) absence of teachers' peer-learning in language institutions, and d) no obligation to apply technologies except old-fashioned CD players. Iranian EFL teachers also claimed that they need CALL training courses to a) develop their pedagogical skill in recognizing/designing and utilizing technology-integrated tasks, b) develop their knowledge of instructional design for the successful CALL integration, and c) learn how to choose the appropriate and relevant tools for teaching. The researchers discussed that although almost all of the participants had degrees in majors related to EFL, they had not partaken in any CALL preparation courses at the university, which shows that undergraduate and postgraduate EFL programs in Iran do not prepare language teachers to be competent and efficient teachers in a digitalized world. The result of this study supports previous studies in Iranian context (e.g., Hedayati & Marandi, 2014), which emphasizes the indispensable change of the university programs' content in English language teaching.

Regarding the significant role of EAP in Iranian higher education context, Dashtestani (2019) investigated the affordances and restraints of technology integration in EAP courses in higher education through a mixed-method study. To find out about 87 Iranian EAP instructors' perspectives, the researcher utilized a Likert scale survey and semi-structured interviews (N=38). The results demonstrated that technology implementation in teaching EAP is suitable, effective, and opens up many opportunities like providing major-specific software tools, mobile applications, and authentic EAP materials. However, the technology integration brings some challenges: a) lack of facilities, b) lack of instructors' knowledge and familiarity with major-specific tools and teaching via technology.

Concerning the significant role of teachers' Technological Pedagogical Content Knowledge (TPACK), Fathi and Yousefifard (2019) investigated Iranian EFL teachers' TPACK through the students' lens. 148 Iranian EFL students expressed their perspectives through a validated TPACK questionnaire in a non-experimental study. The reported findings showed that students accentuate Iranian EFL teachers' in four constituents of technological knowledge (TK), pedagogical knowledge (PK), content knowledge (CK), and pedagogical content knowledge (PCK). On the other hand, the participants highlighted the teachers' lack of knowledge in technological content knowledge (TCK), technological pedagogical knowledge (TPK), and TPACK. The findings proposed that although EFL teachers are competent in the basic use of technology (TK), have mastery of content (CK), and know how to teach (PK), they are not competent enough and literate in utilizing technology in teaching and delivering content. The researchers also recommended the requirement of further revisions of EFL teacher training programs with regard to technology integration in language education. Moreover, the researchers highlighted the necessity of CALL teacher education programs to support technology integration and adequate engagement in actual teaching practices through technology for current and prospective language teachers.

However, the literature review on CALL in Iranian EFL context shows that little has been focused on the barriers and enablers of the uptake and effective use of CALL by higher education language teachers in terms of teacher education, contextual factors, and individual teacher factors under conditions of a rapid increase in technology use.

Thus, I have attempted to find the answer to the following research questions:

RQ1: What factors are involved in the effective use of CALL regarding teacher education?

RQ2: What factors are involved in the effective use of CALL regarding the context?

RQ3: What factors are involved in the effective use of CALL regarding individual teachers?

#### 4. TEACHERS' INTEGRATION OF CALL INTO THE CLASSROOM: HONG'S (2010) MODEL

Despite all its advantages, most teachers do not use CALL frequently in language education. Many scholars (e.g., Ertmer, 1999; Hedayati & Marandi, 2014; Hong, 2010; Laabidi & Laabidi, 2016; Park & Ertmer, 2007; Teo, 2009; Yeh & Swinehart, 2019) classified the barriers to integrating technology in language education into several categories. Among them, Hong (2010) proposed more specified categories of a) CALL teacher education, b) individual teacher factors, and c) contextual factors based on teachers' points of view.

I applied the spherical framework developed by Hong (2010) to describe the merits and barriers of CALL in language education in three main orbital factors of CALL: 1) CALL teacher education, 2) contextual factors (e.g., lack of computer, required ICT tools, and infrastructure), and 3) individual teacher factors (e.g., teachers' computer/digital literacy and psychological barriers).

