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Research Article

# Investigation of university EFL teachers' perceptions and attitudes to resort to ICT: Post-local-crisis context

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**Abstract:** Despite the rapid proliferation of information and communication technology (ICT) in language education, it is not unanticipated to observe English teachers holding sceptical and critical vantage points concerning whether its integration into courses would provide benefit for their teaching even in the post-pandemic era. Though several studies were orchestrated to elucidate its impact on language teaching or student achievement, scant attention has been paid to conducting comprehensive analyses of university English teachers' perceptions and attitudes regarding its utility during online education, particularly in the context of developing countries. To address this gap in the literature, the researcher recruited 70 English teachers working in foreign language units of 16 foundation and state-affiliated higher education institutions in different provinces through a well-structured survey questionnaire. The results indicate teachers' positive overall attitudes to the use of ICT in language teaching, whereas the affective domain values were less than the cognitive and behavioural attitudes. Likewise, their perceptions of factors affecting attitudes towards ICT were positive in general, cultural perceptions fell slightly behind the other sub-dimensions. As for their relationships, cognitive items, overall attitude, and the advantages computer systems provide for instructional practices appeared as the most prominent variables due to their correlations to at least two factors from attitudes and perceptions. However, no significant relationship was found between the participants' demographics and the foregoing factors.

**Keywords:** attitudes, EFL, ICT, perceptions, university teachers

## 1 Introduction

ICT can be described as the application of distinct programs, software, and appliances in various fields. Relevant changes in employing ICT for educational purposes have been initiated since the first international academic community hosted by UNESCO in 1987, reigniting the reality of what provincial and worldwide conferences signify the requirement for continuous progress in ICT practice within the entire school context (Qaddumi et al., 2021). Consequently, some improvements in these digital applications have brought wide-ranging benefits to language education services and provided new insights to teachers and students in teaching and learning the target language. To put it differently, accelerated by technological breakthroughs, language education enriched with ICT has endeavoured to put technology to the most proper pedagogical use, given language learners and their profiles. To illustrate, this technology-implemented learning was expected to leverage learners' uptake and acquisition of L2 skills, advancing retention, and mastering innovative digital skills through access to online resources (Alzubi, 2019; Liu et al., 2017). Thus, the proliferation of digital infrastructures and tools under the term of ICT within the language discipline has awakened scholars to conduct related research on

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scrutinizing its impact in the field. Plenty of research has displayed positive influences ICT brings towards learners' language proficiency (Stepp-Greany, 2002), motivation (Chenoweth et al., 2006), effective learning (Al-Jarf, 2004), and satisfaction with L2 learning via technological devices (Sung & Yeh, 2012). Similarly, Ghavifekr and Rosdy (2015) have proved its impact on teachers in terms of guiding their well-equipped preparations and serving as a stimulator of their professional development practices for increasing the quality of education.

After the pandemic period, however, it has become a necessity rather than an alternative for educators to integrate the appliances supplied by ICT into virtual language courses to the best advantage. In other words, as an ensemble of modern technologies, ICT and its infusion in digital language classes were a fundamental issue in exploring ways to enhance learning output, particularly with the spread of online instruction across the world. This is because ICT applications were assumed to be the most practical and appropriate problem-solvers during lockdowns in all educational contexts (Smith & Traxler, 2022). In addition, multimedia technologies in language education would improve the quality of instruction for teachers. Therefore, research on ICT in language education has been boosted, and its effects on learners (Marchlik et al., 2021; Moorhouse & Beaumont, 2020) and teachers (Liang, 2021; Qaddumi et al., 2021, to name a few) have been reported. However, as Rababah (2020) has emphasized, after searching for students' troubles while using ICT during the pandemic, English teachers' competence in utilizing ICT, their attitudes, and perceptions were included in the list of self-declared problems. In this regard, investigating teachers' manners and perspectives on technology integration in language education would also be significant apart from their implementations in online classes for yielding insights into how ICT can be maximized. That being the case, this study has been directed at seeking the attitudes of teachers of English as a foreign language (EFL) towards ICT in education and their perceptions of factors affecting attitudes towards ICT use. In this way, it is hoped to make a vital contribution to the scant literature on EFL instructors' understanding of digital technologies (DTs) in English language teaching (ELT) in the post-pandemic period after a regional crisis in the country.

## **2 Literature Review**

### **2.1. Teachers' attitudes towards ICT use in teaching EFL**

As is widely established, before executing a pedagogical practice, teachers are to regard the efficacy of warranted teaching approaches and methods and hence adopt a clear individual epistemology. Nevertheless, as practices and attitudes cannot be invariably in accord with each other, these language practitioners may be engaging in instructional implementations clashing with professed epistemologies (Wilson & Cooney, 2002). Thus, a host of one-dimensional studies were administered to unearth teachers' positive attitudes towards ICT use in English courses to prove its potential effects on the language education system, or design instructional fulfilments accordingly. Concentrating exclusively on EFL teachers' attitudes, some empirical results display their mild approaches to ICT use (Civelek et al., 2021; Qaddumi et al., 2021). As a case in point, Aydın (2013) disclosed positive attitudes of elementary and secondary school EFL teachers towards integrating DTs into courses. Correspondingly, Cabellos et al. (2024) showed the strong link between teachers' optimistic attitudes to ICT and its use, signifying how facilitating conditions at schools would influence this, resting it on the impact of the facilitations offered to teachers, and learners' digital and communicative skills. Through a case study in a mixed design, Liang (2021) also noted that EFL teachers' optimistic attitudes

regarding ICT integration emphasized its use for teacher-oriented purposes rather than active learner involvement. Yet, this manner contrasts with Liu et al. (2017), who construed this in terms of traditional transmissive teacher conceptions rather than their holding constructivist-oriented pedagogical viewpoints. As for Peng et al. (2024), they examined the motives leading 680 Chinese teachers to resort to ICT and concluded that aside from self-efficacy, digital skills, and competence, attitudes can be the main reasons. Manegre and Sabiri (2020) also clarified EFL school teachers' positive attitudes concerning students' enhanced learning rates in online language classes compared to those in conventional face-to-face instruction. By the same token, based on their optimistic attitudes, Razkane et al. (2022) insinuated the need to redesign teacher education curriculum by placing online learning and ICT courses in the centre to accustom them to this novel mode of teaching. Finally, some studies identified positive attitudes of pre-service English teachers relevant to the usefulness of ICT tools in EFL classes (Rizkiani, 2021; Sun & Mei, 2020).

