

A CROSS-CULTURAL STUDY ON THE ATTITUDES OF ENGLISH LANGUAGE STUDENTS TOWARDS COMPUTER-ASSISTED LANGUAGE LEARNING

by **Dara Tafazoli, M^a Elena Gómez Parra and Cristina A. Huertas Abril**

University of Córdoba

14071 Córdoba, Spain

z52tatad @ uco.es

Abstract

The purpose of this study was to compare the attitude of Iranian and non-Iranian English language students' attitudes towards Computer-Assisted Language Learning (CALL). Furthermore, the relations of gender, education level, and age to their attitude are investigated. A convergent mixed methods design was used for analyzing both quantitative and qualitative data. In the data collection procedure, an online 44-item web-based questionnaire was applied in order to collect data from 415 students. In the data analysis phase, both descriptive and non-parametric analyses were performed. The findings of the study revealed that there is no difference between the attitudes of Iranian and non-Iranian towards CALL. Finally, pedagogical implications and recommendations for further research are presented.

Keywords: CALL; cross-cultural attitudes

1. Introduction

Technological development has affected our careers, as well as our personal and social lives. Both teachers and material designers are aware of combining technology and curriculum development. Many years ago, language learning with the aid of administrating technology-based application was quite problematic, but nowadays teachers who are not able to apply technological tools in their classrooms can be considered as out-of-date teachers (Chapelle, 2008). There are many new golden opportunities for language learning by applying computer-mediated programs (Doughty & Long, 2003). Computer-Assisted Language Learning (CALL) utilizes some modern methods such as communicative language teaching, task-based learning, process approaches to improve learners' autonomy, and control during language learning procedure (Warschauer, 1996). Learners' independency and flexibility in language learning and teaching are the key purposes of any language association and institute. To accomplish these goals, ICT, cell phones or computers, are applied to end time, space and condition learning restrictions.

In a large number of studies, CALL and different aspects of its programs are evaluated. CALL includes three types of research: software, learning task, and learners (Chapelle, 2003). Based on previous studies, most of the research focuses on the first two types of CALL, where a shortage of investigation is identified regarding the learner, who is the final user of this process. The final goal of CALL is not using various technological programs and tools in the classroom, but rather to facilitate language learning by providing a suitable setting. Therefore, another role of educational scholars and researchers is to perceive learners' beliefs and reflection on CALL programs and tools. Learners' positive attitudes toward e-learning and CALL will encourage them to use it more frequently (Liaw, 2002). Cross-cultural dimension in studies of the learners' attitudes toward CALL has been missed in the related literature since almost all of previous research is examined within a specific culture and society.

Stigler and Hiebert (1999) argued that methods gathered from comparative education research study can provide some educational improvement. The type of comparative study which examines two or more different societies and cultures is called a cross-cultural study; this research is effective to analyze psychological traits (Matsumoto & Yoo, 2006). The compatibility of the product with two different societies and cultures is another viewpoint which focuses on the significance of cross-cultural studies. According to these researchers' belief, utilizing the findings of other societies and cultures does not lead to the same result in the target context. In Western and Eastern countries, extensive research examined the usefulness of CALL, but the results cannot be extrapolated to the Iranian culture. Although attitude has the same status and the result of the study may present either positive or negative aspects of this phenomenon, administrating it to the Iranian belief, perception and facilities may lead to different findings. This research tries to make the comparison between Iranian and non-Iranian English learners' attitude towards CALL. The final purpose of this study is to find out the most and the least frequent CALL tools in the English classrooms.

The achievement of students determines their attitudes towards CALL (Lacina, 2004; Warschauer, Knoebel & Stone, 2004). In Chapelle and Jamieson's (1986) study, those students who worked harder at learning English had more positive attitudes towards CALL; therefore, they spent more time on that. One of the aims of Chen's (2013) study was to investigate the attitude of Chinese students towards tablet-based Mobile Assisted Language Learning (MALL). The researchers applied Davis's (1993) Technology Acceptance Model (TAM), to develop a questionnaire on attitude. The aim of this survey was to assess students' perceptions of usability, effectiveness, and satisfaction with tablets for language learning during four

weeks. This survey consists of 30 statements on a 5-point Likert scale which was administered to the participants. The data analysis revealed that, based on participants' attitude, tablet computers were easy to use, effective for the purpose of language learning, and that the participants were satisfied with MALL.