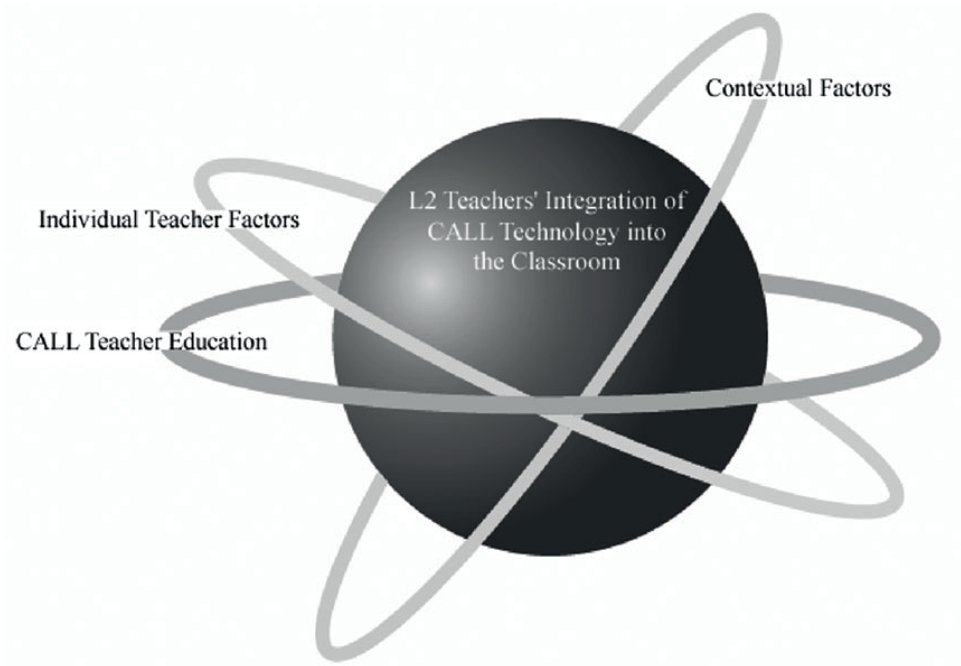


Figure 1: *The spherical model of L2 teachers' integration of CALL technology into the classroom (From Hong, K. H. 2010. CALL teacher education as an impetus for L2 teachers in integrating technology. ReCALL, 22(1), 53-69, reproduced with permission)*

Hong's (2010) orbicular model is founded on three influential CALL teacher education, teachers' individual factors, and contextual factors which have impact on technology integrations by second/foreign language teachers. To display the significance of CALL teacher education compared to other variables, this factor orbits around the sphere's equator. To illustrate the mutual influences of CALL teacher education and individual teacher factors, the latter orbital factors are located somewhat above the CALL teacher education. Finally, the educational context factors are positioned farther away from other orbiting factors, which shows its relative dependence of other variables.

## 5. METHODOLOGY

### 5.1. Research design

Based on the aims, I should understand language teachers' perceptions and experiences of key barriers and enablers of the uptake and effective use of CALL in terms of teacher education, educational context, and individual teacher factors under conditions of a rapid increase in technology use. Due to the unquantifiable and complex nature of data (i.e., teachers' lived experiences and perceptions), I decided to investigate the

issue qualitatively in depth and detail. Through a qualitative research design, I could find out more about According to, a researcher might apply a qualitative research methodology when they want to find out how teachers “construct their worlds, and what meaning they attribute to their experiences” (Merriam, 2009, p. 14); and had a chance to understand their opinions and stories profoundly (Creswell, 2013). Qualitative research also deals with how and why something happens instead of what, where, and when it happens (Filstead, 1970). Moreover, I utilized the content analysis as “a research technique for making replicable and valid inferences from data to their context” (Krippendorff, 1980, p. 21) and which “uses a set of procedures to make valid inferences from text” (Weber, 1990, p. 9). I classified the responses into relevant categories: CALL teacher education, contextual factors, and individual teacher factors.

### *5.2. Participants*

This study was conducted in Iranian higher education context. As I prefer to use purposeful sampling as the sampling strategy in this qualitative research, I asked for interested participants’ demographic information to check their eligibility. In purposeful sampling, “the researcher selects the participants and the sites because they can purposefully inform an understanding of the research problem and central phenomenon in the study” (Creswell, 2013, p. 300), and the collected data from such participants will be rich, detailed and varied enough to provide the researcher with a full picture of what is going on (Maxwell, 2013). Thus, the participants of this study were required to be English language teachers who had experience in using technology in language education in Iran.

A total of 66 English language teachers were voluntarily recruited to answer ten open-ended questions. Teachers were required to respond to the online Google Form. Female teachers were the dominant gender in the sample with 43 participants. A total of 23 of the 66 teachers were male. The distribution of teachers’ educational degree (in terms of M.A. and Ph.D.) were not uniform. The M.A. holders teachers were 37 and Ph.D. holders were 29 out of 66. As far as age was concerned, the major groups were within the age range of 36 and above with 32 teachers and 30 to 35 years of age with 25 teachers, respectively. In contrast, the minor group was the category of 24 to 29 with only nine teachers.

Regarding the teaching experience with technology, all the teachers have had experience in teaching with technology. Also, 42 of the teachers had more than ten years of English language teaching experience. Ten teachers had seven to nine years, and ten teachers had four to six years of teaching experience. Only four English language teachers had one to three years of experience.