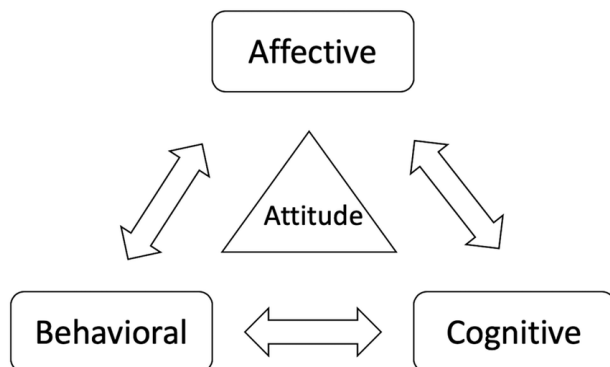
Another research interest appeared to accentuate the attitudes related to making use of specific ICT tools in language courses. To exemplify, Subaşı et al. (2021) sought to uncover teachers' attitudes by addressing numerous web tools, such as Flipgrid, Hypersay, Mentimeter, Duolingo, Google Forms, Quizlet, Weizer.me, and Kahoot, in distance language education. This qualitative work resulted in teachers' positive understanding of adopting these tools. In their mixed designs, Korkmaz and Öz (2021) analysed the perceived effects of Kahoot as a web tool on furthering the reading skills of prospective EFL teachers and showed that this game can be regarded as a valuable ICT tool to be employed in language teaching settings, not only to better their reading comprehension but also their motivation. In that vein, probing into the online writing skills of EFL students in a qualitative study, Aniq et al. (2021) found that exploiting various ICT tools like smartphone applications, while embracing student-centred methods, and engaging content-based syllabi, would exert an influence on language learners. In addition, via both quantitative and qualitative instruments, Aldukhayel (2019) addressed the optimistic attitudes of teachers towards resorting to vlogs to improve learners' vocabulary and listening skills. Finally, Asghar et al. (2021) examined pre-service teachers' acceptance and preparedness for the use of mobile learning technology throughout COVID-19 with quantitative methods and concluded that their eagerness to integrate this technology was influenced by individual innovativeness and social factors.

Last of all, some studies pointed out factors affecting teachers' attitudes to ICT in EFL, considering affective, cognitive, and behavioural domains. In this sense, as Rosenberg and Hovland (1960) proposed in their tripartite model (see Figure 1 below) and first introduced this term in social psychology sphere through their seminal study, which is then improved by Hilgard (1980) entitled as ABC model in the psychology of learning, and as frequently used in the field of education today, these three interrelated dimensions are taken as the basis for analysing attitudes. Hence, the factors influencing the overall attitudes of EFL teachers to ICT use need to be discussed thoroughly in relation to these components. Initially, Zhunussova (2021) adopted this model through Baker's (1992) framework and identified the benefits of English in a multilingual context in Kazakhstan by revealing teachers' positive cognitive attitudes. The scholar added that their affective attitudes were largely positive, yet shaped by concerns about ideologies and regional linguistic identities. While behaviorally open to embracing innovations, their eagerness was affected by institutional constraints. Makhlof and Bensaf (2021) also visited this model with an implementation on secondary school EFL teachers in Algeria, who were found to generally hold positive attitudes towards using ICT in classroom practice. This reflected their beliefs about the educational value of ICT and willingness to incorporate DTs in teaching. Their ICT use was positively affected by

competence and cultural perceptions (CPs), whereas some of their characteristics correlated negatively with attitudes, stressing the need for targeted support to further ICT infusion in ELT. Similarly, Farisa et al. (2023) reported that teachers in East Kalimantan generally held positive cognitive, affective, and behavioral attitudes towards ICT. Despite the variability in behaviours concerning the use of ICT tools, the scholars found strong links between teachers' competence in ICT applications and their motivations.

**Figure 1**

*The model of attitude adapted from Rosenberg and Hovland (1960)*



Especially in light of *affective* factors (representing “A” in the ABC model), Adarkwah (2021) drew attention to teachers’ hesitancy to incorporate ICT in English teaching due to network problems and a lack of infrastructure in less developed countries. This result was identical to the work by Van Praag and Sanchez (2015), who reported negative attitudes of language practitioners due to similar reasons. Liang (2021) also stated that such negative manners towards ICT or different DTs ensued from a lack of motivation, an increased workload, technical problems they would engender, or a lowering of the opportunity for real interactions. Khatoony and Nezhadmehr (2020) added students’ distraction and demotivation as the items affecting EFL teachers’ negative attitudes to ICT. Yet, Albirini (2006), Alzubi (2019), Aniq et al. (2021), Aydın (2013), Rizkiani (2021), Sun and Mei (2020), and Subaşı et al. (2021) highly emphasized teachers’ positive feelings in light of the visible effects of ICT they observed on two parties (i.e., learners and themselves). As for the second component of the model, Ramadass and Shah (2022) informed us about *behavioural* factors (indicating "B" in the foregoing model) and presented EFL teachers’ positive attitudes towards adopting ICT upon examining their ICT-related behaviours and behavioural intents through the technology acceptance model. Similarly, Song et al. (2025) addressed the behavioural domain of the model, underscoring the importance of understanding effective teaching practices and challenges through real-life tasks to discover disparities in attitudes and perceptions among EFL teachers. Finally, regarding *cognitive* factors (symbolizing “C” in the model); Liang (2021) reported teachers’ optimistic outlooks due to ICT providing discussion and interaction among learners by stimulating critical thinking. Likewise, Bagapova et al. (2020) asserted that ICT would support various learning styles and EFL students' higher-order thinking skills. Furthermore, these scholars set forth its contributions to cultivating learners’ problem-solving and intellectual skills. Overall, as the extant literature portrays EFL teachers’ attributing value to ICT along with its benefits in language classes but also holding positive and negative attitudes towards ICT use, it alerts us to the fact that further studies need to be conducted to reveal their

viewpoints and understandings of this issue, given its pioneering role in today's prevalent DTs in ELT.

## **2.2. Perceptions of teachers in terms of factors concerning attitudes towards ICT**

As perceptions play a decisive role in the formation process of attitudes (Hilgard, 1980; Rosenberg & Hovland, 1960), some investigations about EFL teachers' perceptions and their links to several variables, such as the practicality of digital tools (Civelek et al., 2021; Razkane et al., 2022; Sun & Mei, 2020), demographics (Islahi & Narin, 2019; Ramadass & Shah, 2022), or their ability to involve them (Qaddumi et al., 2023) were reported in ELT context. Numerous studies were also carried out to demonstrate EFL teachers' positive perceptions about the profits of ICT use in terms of creating enjoyable and interactive English classes (Subaşı et al., 2021), increasing both learners' creativity (Alzubi, 2019) and digital literacy (Moorhouse & Beaumont, 2020), and more active engagement and perpetual learning (Qaddumi et al., 2021). Nonetheless, their negative aspects accounted for lowering the variety of language learning and teaching practices by guiding to rote learning and distracting learners (Collins & Halverson, 2018). Thus, as Albirini (2006) underlines, more in-depth analyses should be conducted on perceptions of the attributes of computer system (AoCS), that is, attitudes to ICT, CPs, and perceptions about the pertinence of DTs. Regarding perceptions about their pertinence to current practices, parallelism was discovered by Van Praag and Sanchez (2015), whereas incongruence between the two was noticed by Li and Ni (2011). Therefore, perceptions about the convenience or inconvenience of using DTs with actual implementations may vary depending on the context. As to CPs, Li (2002) identified the influences of national culture on the exertion of ICT via an experiment unveiling the distinctions between British and Chinese contexts. Moreover, Shapley et al. (2010) announced teachers' innovative cultures as essential figures in foreseeing their use of web-based tools and classroom engagement. Additionally, upon administering research on DTs for language education and its culture with reading practices, Adilbayeva et al. (2022) uncovered the weight of culture in light of the perceptions of teachers.