If the final goal is to get students adopt computers for lifelong learning, we have to consider their attitudes towards this technology (Almahboub, 2000). According to Loyd and Gressard (1984) those students who show positive attitudes towards CALL are more eager to use computer technology. Therefore, it is possible to consider attitude as an indicator for computer usage tendency.

This research aimed to find the answer for the following questions:

1. Are there any differences between Iranian and non-Iranian English language students' attitudes towards CALL?
2. How is gender related to the attitudes of Iranian and non-Iranian English language students towards CALL?
3. How is the level of education related to the attitudes of Iranian and non-Iranian English language students towards CALL?
4. How is age related to the attitudes of Iranian and non-Iranian English language students towards CALL?

2. Review of the literature

Language teachers and learners are provided with a number of opportunities due to the spread of Information and Communication Technology (ICT). In spite of the positive effects of technology, it might entail specific pedagogical adaptations to the classroom level. Consequently, the combination of technology and language is the central part of many language researchers and scholars' jobs.

2.1. Computer and electronic literacy

The meaning of literacy has changed; a person is called literate if they are able to read and write both printed and electronic texts. Based on the time needs, learners must improve their skills in the 21st century. For different activities in our daily lives, such as editing texts and photos, shopping, travelling or studying, computers play an important role. Therefore, some novel literacies such as "computer literacy", "electronic literacy", and "information literacy" are appearing due to the rapid growth of technology. Therefore, how to develop and improve these literacies has become a crucial factor in education (Son, 2004). As Dudeney, Hockly and

Pegrum (2013) mentioned, these skills involve creativity and innovation, critical thinking and problem solving, collaboration and teamwork, autonomy and flexibility and lifelong learning. Another important factor arises, called digital literacy, which is an ability to interpret, manage, share and create meaning in the growing range of digital communication channels.

In the late 1960s, the idea of computer literacy among students emerged. The specific definition of computer literacy is under dispute, so it has evolved along the years. Computer literacy is the ability which helps learners to speak about computer. According to Son, Robb and Charismiadji (2011), it is understood “as the ability to use computers at an adequate level for creation, communication and collaboration in a literate society” (p. 27). Another side of Computer Assisted Learning (CAL) affirms that computers can be the students’ teacher. This definition can change for the educational arena. As Son, Robb and Charismiadji (2011) mentioned, it can be considered as “the development of knowledge and skills for using general computer applications, language-specific software programs and Internet tools confidently and competently” (p. 27).

Most computer-related texts and the Internet which are suggested to educators, scholars and students can be integrated into different educational context, where new media must be applied. However, printed materials are still the dominant media. The following text by Reinking (1994) describes the four criteria that activities must have to develop electronic literacy in educational contexts:

First, they should relate to conventional print-based literacy in meaningful ways [...] A second criterion is that activities designed to promote electronic literacy should involve authentic communication and meaningful tasks for students and teachers [...] Third, activities should engage students and teachers in higher levels of thinking about the nature of printed and electronic texts as well as about the topics of their reading and writing [...] Fourth, activities should engage students and teachers in ways that allow them to develop functional strategies for reading and writing electronic texts

(as cited in Tafazoli, Gómez Parra, & Huertas Abril, 2017, p. 718).

Thus, learners are considered to have specific knowledge on computer literacy. The functional knowledge of computers can assist learners to learn, solve problems, and understand the academic area.

2.2. Computer-Assisted Language Learning (CALL)

Based on Levy’s (1997) definition of CALL, it is the research of the application of the computer in language learning and teaching. While the name involves computer, the term

CALL includes any applications of Information and Communication and Technology (ICT) for teaching and learning foreign languages.

Using technology for learning and teaching languages is a new concept, although it is not a new story in the educational field where CALL is framed. Interesting opportunities are provided for teachers and students by CALL, and a few different phases have been identified in language programs within the gradual development of technology for language courses. Each phase is connected to a specific technological and pedagogical level: behavioristic CALL, communicative CALL and integrative CALL (cf. Barson & Debski, 1996; Warschauer, 1996; Warschauer & Healey, 1998), all of which have their own merits and drawbacks.