### *5.3. Instrumentation*

In order to make an effective decision about the validity of the instrument, I decided to carry out the Delphi method, which was originally developed for technological



forecasting. I used the Delphi as a structured technique of collecting connoisseurs' advice and guidances (Dalkey, 1969; Hall, 2009; Linstone & Turoff, 2002). The experiences and expertise of a panel of experts can help me to validate the instrument of the study. In this phase of the study, I asked a board consisting of 20 experts in language education, applied linguistics, and CALL to share their comments and experiences about the instrument. All the panel members were researchers, assistant and associate professors from different universities. I kept the anonymity of the experts by giving them equal opportunity to share their opinions in a democratic and confidential environment to minimize the influence of the dominant members (Dalkey, 1969; Strauss et al., 2009), had the structure process of collecting, discovering, and giving the opinions, and managing the opinions (Keeney et al., 2000) to meet consensus on the questionnaire content through three rounds.

After receiving the comments and responses in the first round, I refined the questionnaire, the refined version for the second round, where the largest modification occurred. Finally, in the third round, I announced the consensus. The final instrument consists of ten open-ended questions (in English) focusing on teachers' perceptions about the merits and barriers of using technology in language teaching.

## 6. RESULTS AND DISCUSSION

As expected in qualitative studies, this research has collected many data, and it was necessary to combine the collected data into an organized structure for better in-depth and breadth understanding. Data in the form of statements were classified into several clustered meaningful units and common themes. Data analysis revealed that, in general, teachers were positive about using technology in language education. Examples of positive responses included: "it is necessary and helpful", "so useful and enjoyable", "quite positive", "good chance", "great and essential in this century", "strongly recommended", "absolutely essential and future of education", "has become a must", "fantastic", "inevitable and necessary", "very acceptable", undoubtedly beneficial and helpful", and "vital importance".

Also, teachers' perceptions about the application of technology helped me in finding the response to the main research questions:

*First Research Question: What factors are involved in the effective use of CALL regarding teacher education?*

The participants of the study counted many factors which are in line with CALL teacher education: (1) CALL keeps teacher up-to-date, (2) teachers have more control in the classroom via CALL, (3) CALL improves personalized/individualized teaching, (4) CALL increases the quality of teaching, (5) CALL assists teachers in covering all the language skills, and (6) CALL complements teaching. Many teachers believe that although they are interested in utilizing technology in their teaching practices, keeping up with technologies is demanding due to many reasons. I should mention that for each teacher, I have assigned a code (appeared in brackets).



[T25]: The most challenging aspect is to keep up with new technologies. For instance, I would love to learn how to use Interactive White Boards as more of them are now available, but the training does not always fit into my teaching schedule.

[T91]: ...keep up with new apps and we need to take the time to learn how to use it because there is often no pedagogical instructions and we have to figure out ourselves how to integrate those technologies in our classroom.

[T33]: I don't see negative outcomes *per se* as long as the teacher knows how to handle challenging situations. Technology is a resource to improve our teaching. Teachers are the ones still doing the magic.

The findings confirmed previous studies which emphasized the absence of appropriate formal professional development and training opportunities for language teachers (Hubbard, 2004; Hubbard & Levy, 2006; Kessler, 2010; Penuel, 2006). The issue of lack of teacher training on how to manage the CALL classes due to time limitation is also reported by many scholars (e.g., Chen, 2008; Figg & Jammani, 2011; Kay, 2006; Laabidi & Laabidi, 2016). However, Iranian language teachers believed that they have more control in the classroom via CALL.

Moreover, keeping up with technology is another issue which can be solved through continuous updating of teaching practices through CALL (Arnold et al., 2015; Ertmer et al., 2006; Bataineh et al., 2020; Bouchefra & Baghoussi, 2017; Hakim, 2015; Laabidi & Laabidi, 2016; Tayan, 2017). Also, Iranian teachers argued that CALL improves personalized/individualized teaching which would be beneficial for weak students in the language classes. This finding contrasts with Bataineh et al.'s (2020) study in Jordan which indicated that CALL provides fewer chances for weak and vulnerable students.

*Second Research Question: What factors are involved in the effective use of CALL regarding the context?*

Different factors are involved in teachers' perceptions about the educational context. From a positive perspective, the language teachers in Iran highlighted only one benefit for CALL: it can be used 'anywhere and anytime'. However, from an opposing point of view, they argued that (1) CALL standardized materials are unavailable, (2) the lack of or old equipment/infrastructure causes problems for CALL implementation, (3) CALL equipment and facilities are expensive, and (4) technology requires a lot of maintenances.

[T85]: ... the institution and administration do not provide sufficient facilities and infrastructural support, thus making it difficult for the teacher to set up devices and operate them. Also, at times the use of technology turns counter-effective when learners lose decorum in the classroom.

[T69]: Each educational institution has its own learning platform, a teacher needs to get access to it, platforms are not intuitive. Computers are very slow to start at our Uni[versity], incompatibility of student's PC with projectors.