Finally, as suggested by Albirini (2006), addressing teachers' perceptions of their competence in computer skills (CoCS) and perceptions of the advantages of computer systems (CSs) in language courses would be of utmost significance to better understand their knowledge and skills, as well as their compatibility with teachers' practices. Despite scant research on their perceptions of CoCS, perceived knowledge of CSs and ICT applications in teaching and learning (Aydın, 2013), Taghizadeh and Yourdshahi (2019) documented that teachers may feel a deficiency of knowledge and skills in CSs and ICT, and fail to include them in courses due to being alienated from DTs, even in the digital era. Correlatively, they suggested that teachers attend or receive training to update their knowledge about adopting DTs. In this sense, Bauer (2002) focused on including staff development programs to reinforce ICT in elementary schools and ascertained that teachers' CoCS was moderate, given that relatively new teachers gained confidence in conducting those skills. In contrast, Kundu et al. (2021) uncovered that, considering perceptions about CSs among secondary school teachers in lessons, they were largely knowledgeable about ICT and had CoCS to employ them in language education with specific types of items.

### 2.3. Overview of the Study

Having reviewed the literature on EFL teachers' attitudes and perceptions relevant to ICT integration in language courses, the researcher has deduced five conclusions that the study will address. Initially, studies primarily concentrated on the efficacy of ICT use or scaffolding student learning, while analyses of the perceptions and attitudes of English educators mostly remained one-dimensional (Subaşı et al., 2021). Accordingly, it constitutes an important contribution to the extant literature, which does not contain adequate empirical evidence resolving the thoughts of EFL teachers in-depth concerning the adoption of DTs (Teo et al., 2018). Thus, as was also stated by Cabellos et al. (2024) and Liang (2021), delving more into EFL instructors' actual viewpoints on utilizing ICT in ELT to facilitate technology integration would be a crucial step in distinguishing this from many prior studies and advancing our awareness of their perceptions and attitudes. Another lacuna the research aims to address is the limited number of studies on considerations of university EFL teachers about ICT incorporation in virtual courses, particularly in the context of developing countries, as also reported by Qaddumi et al. (2023). Moreover, as was presented in the review, the extant literature harbours mostly EFL teachers affiliated with K-12 schools, or pre-service teachers, rather than those at tertiary-level education. Hence, the third gap addresses university EFL teachers' perceptions in terms of different components related to attitudes towards ICT or other DTs to provide a nuanced understanding of their perspectives in detail. Anecdotal evidence all across the country and individual observations of the researcher signify that only sporadic evidence subsists, rooted in the perceived competence of these teachers in ICT use, despite seeming to embrace DTs for the quality of ELT.

As to the fourth gap, emerging studies were chiefly designated as qualitative or mixed methods by involving one or more specific ICT tools in courses, or dealing with particular language skills, whereas more quantitative studies have been demanded in the field (Aydın, 2013). As a final point, the present research appears important since it highly contributes to related literature within the Turkish context, especially given the data gathered from 12 foundational and six state universities by incorporating at least three EFL instructors from therein to the design. This is because studies were mostly administered in megacities, disregarding the variability of the data, and the standpoints of teachers working in disadvantaged regions on the related issue were not revealed. This can help provoke some discoveries concerning ICT use, which seems relevant to educational practitioners and international researchers. Taking into account these lacunae, the following questions would serve as the ground for the inquiry seeking to address attitudes and perceptions of ICT involvement in English language instruction in the post-local-crisis:

1. What are the university EFL teachers' attitudes towards ICT use in ELT?
2. What are the perceptions of university EFL teachers about:
  - a. overall AoCS ?
  - b. CSs' cultural pertinence?
  - c. their CoCS?
3. Are there any significant relationships between teachers' attitudes towards ICT in education, and their perceptions in terms of the foregoing three variables about attitudes to ICT?
4. Are there any significant relationships between teachers' demographic features and all variables?

### 3 Methodology

#### 3.1. Participants

With the 6 February earthquake in the spring semester of the 2023-2024 academic year, the education system totally shifted to online instruction in Turkey. An online questionnaire was conducted on 70 university EFL teachers affiliated with 16 distinct higher education institutions to reveal their opinions concerning ICT use following a post-pandemic period and a local crisis. This research drew upon a purposive convenience sampling to recruit teachers into the design; that is, the attendees were identified based on their relevance to the study, accessibility and willingness to participate.

**Table 1**

*Demographics of the participants*

Categories		N	%
Gender	Female	55	78,6
	Male	15	21,4
Age	20-29	14	20,0
	30-39	44	62,9
	40-49	12	17,1
The type of institution	State	41	58,6
	Foundational	29	41,4
Experience	1-5 years	13	18,6
	6-10 years	25	35,7
	11-15 years	17	24,3
	16 years or more	15	21,5
Educational background	Bachelor's degree	24	34,3
	Master's degree	41	58,6
	PhD degree	5	7,1

These teachers (entitled "instructors" particularly in the Turkish context) were all staffed in foreign language units of the universities to offer compulsory English courses to students taking one-year preparatory classes. As Table 1 shows, the greater part of the attended educators were female, aged 30 to 39, affiliated with state universities, experienced with six to ten years, and held master's degrees.

#### 3.2. Data Collection

The researcher adopted an English-language questionnaire developed by Albirini (2006) to gather the required information from the sample. This questionnaire, with six scales (including the background questionnaire) and expressions listed according to a Likert-type scale, was created to unearth teachers' perspectives towards ICTs and their use in language education. The first scale, which measured the participants' overall attitudes towards ICT integration in language courses, covered 20 items within three categories: affective (1 to 6), cognitive (7 to 15), and behavioural (15 to 20) domains. The second scale consisted of 18 statements addressing attendees' perceptions regarding AoCS. To that end, they were exposed to expressions about the advantages of CSs (1 to 5), and their congruency with the current practices (6 to 10). As this was a questionnaire as a whole, the other two sub-dimensions (N=8)

dealing with their "non-complexity" and "observability" were decided to be excluded from the instrument with the approval of a statistician due to the former item's incompatibility with the current design. The latter had to be removed owing to its low reliability, considering Cronbach's Alpha value (.185).