The merits and barriers for using CALL have been examined by different scholars. Seven different positive effects of CALL were mentioned by Warschauer and Healey (1998): 1) multimodal practice with feedback; 2) individualization in a large class; 3) pair or small group work on projects; 4) the fun factor; 5) variety in the resources available and learning styles used; 6) exploratory learning with large amounts of language data: and 7) real-life skill building in computer use.

In addition, the students will be able to learn how cultural issues can change a person's point of view toward world (Singhal, 1997). Students can have access to other people's work, publish their own work and, by using the Internet, become capable of searching extra language activities (Singhal, 1997). Higher motivation, greater interaction, higher order thinking skills, receiving both positive and negative feedbacks, global understanding, among others are the beneficial points of applying the Internet in language learning process (Lee, 2000). According to AbuSeileek and Abu Sa'aleek (2012), CALL can be practical since language learners can study anytime and anywhere.

Shyamlee and Phil (2012) mentioned that teachers should use technology to provide different approaches to course content. The Department of Education and Early Childhood Development - DEECD (2010) reported that technology changes the class from teacher-centered into student-centered classrooms. Furthermore, technology provides the encouragement of collaboration and communication in learning activities (Gillespie, 2006; Murphy, 2006). Finally, technology has proved to decrease anxiety levels among learners (Chapelle, 2001; Levy, 1997).

On the negative side, the literature has identified some drawbacks:

- 1) Both teachers and students need training in how to use technology for educational purposes (Baylor & Ritchie, 2002; Han, 2008).

- 2) Some unsuitable topics and issues may be available to students, which may cause serious problems (Singhal, 1997).
- 3) The absence of facilities can be a barrier for conducting technology in language classrooms (Corrêa, 2001; Han, 2008).
- 4) Spending time on the Internet can be fun, though time consuming at times (Cabrini Simões, 2007; Corrêa, 2001).
- 5) Computers can only do what they are programmed to do, so some students are never interested in learning through technology.
- 6) Unexpected situations cannot be controlled due to technological barriers (AbuSeileek & Abu Sa'aleek, 2012).
- 7) Some authors think that teachers should not use technology as abstract thinking should not be replaced by imaginative thinking (Shyamlee & Phil, 2012).
- 8) Finally, teachers' negative attitude towards technology is a crucial barrier (Fang & Warschauer, 2004; McGrail, 2005).

In recent years, significant investigations have been conducted to introduce different technologies such as mobile, website, weblog, internet, video, and the like (e.g., Belz, 2002; Belz & Thorne, 2006; O'Dowd, 2003; Prensky, 2007; Salaberry, 2001). However, in the field of foreign languages, most investigations have explored only one or two technological tools within a specific context. This study aims to fill a gap in the current research by researching various technologies used in two different contexts within language learning classes.

3. Conceptual framework: The multicomponent model of attitude

Attitude, from a psychological point of view, is the way in which a person expresses either their favor or disfavor towards anything such as a person, place, etc. Although finding a precious definition of attitude is a controversial issue, Eagly & Chaiken (1998) defined attitude as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor” (p. 1). Our evaluation of an attitude could range from extremely positive to extremely negative, at the same time an individual can hold a different attitude from another one towards the same object (Wood, 2000). In Wenden's (1998) view, attitude is a set of “learned motivations, valued beliefs, evaluations, what one believes is acceptable, or responses oriented towards approaching or avoiding” (p. 52). The term “attitude” for Mantle-Bromley refers to “affect and an evaluative, emotional reaction” (Mantle-Bromley, 1995, p. 381). Zimbardo and Leippe (1991) believed that attitude is an evaluative tendency towards an object, which a person possesses based upon cognitions,

affective reactions and behavioral intentions; past behaviors may affect cognitions, affective responses, and future intentions and behaviors.

Based on the multicomponent model of attitude, the construct of attitude contains (1) cognitive; (2) behavioral; and (3) affective components (Fishbein & Ajzen, 1975; Kiesler, Collins & Miller, 1969; Mantle-Bromley, 1995; Mantle-Bromley & Miller, 1991).