In the category of contextual factors, Iranian teachers argued about the insufficient number of computers, technical issues such as failure of the software or malfunctioning hardware systems which is also observed in previous studies worldwide (e.g., Cuban, 2001; Laabidi & Laabidi, 2016; Tayan, 2017; Teo, 2009). Teachers also referred to the high cost of equipment which is also mentioned by teachers in other countries (e.g., Laabidi & Laabidi, 2016).

*Third Research Question: What factors are involved in the effective use of CALL regarding individual teachers?*

The Iranian language teachers reported more negative factors regarding CALL: (1) teaching via CALL is overwhelming, (2) many teachers suffer from lack of confidence in implementing CALL, (3) lack of CALL/computer/digital literacy (4) CALL makes teachers nervous, (4) CALL is unreliable, and (6) technology may replace teachers. On the other hand, they believed that CALL is user-friendly and teaching with CALL is fun.

[T158]: Generally speaking I think that's the future of teaching "industry" but I am not sure whether the schools and students (even teachers) are ready for its implementation due to technical, ethical or proficiency issues.

[T291]: Overall, I think [CALL] [i]s great and useful. It's a tool and we need to use that tool. We also need to be careful: It doesn't replace teaching, but it adds a plus to it.

[T197]: The world's movement is toward technology, so if a person doesn't consider this, he/she will no longer be in the market!

Cárdenas-Clarosa and Oyanedel (2015) believed that it is in individual teacher factors "where teachers can directly forge some positive changes because studies have consistently shown that it is teachers, not technology, who are the true agents of change" (p. 3). Teachers' individual factors concern teachers' innate teaching behaviors and practices. In this regard, previous studies have pointed out pedagogical skills and competencies and teaching practices (Compton, 2009; Son et al., 2011); personal characteristics, teachers' attitudes (Kim, 2008; Penuel, 2006), and teachers' roles and identity (Comas-Quinn, 2011). The fear of being replaced by technology and negative attitudes and perceptions can also be traced in other studies worldwide (Bai et al., 2016; Bataineh et al., 2020; Hakim, 2015; Laabidi & Laabidi, 2016).

Furthermore, the literature review shows that the Iranian education system has faced many challenges in implementing CALL in terms of teacher's individual factors,

including a) language teachers' resistance in implementing CALL as they believe that teaching with technology is not sufficient and establishing effective classroom practices through CALL is not possible (Mollaei & Riasati, 2013; Pourhosein Gilajkani et al., 2019), b) developing language teachers' required skills, experiences, and literacies for teaching through CALL (Dashtestani, 2013; Hedayati et al., 2018), and c) rethinking teaching practices with teachers who are not willing to change (Mollaei & Riasati, 2013).

## 7. CONCLUSION

The purpose of this qualitative research was to inspect the barriers and enablers of the uptake and effective use of CALL by higher education language teachers in terms of teacher education, contextual factors, and individual teacher factors under conditions of a rapid increase in technology use based on language teachers' attitudes and perceptions in Iran.

The integration of technology in language education results in many challenges and benefits for both language teachers and students. Technology should provide a stress-free atmosphere for teaching and learning processes. However, this situation cannot be achieved without considering the differences in the achievement gap between teachers and students with different digital capabilities. I want to confirm Alexander et al.'s (2019) recommendation of a necessity of rethinking the practice of teaching as a result of the emergence of technology in most educational settings. Some teachers still have a transmissive pedagogical mindset. This might restrict how much access they might grant students in using CALL tools for exploration. Changing teachers' negative attitudes and perceptions, mitigating their resistance to utilizing technology, repurposing the available resources, creating the content, using technology for testing and assessment, and developing teachers' CALL literacy would be possible by appropriate CALL professional development courses.

We cannot expect teachers to change their mindsets, behaviors, and teaching practices without enabling them to encounter their challenges. In other words, there should be a balance between the expectations and teachers' capabilities. Unfortunately, the literature shows that the professional development courses have no emphasis on integrating technology into content and pedagogy, and the focus is on basic computer skills - if there are any (Desimone & Garet, 2015; Gray et al., 2010). Policy from the top down should incorporate CALL in servicing and mentoring programs and the entire thrust necessary for a change of mindset to a confident and embracing one for the teachers. Thus, I want to propose further research on available CALL teacher education and professional courses and theoretical frameworks regarding their applicability for the new normal education status after the COVID-19 outbreak, which meets teachers' real needs.

Moreover, the critical role of digital equity should be a high-priority mission for all governments and authorities, even in developed countries with more access to sources. Decision- and policy-makers should foster a more supportive, well-resourced

use of CALL and strengthen teachers' mindsets toward it. The leadership vision hints at non-democratic and non-transformative pedagogical environments in which under-resourced teachers are working.

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