As for the third scale, 16 items were designed to measure teachers' CPs of ICT, whereas 15 items on a 4-point range took part in the fourth scale concerning current CoCS in terms of their skills and knowledge in utilizing ICTs without any sub-dimensions. Even though statements, in the sixth scale, for the participants' demographic features were adopted, the fifth scale (with three expressions) in the questionnaire was omitted since they were all about teachers' access to DTs. As all educators around the world had opportunities to access DTs during the pandemic and thereafter, this part would not make sense to the participants. Finally, upon soliciting an associate professor in ELT for granting the endorsement in terms of face and content validity of the questionnaire, the researcher became ready to initiate the data collection process. Taken together, this questionnaire, which was carried out online in its original language (English) with 61 items, excluding the demographics, covered four distinct areas.

After informing the administrations of the institutions about the research, the questionnaire was distributed to universities in 22 different cities across the country. Despite one or two returns from some of these organizations, they were not integrated into the analysis due to limited numbers. The universities from which at least three instructors responded to volunteering for the study were regarded as the sources of data. Then, a total of 72 teachers from 16 higher education institutions, (N=10) state, and (N=6) private, were selected as participants after their approval was obtained. However, two of them had to be eliminated due to their invalid responses to some items without breaking the standard of receiving at least three participants from each institution. In brief, this quantitative research was administered online to 70 EFL teachers in tertiary-level education via a well-structured questionnaire for almost one and a half months from 6 March to 21 April.

### 3.3 Data Analysis

Firstly, skewness and kurtosis values were checked to determine the data set's considerable normal distribution. In addition, Cronbach's Alpha values were examined for each scale and sub-dimension as reliability statistics. Cronbach's Alpha ( $\alpha$ ) coefficients were above 0.68 for all the items (the first scale's values were .740, .806, and .685, respectively, whereas the total  $\alpha$  value was .893; the second scale's values were .844, .731, respectively, while it was .714 for the third and .895 for the fourth scales). This proves internal consistency and the reliability of the questionnaire (Cohen et al., 2011). Moreover, parametric tests were detected to be appropriate given that the aforementioned values were between +1.5 and -1.5. Initially, descriptive statistics were wielded to answer the first and second research questions. In addition, Pearson correlation as a parametric test was employed to describe the direction and strength of relationships between variables and hence respond to the third question. Finally, with the analysis of variance (ANOVA) and t-test, p-values were investigated to answer the fourth question.

## 4 Results and Discussion

Responsive to the first question, EFL teachers' attitudes were presented through mean scores on a five-point Likert scale from 1, which represents strongly disagree (S.D.), to 5, which

symbolizes strongly agree (S.A.). As Table 2 demonstrates, the distribution of answers to the related statements in the first scale was tabulated addressing the overall attitudes of university teachers towards ICT, and mean scores of their affective, cognitive, and behavioural attitudes. Accordingly, teachers' general ICT attitude was positive with a mean of 4.16 (Standard Deviation "S.D."= 0.45), and their positive attitudes were clear within the affective (mean= 4.08), cognitive (mean=4.16), and behavioural (mean=4.24) factors.

**Table 2**

*Mean scores' distribution according to attitudes to ICT use*

<b>Attitudes</b>	<b>S.D.</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>S.A.</b>	<b>Mean</b>	<b>S.D.</b>
Affective	0.47%	4.04%	17.38%	42.61%	35.47%	4.08	0.55
Cognitive	0.63%	4.76%	12.69%	41.42%	40.47%	4.16	0.47
Behavioural	0.85%	4.00%	11.42%	37.14%	46.57%	4.24	0.54
Overall	0.64%	4.35%	13.78%	40.71%	40.50%	4.16	0.45

Identical to the works by Asghar et al. (2021), Aydın (2013), Cabellos et al. (2024), Civelek et al. (2021), Farisa et al. (2023), Makhlof and Bensaf (2021), Rizkiani (2021), Sun and Mei (2020), and Qaddumi et al. (2023), 40.7% of them had high overall positive attitudes, while 40.5% reached quite high levels. By the same token, 42.6% of the participants had positive and 35.4% adopted greatly positive affective attitudes towards ICT in education. Having said that, as Hilgard (1980) and Rosenberg and Hovland (1960) emphasized the interrelatedness of components in the tripartite model of attitudes, they did not have serious concerns about CSs and ICT, and were mostly contented with their incorporation into EFL courses, mainly on account of the comfort they sensed during teaching, as was also affirmed by Alzubi (2019), Aniq et al. (2021), Farisa et al. (2023), and Subaşı et al. (2021). However, compared to other domains, affective factors appeared to have less strength in contributing to the overall positive attitudes. That must be grounded on their hesitancy to refer to DTs while feeling the pain of the losses after the earthquake, aside from the heavy workload distance education brought along, and learners' demotivation throughout this process (Adarkwah, 2021; Khatoony & Nezhadmehr, 2020; Liang, 2021; Van Praag & Sanchez, 2015).

As for the cognitive domain, 41.4% of the respondents had a high level, and 40.4% had a very high level of positive attitudes. In other words, most of them agreed that ICT would save effort and time, instigate students to utilize distinct learning styles (Bagapova et al., 2020), become an effective means of transmitting knowledge (Manegre & Sabiri, 2020), and be easy to utilize in online classes (Zhunussova, 2021). Concerning the behavioural domain, in tune with the results by Ramadass and Shah (2022) and Song et al. (2025), the vast majority of the survey takers exhibited positive (37.1%) and fairly positive (46.5%) manners in terms of constantly self-advancing themselves about ICT and working with DTs in class. Moreover, it ranked as the most important item out of the three in terms of supporting the total rate of overall attitude, as Table 2 depicts. Based on these results, the majority of the attendees postured positive attitudes towards ICT in EFL and construed DTs as a source of motivation in the education of English language learners (Al-Jarf, 2004; Chenoweth et al., 2006; Marchlik et al., 2021; Moorhouse & Beaumont, 2020; Rababah, 2020; Sung & Yeh, 2012).

Responsive to the second research question, the perceptions of teachers in terms of factors concerning attitudes towards ICT, analyses of AoCS can be first discussed. Table 3 shows that perceptions of EFL teachers about the related subject were positive, considering the mean of

4.01 (S.D.= 0.58). Their perceptions varied across the two features investigated in the current research.