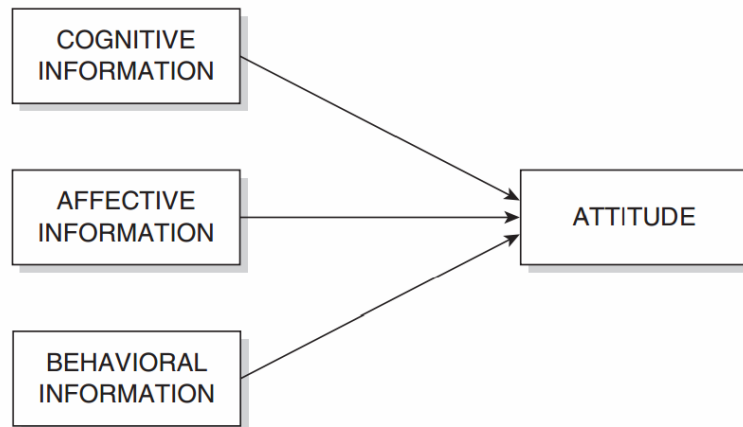


Figure 1. The Multicomponent Model of Attitude

The cognitive component refers to the amount of knowledge a person has on a specific topic. The cognitive component of a language learner regarding CALL would be based on computer literacy (Maushak & Simonson, 2001). The overt performance of a person towards an object is a behavioral component of their attitude. In other words, the behavioral component refers to appreciation or dealings related to attitude. In language learning, for instance, the learners with a positive attitude towards the target language are keen on possessing constructive learning behaviors. Therefore, this learner can get more achievements than a student with a negative attitude (Donato, Antonek & Tucker, 1994; 1996). Such a component of attitude in CALL relates to the experience of the language learner in using computers and/or other technologies for language learning. According to previous research, it could be noticed that the more experience in using computer, the more positive attitudes towards computers and vice versa (Maushak & Simonson, 2001). The affective component refers to an attitude object. The feelings or emotions which are linked to an attitude object shape the affective component. That is, the fact that students considered that CALL tools and devices made their learning less anxious and/or easy to use deals with the affective component of their attitudes. Having said that, Breckler (1984) reported that although the cognitive, behavioral and affective components of attitude are not the same, they are not completely independent. In other words, these components have a synergetic relation. When a

person has a positive belief about an attitude object, they possess both affective and behavioral associations with the object (Breckler, 1984; Breckler & Berman, 1991; Breckler & Wiggins, 1989; 1991).

4. Methodology

4.1. Research Design

This cross-cultural study has used mixed methods research design because both quantitative and qualitative data provide a better understanding of the research. In this design, two different methods were used to obtain triangulated results about a single topic.

The convergent is an efficient design in which both types of data are collected during one phase of the research and at the same time. Moreover, it is possible to collect and analyze each type of data separately and independently.

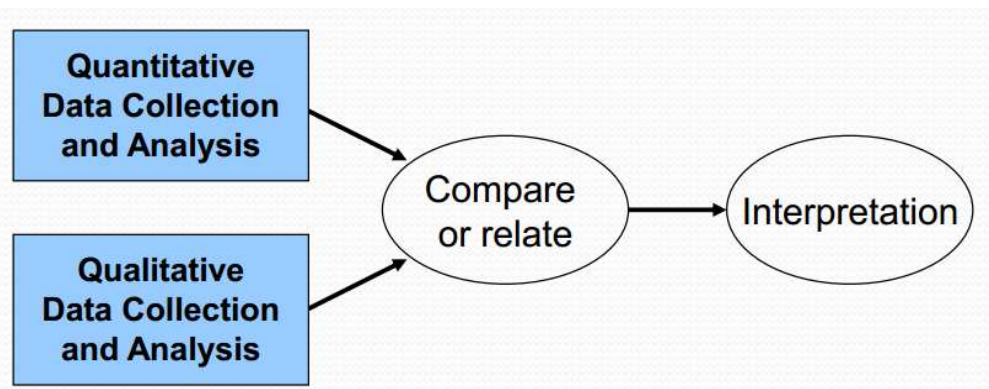


Figure 2. Prototypical version of the convergent parallel design (Creswell & Plano Clark, 2011, p. 69)

4.2. Participants

As shown in Table 1, female was the dominant sex in the sample with over three quarters of the participants (75.2%). Only 103 of the 415 participants of the sample were male.