**Table 3**

*Mean scores' distribution according to AoCS*

Perceptions	S.D.	D	N	A	S.A.	Mean	S.D.
Advantage	0.28%	4.28%	12.0%	46.85%	36.57%	4.15	0.61
Compatibility	2.57%	11.14%	14%	40.85%	31.42%	3.71	0.51
Overall	1.42%	7.71%	13%	43.85%	34%	4.01	0.58

Respondents were discovered to be more optimistic about the advantages of CSs in educational contexts (mean = 4.15). Their responses indicated that this stemmed from their practicality (Civelek et al., 2021; Razkane et al., 2022; Sun & Mei, 2020), ready-made programs to be directly included in the course (Subaşı et al., 2021), serving as a creative prompter for learners (Alzubi, 2019), and supplying perpetual learning (Qaddumi et al., 2021). Therefore, this finding was in discord with Collins and Halverson (2018), who declared that it decreased variety in learning. However, their less positive perceptions relative to the congruency of CSs with current practices (mean = 3.71) were noted. This was all the repercussion of the viewpoints of teachers working in disadvantaged areas regarding the diverse needs of the target population, and their irrelevance to potential practices of advanced ICT tools or other DTs. Overall, it can be interpreted as such that most of the participants declared the use of ICT would be convenient for EFL students' learning preferences as well as their technological knowledge, and overlap with activities and practices in class (cf. Li & Ni, 2011). On the other hand, as Albirini (2006) similarly affirmed, they would be less determined about whether resorting to ICT would address the course objectives and student needs.

As for the cultural relevance of ICT and CSs, the scores of university teachers' perceptions about this issue were midway between positive (mean=3.56, S.D.= 0.41) and neutral (23.92%), as is seen in Table 4. Many of the participants were found to have positive (34.64%) or really positive perceptions (22.5%) of the pertinence of DTs to the population and educational institutions, likewise in the work of Li (2002) and Adilbayeva et al. (2002). In light of their responses to the scale, it can be deduced that they were supposed to have a grasp of how to utilize CSs systematically with a comprehensive knowledge of distinct software as an investment for their future careers. Additionally, the greater part of the respondents expressed that they would contribute to enhancing standards of living, and being knowledgeable about them can earn the esteem of others and offer concessions non-existent to other educators (Shapley et al., 2010).

**Table 4**

*Mean scores' distribution according to CPs*

Perceptions	S.D.	D	N	A	S.A.	Mean	S.D.
CPs	4.28%	14.64%	23.92%	34.64%	22.5%	3.56	0.41

They also pinpointed that adopting ICT would not boost reliance on other nations, robotize the community, and spur illicit practices (Albirini, 2006). Nevertheless, though they regarded ICT and CSs as culturally relevant to the schools, there may potentially remain some social concerns worth being searched for prior to using DTs in EFL classes (see Asghar et al., 2021, for a

review). This was because DTs burgeoned so rapidly during the pandemic, but alternative tools or programs were in demand, directly overlapping with the culture, given the percentages of neutral, disagree, and S.D.

Finally, teachers' perceptions of their CoCS were described by a scale on a four-point range varying from no competence (N.C.), little competence (L.C.), moderate competence (Mo.C.) to much competence (M.C.). Table 5 displays that the mean scores (3.37) of participants' perception of their technical skills proved their perceived competence.

**Table 5**

*Mean scores' distribution according to CoCS*

<b>Perceptions</b>	<b>N.C.</b>	<b>L.C.</b>	<b>Mo.C.</b>	<b>M.C.</b>	<b>Mean</b>	<b>S.D.</b>
CoCS	4.28%	12.28%	25.14%	58.28%	3.37	0.45

When distributions of responses were probed, 58.28% felt having much competence or moderate competence (25.14%) in dealing with the functions. Accordingly, it was evident that the general run of the teachers in the study self-assessed themselves as being sufficiently competent in their ICT use both in the general sense and in ELT, besides in solving problems (Kundu et al., 2021; Makhoulouf & Bensaf, 2021; Zhunussova, 2021); cf. Albirini, 2006). Still, 12.28% were of little competence while 4.28% possessed no competence in managing some tasks an educator needs to know, such as grade keeping, software installation, productivity software, educational software evaluation, basic troubleshooting, or telecommunication resources. Then, as suggested by Cabellos et al. (2024), Ghavifekr and Rosdy (2015), Taghizadeh and Yourdshahi (2019), and Bauer (2002), some training for their professional development would be required to familiarize and equip them more with related activities arranged by foreign or host institutions.

As to the third question, relationships between teachers' perceptions with regard to three items relevant to their attitudes and all domains of attitudes towards ICT must be addressed. Table 6 illustrates that affective attitude was observed to have a positive and moderately significant relationship with cognitive attitude ( $r=.67$ ), behavioural attitude ( $r=.62$ ), the advantage of CSs ( $r=.58$ ), compatibility of CSs ( $r=.63$ ), overall AoCS ( $r=.60$ ), CPs ( $r=.52$ ), and CoCS ( $r=.49$ ). In addition, a positive and highly significant relationship between affective attitude and overall attitude to ICT was noted ( $r=.86$ ). This was the only remarkably positive and significant liaison of the affective domain; thus, the impact of the local crisis teachers encountered must have evidently reverberated and impeded the reflection of its power in the other domains.

**Table 6***Pearson correlation analysis of the variables*

		Affective	Cognitive	Behavioural	O.A.	Advantage	Compatibility	Overall AoCS	CPs	CoCS
Affective	r	1								
	p									
	n	70								
Cognitive	r	.674**	1							
	p	.000								
	n	70	70							
Behavioural	r	.625**	.725**	1						
	p	.000	.000							
	n	70	70							
Overall attitude (O.A.)	r	.861**	.926**	.862**	1					
	p	.000	.000	.000						
	n	70	70	70						
Advantage	r	.585**	.772**	.577**	.744**	1				
	p	.000	.000	.000	.000					
	n	70	70	70	70					
Compatibility	r	.635**	.626**	.552**	.686**	.731**	1			
	p	.000	.000	.000	.000	.000				
	n	70	70	70	70	70				
Overall AoCs	r	.600**	.780**	.556**	.746**	.911**	.765**	1		
	p	.000	.000	.000	.000	.000	.000			
	n	70	70	70	70	70	70			
CPs	r	.525**	.590**	.410**	.587**	.556**	.521**	.606**	1	
	p	.000	.000	.000	.000	.000	.000	.000		
	n	70	70	70	70	70	70	70		
CoCS	r	.490**	.381**	.346**	.457**	.397**	.444**	.398**	.425**	1
	p	.000	.001	.003	.000	.001	.000	.001	.000	
	n	70	70	70	70	70	70	70	70	

p&lt;.05\*, p&lt;.01\*\*

According to another finding introduced in Table 6, cognitive attitude had a positive and significant relationship with behavioural attitude ( $r=.72$ ), overall attitude to ICT ( $r=.92$ ), advantages of CSs ( $r=.77$ ), and overall AoCS ( $r=.78$ ). However, cognitive attitude's relationship was positive and moderately significant with compatibility of CSs ( $r=.62$ ), CPs ( $r=.59$ ), and CoCS ( $r=.38$ ). As for the behavioural attitude, its positive and moderately significant relationship was explored with the advantages of CSs ( $r=.57$ ), their pertinence ( $r=.55$ ), overall AoCS ( $r=.55$ ), CPs ( $r=.41$ ), and CoCS ( $r=.34$ ). Its only positive and remarkably significant relationship was with overall attitude to ICT ( $r=.86$ ), which shows the same finding with affective factors on attitudes. To put it differently, these two cannot nurture overall teacher attitudes the same as the cognitive domain, which has really high positive accords with the four foregoing elements. Hence, cognitive attitude appeared to be the most important item of the first scale, shaping the overall attitude of the participants and paving the path for strengthening the links of all other variables in the research, as in the work by Zhunussova (2021). To further the analysis of the overall attitude towards ICT in education, the researcher disclosed its positive and moderately significant relationship with the compatibility of CSs ( $r=.68$ ), CPs ( $r=.58$ ), and CoCS ( $r=.45$ ). The positive and highly significant relationships of overall attitude were with the pros of CSs ( $r=.74$ ) and overall AoCS ( $r=.74$ ). That is, similar to the cognitive factors, it directly describes the relationship between perceptions about CSs and attitudes towards ICT via the strong ties with these two sub-dimensions.