Table 1. Distribution of different sexes in the sample

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------|-----------|---------|---------------|--------------------|
| MALE | 103 | 24.8 | 24.8 | 24.8 |
| FEMALE | 312 | 75.2 | 75.2 | 100.0 |
| Total | 415 | 100.0 | 100.0 | |

Undergraduate and postgraduate learners had almost equal proportion in the sample – 38.1 and 39.3, respectively. The minority group in terms of education level was the graduate learners, who were 94 participants.

Table 2. Distribution of different education levels in the sample

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------|-----------|---------|---------------|--------------------|
| UNDERGRADUATE | 158 | 38.1 | 38.1 | 38.1 |
| GRADUATE | 94 | 22.7 | 22.7 | 60.7 |
| POSTGRADUATE | 163 | 39.3 | 39.3 | 100.0 |
| Total | 415 | 100.0 | 100.0 | |

Regarding age, as shown in Table 3, the largest category of participants (158 learners) fell within the age range between 18 and 23. The second and third largest groups were those between 24 to 29 years old (27.2%), and that of over 35 (18.3%), respectively. The smallest group in the sample ranged in age between 30 and 35, comprising only 16.4 % of the sample.

Table 3. Distribution of age in the sample

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| Between 18 and 23 | 158 | 38.1 | 38.1 | 38.1 |
| Between 24 and 29 | 113 | 27.2 | 27.2 | 65.3 |
| Between 30 and 35 | 68 | 16.4 | 16.4 | 81.7 |
| Between 36 and above | 76 | 18.3 | 18.3 | 100.0 |
| Total | 415 | 100.0 | 100.0 | |

Table 4 shows the frequency distribution of the participants by country. Iran, Kuwait, and Japan were the nations with the largest number of participants, with 145, 95, and 17 learners, respectively.

Table 4. Distribution of nationalities in the sample

| Country | F | % | Valid % | Cumulative % | Country | F | % | Valid % | Cumulative % |
|------------|---|-----|---------|--------------|--------------|----|------|---------|--------------|
| Algeria | 5 | 1.2 | 1.2 | 1.2 | Korea | 1 | .2 | .2 | 54.7 |
| Armenia | 1 | .2 | .2 | 1.4 | Kuwait | 95 | 22.9 | 22.9 | 77.6 |
| Australia | 1 | .2 | .2 | 1.7 | Laos | 1 | .2 | .2 | 77.8 |
| Austria | 1 | .2 | .2 | 1.9 | Libya | 1 | .2 | .2 | 78.1 |
| Azerbaijan | 2 | .5 | .5 | 2.4 | Malaysia | 5 | 1.2 | 1.2 | 79.3 |
| Bangladesh | 2 | .5 | .5 | 2.9 | Mexico | 6 | 1.4 | 1.4 | 80.7 |
| Belgium | 3 | .7 | .7 | 3.6 | Morocco | 6 | 1.4 | 1.4 | 82.2 |
| Bosnia | 2 | .5 | .5 | 4.1 | N Sudan | 1 | .2 | .2 | 82.4 |
| Brazil | 5 | 1.2 | 1.2 | 5.3 | Netherlands | 1 | .2 | .2 | 82.7 |
| Canada | 2 | .5 | .5 | 5.8 | Nigeria | 1 | .2 | .2 | 82.9 |
| Chile | 1 | .2 | .2 | 6.0 | Pakistan | 15 | 3.6 | 3.6 | 86.5 |
| Colombia | 2 | .5 | .5 | 6.5 | Palestine | 1 | .2 | .2 | 86.7 |
| Cambodia | 1 | .2 | .2 | 6.7 | Philippines | 4 | 1.0 | 1.0 | 87.7 |
| Cyprus | 1 | .2 | .2 | 7.0 | Poland | 2 | .5 | .5 | 88.2 |
| Ecuador | 2 | .5 | .5 | 7.5 | Qatar | 2 | .5 | .5 | 88.7 |
| Egypt | 2 | .5 | .5 | 8.0 | Romania | 2 | .5 | .5 | 89.2 |
| France | 2 | .5 | .5 | 8.4 | Russia | 3 | .7 | .7 | 89.9 |
| Germany | 1 | .2 | .2 | 8.7 | Saudi Arabia | 1 | .2 | .2 | 90.1 |
| Ghana | 1 | .2 | .2 | 8.9 | Serbia | 1 | .2 | .2 | 90.4 |
| Greece | 2 | .5 | .5 | 9.4 | Slovakia | 3 | .7 | .7 | 91.1 |

| | | | | | | | | | |
|------------|-----|------|------|------|-----------|----|-----|-----|-------|
| India | 11 | 2.7 | 2.7 | 12.0 | Spain | 13 | 3.1 | 3.1 | 94.2 |
| Indonesia | 1 | .2 | .2 | 12.3 | Syria | 1 | .2 | .2 | 94.5 |
| Iran | 145 | 34.9 | 34.9 | 47.2 | Thailand | 2 | .5 | .5 | 94.9 |
| Iraq | 4 | 1.0 | 1.0 | 48.2 | Turkey | 2 | .5 | .5 | 95.4 |
| Ireland | 2 | .5 | .5 | 48.7 | UAE | 1 | .2 | .2 | 95.7 |
| Italy | 1 | .2 | .2 | 48.9 | UK | 3 | .7 | .7 | 96.4 |
| Japan | 17 | 4.1 | 4.1 | 53.0 | USA | 10 | 2.4 | 2.4 | 98.8 |
| Jordan | 4 | 1.0 | 1.0 | 54.0 | Venezuela | 3 | .7 | .7 | 99.5 |
| Kazakhstan | 2 | .5 | .5 | 54.5 | Vietnam | 1 | .2 | .2 | 99.8 |
| | | | | | Yemen | 1 | .2 | .2 | 100.0 |
| Total | 415 | 100 | 100 | | | | | | |

Overall, Table 5 outlines that 34.7% of the learners in the sample were Iranians, and 65.3% were foreigners. Hence, there were 127 more foreign participants in the sample than the Iranians.

Table 5. Distribution of Iranians and non-Iranians in the sample

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------|-----------|---------|---------------|--------------------|
| Iranian | 144 | 34.7 | 34.7 | 34.7 |
| Non-Iranian | 271 | 65.3 | 65.3 | 100.0 |
| Total | 415 | 100.0 | 100.0 | |

4.3. Instrumentation

In order to collect data about the attitudes of English language students, an online five-section questionnaire was administered through Google Forms via the following link: <http://bit.ly/2teLmgc>. The online questionnaire comprised 48 closed- and open-item questions, distributed into 5 sections (see Table 6 below). The first section of the questionnaire was designed to gather data about participants' demographic information: gender, current studying level, age, continent, and country. The second section aimed to investigate the level of computer literacy of the students through 10 items. The first nine items of this section were "Can you" questions with "Yes and No" options; and the last item was a multiple-choice question about the overall self-evaluation of students about their computer literacy. The third section targeted the students' attitude towards Computer-Assisted Learning (CAL). This section comprised ten 7-point Likert-scale items that ranged from strongly disagree (1) to strongly agree (7). Items 11-13 aimed to gather information about the students' attitudes towards computer; and items 14-19 were designed to measure students' attitude towards their willingness to use computer as a learning medium. The fourth section was designed to explore the students' attitudes towards Computer-Assisted Language Learning (CALL) through 20 Likert-scale items. Items 20-27 dealt only with CALL. Items 28 and 29 aimed to find out students' ideas about computers' feedback. Items 30-32 were about the role of CALL as a facilitator of communication. Item 33 concerned the evaluation of students via

computer. Items 34-40 collected data about students' attitude towards the development of language skills, grammar, vocabulary and cultural awareness via computers. The final part of the questionnaire in the last section consisted of two open-ended items, 41 and 42, which prompted students to give their experience in using English language software or any other related experiences with CALL.