Another highly significant correlation in a direct proportion was amongst the pros of CSs and their compatibility ( $r=.73$ ), and overall AoCS ( $r=.91$ ). Moreover, their advantages were found to be correlated in a positive and moderately significant way with CPs ( $r=.55$ ) and CoCS ( $r=.39$ ). Nonetheless, the consonance of CSs was only related to overall AoCS ( $r=.76$ ) in a positive and notably significant way. The fact that the advantages of these DTs with more correlations were not surprising, given that they were perceived more highly by teachers than their pertinence with practices (see Table 3). Chiming in with Liang (2021), this result reports that teachers would disregard the compatibility of CSs with learners or teaching and learning pedagogy, but give priority to their advantages according to the flow of the course. Therefore, as discussed in the analysis of the aforementioned table, practicality and the readiness of the materials or programs would constitute more value than their coherence (cf. Aldukhayel, 2019; Aniq et al., 2021; Korkmaz & Öz, 2021; Smith & Traxler, 2022; Stepp-Greany, 2002). Furthermore, despite their general positive perceived impact of ICT use on learners, actual class implementations would potentially differ, as stressed by Wilson and Cooney (2002) and Zhunussova (2021). These all remind us of the call of Liu et al. (2017) in that constructivist-oriented pedagogy, instead of conventional transmissive conceptions, must be imbued with teachers to comprehend the necessity of the change in class performance in parallel with the perceptions during the pandemic or thereafter. Finally, as recommended by Razkane et al. (2022), while designing the curricula of pre-service education programs, the use of ICT as a well-regarded and sine qua non element in the 21st-century classes was to be accentuated, and they would be renewed by recruiting related lessons into the centre.

CPs ( $r=.52$ ) and CoCS ( $r=.44$ ) were listed to have positive and moderately significant relations with the relevance of CSs to the current practices of EFL teachers. In addition, overall AoCS were found to have a positive and moderately significant relationship with CPs ( $r=.60$ ) and CoCS ( $r=.39$ ), respectively. Lastly, CPs were in a positive and moderately significant relationship with CoCS ( $r=.42$ ). Even though the results of the CPs of teachers in the analysis of Table 4 foreshadowed the potential loose ties with others, contrary to Makhlof and Bensaf (2021), the lack of strong links of CoCS was unanticipated, given their perceived competence. In brief, counter-intuitively, CPs and particularly CoCS were reported to have no remarkably high ( $r \geq .70$ ) relationships with any of the variables in the study. That is, though these two were deemed to be must-haves in this design, and expected to formulate the results, they did not show significant and strong correlations as much as some others for identifying teachers' perceptions and attitudes towards ICT in ELT. The other point that should not be left unattended is that they sensed the need for more appropriateness of DTs to conform to the culture, even in the post-pandemic era. They would have probably felt more confident in using ICT through a localized version of any platforms, software, or devices, and thus build more significant and positive associations with other variables to support attitudes and perceptions (Albirini, 2006).

**Table 7***Relationships between demographic features of teachers and study variables*

Tests	T-test (p-values)	Anova (p-values)	T-test (p-values)	Anova (p-values)	Anova (p-values)
Variables	Gender	Age	Type of institution	Experience	Educational background
Affective	0.129	0.123	0.937	0.248	0.166
Cognitive	0.284	0.533	0.564	0.278	0.318
Behavioural	0.489	0.687	0.362	0.990	0.279
Overall attitude	0.210	0.477	0.569	0.679	0.242
Advantage	0.755	0.524	0.532	0.161	0.231
Compatibility	0.949	0.672	0.670	0.953	0.115
Overall AoCS	0.847	0.715	0.735	0.261	0.325
CPs	0.150	0.824	0.613	0.386	0.351
CoCS	0.775	0.660	0.977	0.847	0.373

p&lt;.05\*

As a final point, the relationship between the demographics of university teachers and all study variables listed in Table 7 was examined. Accordingly, no significant relationship was revealed between any items ( $p < .05$ ). In other words, teachers' characteristics cannot be significantly correlated with either their attitudes towards ICT use in education or their perceptions about adopting DTs in ELT, which was consonant with Islahi and Nasrin (2019), Peng et al. (2024), and Ramadass and Shah (2022).

## 5 Conclusion

With the onset of the digital age and the drastic changes the pandemic brought along, the adoption of DTs in language education has boomed to fortify teaching-learning situations. Still, this development would also call for a more experimental understanding of educators' perceptions and attitudes towards ICT to shed light, particularly on their hidden thoughts or latent opinions. As a response to this call, the current research was administered, and the findings indicate teachers' positive standpoints about ICT use in ELT, along with their mild perceptions concerning the factors exerting potential effects on attitudes. Although teachers were noted to strike positive attitudes in terms of affective, cognitive, and behavioural components in general, the affective domain showed lower levels of correlation compared to the cognitive domain in building links with perceptions and overall attitudes about adopting ICT. Moreover, sub-dimensions of perceptions were also highlighted as positive and significant at large despite the midway value of CPs between positive and neutral. Nevertheless, CoCS was not highly correlated with any variables in a highly positive and remarkable way, regardless of teachers' high perceived competence. Perceptions concerning the advantages of CSs were also detected to have contributed more to strengthening the relationship between attitudes and overall AoCS than the item of compatibility. Besides, cognitive items, overall attitudes, and the advantages of CSs were detected as the most outstanding variables with respect to their correlations to at least two factors from perceptions and attitudes. Finally, no significant relationship can be identified between the foregoing variables and the demographic characteristics of teachers; therefore, their statistical correlation with one another or potential liaison with attitudes and perceptions cannot be alleged. Taken together, in light of the results, such an understanding of teachers' perspectives can be construed as an implication that

university governance and policymakers should design or deploy resources and initiate professional development activities with the infusion of ICT or other DTs.

Though the research was motivated by several lacunae in the literature and intended to bridge these gaps through a comprehensive design, it has some limitations. Given that this study was conducted in a post-pandemic period and after a devastating earthquake disaster in the country, qualitative tools could not be incorporated to triangulate the data. Future studies can be suggested to refer to follow-up interviews in addition to the questionnaire, or field notes based on their in-class observations. Besides, a wider number of teachers could be included in the design to generalize the results in a broader sense. Furthermore, even though the research was set in local contexts, as the issues it addressed share similarities with the ones in other countries and communities, a similar data set can be gathered from a country where English is the vernacular language to compare the results, especially in terms of CPs and CoCS of EFL teachers. Additionally, further investigations concentrating on other variables that may potentially influence on university EFL teachers' perceptions and attitudes relevant to utilizing ICT or Artificial Intelligence (AI)-based tools will be necessary, similar to the research on barriers and challenges to the practical use of ICT in both traditional and virtual education. Finally, future research directions can also discover EFL teachers' attitudes and perceptions towards ICT using different theoretical frameworks, such as the community of inquiry or the technological pedagogical content knowledge (TPACK). Investigating ICT use through these lenses can complement the current study based on the tripartite model and provide deeper insights into how the three aforementioned factors interact in (digital) classroom practice.

## References

- Adarkwah, M. A. (2021). "I'm not against online teaching, but what about us?": ICT in Ghana post Covid-19. *Education and Information Technologies*, 26(2), 1665–1685. <https://doi.org/10.1007/s10639-020-10331-z>
- Adilbayeva, U., Mussanova, G. A., Mombekova, N. B., & Suttibayev, N. A. (2022). Digital communication technology for teaching a foreign language and culture through reading. *International Journal of Society, Culture & Language*, 10(3), 21-30. <https://doi.org/10.22034/ijscsl.2022.543110.2472>
- Al-Jarf, R. S. (2004). The effects of web-based learning on struggling EFL college writers. *Foreign Language Annals*, 37, 49-57. <http://doi.org/10.1111/j.1944-9720.2004.tb02172.x>
- Albirini, A. (2006). Teachers' attitudes toward information and communication technologies: The case of Syrian EFL teachers. *Computers & Education*, 47, 373-398. <https://doi.org/10.1016/j.compedu.2004.10.013>
- Aldukhayel, D. (2019). Vlogs in L2 listening: EFL learners' and teachers' perceptions. *Computer Assisted Language Learning*, 34(8), 1085-1104. <https://doi.org/10.1080/09588221.2019.1658608>
- Alzubi, A. (2019). Teachers' perceptions on using smartphones in English as a foreign language context. *Research in Social Sciences and Technology*, 4(1), 92-104. <https://doi.org/10.46303/ressat.04.01.5>
- Aniq, L. N., Drajadi, N. A., & Fauziati, E. (2021). Unravelling teachers' beliefs about TPACK in teaching writing during the Covid-19 pandemic. *AL-ISHLAH: Jurnal Pendidikan*, 13(1), 317-326. <https://doi.org/10.35445/alishlah.v13i1.423>
- Asghar, M., Barberà, E., & Younas, I. (2021). Mobile learning technology readiness and acceptance among pre-service teachers in Pakistan during the COVID-19 pandemic. *Knowledge Management & E-Learning*, 13(1), 83–101. <https://doi.org/10.34105/j.kmel.2021.13.005>

- Aydın, S. (2013). Teachers' perceptions about the use of computers in EFL teaching and learning: The case of Turkey. *Computer Assisted Language Learning*, 26(3), 214-233. <http://doi.org/10.1080/09588221.2012.654495>
- Bagapova, G., Kobilova, N., & Yuldasheva, N. (2020). The role of distance education and computer technologies in teaching foreign languages. *European Journal of Research and Reflection in Educational Sciences*, 8(10), 206-211.
- Baker, C. (1992). *Attitudes and language*. Multilingual Matters.
- Bauer, A. L. (2002, May). *Using computers in the classroom to support the English language art standards* (Report No. ED465441). U.S. Department of Education.
- Cabellos, B., Siddiq, F., & Scherer, R. (2024). The moderating role of school facilitating conditions and attitudes towards ICT on teachers' ICT use and emphasis on developing students' digital skills. *Computers in Human Behavior*, 150, 107994. <https://doi.org/10.1016/j.chb.2023.107994>
- Chenoweth, A. N., Ushida, E., & Murday, K. (2006). Student learning in hybrid French and Spanish courses: An overview of language online. *CALICO Journal*, 26(1), 115-146.
- Civelek, M., Toplu, I. & Uzun, L. (2021). Turkish EFL teachers' attitudes towards online instruction throughout the Covid-19 outbreak. *English Language Teaching Educational Journal*, 4(2), 87-98. <http://doi.org/10.12928/eltej.v4i2.3964>
- Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education* (7th ed.). Routledge.
- Farisa, H., Sunggingwati, D., & Susilo, S. (2023). Teachers' competencies and students' attitudes toward ICT at an EFL secondary school. *Turkish Online Journal of Distance Education*, 24(3), 224-239. <https://doi.org/10.17718/tojde.1122729>
- Ghavifekr, S., & Rosdy, W.A.W. (2015). Teaching and learning with technology: Effectiveness of ICT integration in schools. *International Journal of Research in Education and Science*, 1(2), 175–191.
- Hilgard, E. R. (1980). *Introduction to psychology* (7th ed.). Harcourt Brace Jovanovich.
- Islahi, F., & Nasrin. (2019). Exploring teacher attitude towards information technology with a gender perspective. *Contemporary Educational Technology*, 10(1), 37-54. <https://doi.org/10.30935/cet.512527>
- Khatoony, S., & Nezhadmehr, M. (2020). EFL teachers' challenges in integration of technology for online classrooms during coronavirus (COVID-19) pandemic in Iran. *AJELP: Asian Journal of English Language and Pedagogy*, 8(2), 89-104. <https://doi.org/10.37134/ajelp.vol8.2.7.2020>
- Korkmaz, S., & Öz, H. (2021). Using Kahoot to improve reading comprehension of English as foreign language learners. *International Online Journal of Education and Teaching (IOJET)*, 8(2), 1138-1150.
- Kundu, A., Bej, T., & Dey, K. (2021). Investigating effects of self-efficacy and infrastructure on teachers' ICT use, an Extension of UTAUT. *International Journal of Web-Based Learning and Teaching Technologies*, 16(6), 1-21. <https://doi.org/10.4018/IJWLTT.20211101.0a10>
- Li, N. (2002). *Culture and gender aspects of students' information searching behaviour using the Internet: A two-culture study of China and the United Kingdom* [Doctoral dissertation, Open University United Kingdom]. Open Research Online. <http://oro.open.ac.uk/64477>
- Li, G., & Ni, X. (2011). Primary EFL teachers' technology use in China: Patterns and perceptions. *RELC Journal*, 42(1), 69–85. <https://doi.org/10.1177/0033688210390783>

- Liang, W. (2021). University teachers' technology integration in teaching English as a foreign language: Evidence from a case study in mainland China. *SN Social Sciences*, 1(219), 1-29. <https://doi.org/10.1007/s43545-021-00223-5>
- Liu, H., Lin, C.H., Zhang, D. (2017). Pedagogical beliefs and attitudes toward information and communication technology: A survey of teachers of English as a foreign language in China. *Computer Assisted Language Learning*, 30(8), 745–765. <https://doi.org/10.1080/09588221.2017.1347572>
- Makhlouf, K., & Bensaf, Z. (2021). An exploration of factors influencing teachers' attitudes toward the use of information and communication technology (ICT) in classroom practice. *Advances in language and literary studies*, 12(2), 37-49. <http://dx.doi.org/10.7575/aiac.all.v.12n.2.p.37>
- Manegre, M., & Sabiri, K. A. (2020). Online language learning using virtual classrooms: An analysis of teacher perceptions. *Computer Assisted Language Learning*, 35(5-6), 973-988. <https://doi.org/10.1080/09588221.2020.1770290>
- Marchlik, P., Wichrowska, K., & Zubala, E. (2021). The use of ICT by ESL teachers working with young learners during the early COVID-19 pandemic in Poland. *Education and Information Technologies*, 26, 7107–7131. <https://doi.org/10.1007/s10639-021-10556-6>
- Moorhouse, B. L., & Beaumont, A. M. (2020). Utilizing video conferencing software to teach young language learners in Hong Kong during the COVID-19 Class suspensions. *TESOL Journal*, 11(3), <https://doi.org/10.1002%2Ftesj.545>
- Peng, R., Razak, R. A., & Halili, S. H. (2024). Exploring the role of attitudes, self-efficacy, and digital competence in influencing teachers' integration of ICT: A partial least squares structural equation modeling study. *Heliyon*, 10(13), e34234. <https://doi.org/10.1016/j.heliyon.2024.e34234>
- Qaddumi, H., Bartram, B., & Qashmar, A. L. (2021). Evaluating the impact of ICT on teaching and learning: A study of Palestinian students' and Teachers' perceptions. *Education and Information Technologies*, 26(2), 1865-1876. <https://doi.org/10.1007/s10639-020-10339-5>
- Qaddumi, H., Smith, M., Masd, K. *et al.* (2023). Investigating Palestinian in-service teachers' beliefs about the integration of information and communication technology (ICT) into teaching English. *Education and Information Technologies*, 1-21. <https://doi.org/10.1007/s10639-023-11689-6>
- Rababah, L. (2020). ICT obstacles and challenges faced by English language learners during the coronavirus outbreak in Jordan. *International Journal of Linguistics*, 12(1), 20-28. <https://doi.org/10.5296/ijl.v12i3.17048>
- Ramadass, D. D., & Shah, P. M. (2022). Knowledge, attitude and use of information communication technology (ICT) among English language teachers. *Creative Education*, 13, 658-674. <https://doi.org/10.4236/ce.2022.132041>
- Razkane, H., Sayeh, A. Y., & Yeou, M. (2022). University teachers' attitudes towards distance learning during COVID-19 pandemic: Hurdles, challenges, and take-away lessons. *European Journal of Interactive Multimedia and Education*, 3(1), e02201. <https://doi.org/10.30935/ejimed/11436>
- Rizkiani, S. (2021). Professional competency of pre-service English teachers and ICT during Covid-19 pandemic. *Acuity: Journal of English Language Pedagogy Literature and Culture*, 6(2), 138-147. <https://doi.org/10.35974/acuity.v6i2.2462>
- Rosenberg, M. J., & Hovland, C. I. (1960). Cognitive, affective, and behavioral components of attitudes. In C. I. Hovland, & M. J. Rosenberg (Eds.), *Attitude organization and change: An analysis of consistency among attitude components* (pp. 1–14). Yale University Press.

- Shapley, K., Sheehan, D., Maloney, C., & Caranikas-Walker, F. (2010). Effects of technology immersion on teachers' growth in technology competence, ideology and practices. *Journal of Educational Computing Research*, 42(1), 1-33. <https://doi.org/10.2190/EC.42.1.a>
- Smith, M., & Traxler, J. (2022). *Digital learning in higher education: Covid-19 and beyond*. Cheltenham: Edward Elgar Publishers. <https://doi.org/10.4337/9781800379404>
- Song, J., Mullick, J. & Jiang, T. (2025). English language education in Chinese primary schools: Exploring EFL teachers' attitudes, self-efficacy, and perceived school environment. *Asian-Pacific Journal of Second and Foreign Language Education*, 10, 18. <https://doi.org/10.1186/s40862-025-00320-5>
- Stepp-Greany, J. (2002). Student perceptions on language learning in a techno-logical environment: Implications for the new millennium. *Language Learning and Technology*, 6(1), 165-180. <http://lt.msu.edu/vol6num1/steppgreany>
- Subaşı, G., Tas, S., & Solmaz, F. (2021). Using ICT tools in distant EFL classes: The voice of teachers and students. *Turkish Online Journal of Educational Technology (TOJET)*, 21(4), 1-17.
- Sun, P. P., & Mei, B. (2020). Modeling preservice Chinese-as-a-second/foreign-language teachers' adoption of educational technology: A technology acceptance perspective. *Computer Assisted Language Learning*, 35(4), 816-839. <https://doi.org/10.1080/09588221.2020.1750430>
- Sung, D., & Yeh, C. (2012). Perceptions of using online technology in language education: An interview study with Taiwanese university students. *Procedia-Social and Behavioral Sciences*, 51, 405-410. <https://doi.org/10.1016/j.sbspro.2012.08.180>
- Taghizadeh, M., & Yourdshahi, Z. H. (2019). Integrating technology into young learners' classes: Language teachers' perceptions. *Computer Assisted Language Learning*, 33(8), 982-1006. <https://doi.org/10.1080/09588221.2019.1618876>
- Teo, T., Huang, F., & Hoi, C. K. W. (2018). Explicating the influences that explain intention to use technology among English teachers in China. *Interactive Learning Environments*, 26(4), 460-475. <https://doi.org/10.1080/10494820.2017.1341940>
- Van Praag, B., & Sanchez, H. S. (2015). Mobile technology in second language classrooms: Insights into its uses, pedagogical implications, and teacher beliefs. *ReCALL*, 27(3), 288-303. <https://doi.org/10.1017/S0958344015000075>
- Wilson, S., & Cooney, T. (2002). Mathematics teacher change and development: The role of beliefs. In G. Leder, E. Pehkonen, & G. Törner (Eds.), *Beliefs: A hidden variable in mathematics education*. Dordrecht: Kluwer. [https://doi.org/10.1007/0-306-47958-3\\_8](https://doi.org/10.1007/0-306-47958-3_8)
- Zhunuosova, G. (2021). Language teachers' attitudes towards English in a multilingual setting. *System*, 100, 102558. <https://doi.org/10.1016/j.system.2021.102558>