Table 6. Distribution of questions on the questionnaire

| Sections | Section I | Section II | Section III | Section IV | Section V |
|----------|------------------------|-------------------|---------------------------------|----------------------------------|----------------------|
| Block | Background information | Computer literacy | Students' attitudes towards CAL | Students' attitudes towards CALL | Open-ended questions |
| Total | 6 | 10 | 10 | 20 | 2 |

4.4. Data analysis

This study set out to compare the potential significant difference between the attitude of Iranian and non-Iranian English learners both to computers in general, and to computer-assisted language learning (CALL). Moreover, the potentiality of any statistically significant differences between age, sex, and education level were scrutinized.

5.1. Checking the reliability of the questionnaire

The questionnaire contained 42 questions plus demographic data. It measured three different constructs distributed into three categories. After administering this questionnaire to the sample, the researchers first checked the validity of the case processing. All the 415 cases of the sample were valid, and SPSS did not exclude the scores of any of the learners from the processing. Questions 1 to 10 of the questionnaire measured the construct of computer literacy. The SPSS calculated the Cronbach's Alpha Coefficient of .569 for this construct. That is to say, the first construct of the questionnaire enjoys an acceptable level of reliability. The second construct of the questionnaire was the general attitude of the learners towards the application of computers, and it was measured in questions 11 to 20. The SPSS software calculated the Cronbach's Alpha coefficient for the second construct to be .842. This indicated that the second construct enjoyed ample internal consistency, as well. This construct measured the attitude of the learners toward the application of computers, and it was stretched from question 21 to 40. The Cronbach's Alpha coefficient for this construct was .866, which indicated a high degree of internal consistency. Finally, the researchers calculated the internal consistency of the whole questionnaire, and the Alpha of .912 could be reported for it. Hence,

it could be concluded that not only do each of the three constructs enjoy ample reliability individually, but the whole questionnaire also was highly reliable.

5.2. Checking the validity of the questionnaire

In order to make sure of the validity of the questionnaire, the researchers decided to apply the Factor Analysis Method. Field (2005) proposed that, in general, taking over 300 cases for sampling analysis is probably adequate for the successful administration of factor analysis. Hence, this study, with 450 cases in the sample, met this standard for the administration of factor analysis.

The correlation matrix in the factor analysis reported the determinant of 8.18 and the error of determinant of -8 for the whole questionnaire. Moreover, as depicted in Table 7, the Kaiser-Meyer-Olkin Measure, which measures strength of the relationship among variables, was .895. According to Kaiser and Rice (1974), 0.5 is minimum (barely acceptable) value for KMO, values between 0.7 and 0.8 are acceptable values, and KMO values above 0.9 are considered good. Thus, the KMO value of .895 was optimal.

Table 7. Basic factor analysis tests

| KMO and Bartlett's Test | | |
|--------------------------------------------------|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .895 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 6524.740 |
| | Df | 780 |
| | Sig. | .000 |

Table 7 also indicates that the significant level of Bartlett's test of Sphericity, which is another indication of the strength of the relationship among variables, was $.000 < .05$, which meant that the correlation matrix was not an identity matrix. Hence, the administration of the factor analysis was possible and proper. Additionally, the communalities analysis shows how much of the variance in the variables has been accounted for by the extracted factors. According to the findings, questions 25, 24, and 7 were the questions of which the lowest percentage of variance was accounted for (.374, .399, and .416, respectively). By contrast, the highest ratio of the variance was accounted for in questions 3, 31, and 30 (.781, .755, and .753, respectively). All the other accounted-for variances fell within the range of .374 and .781.

All the factors extractable from the analysis along with their eigenvalues, the percent of variance attributable to each factor, as well as the cumulative variance of the factor and the previous factors. 9 components had the eigenvalues of larger than 1; hence, it could be argued

that factor analysis managed to extract 9 components from this questionnaire. The first component accounted for 25.06% of the variance, whereas the ninth component only accounted for 2.7% of the variance. The remaining 31 factors had the eigenvalues smaller than 1; they, thus, were considered insignificant in the analysis. The majority of the variables (23 of the 40 variables) have been loaded on factor 1. Two of the variables are loaded on factor 2, and the rest of the factors have only one variable loaded on them. For factors 4 and 6, on the contrary, no loaded variables can be reported.

The rotated component matrix has reduced the number factors on which the variables have high loadings to make the interpretation of the analysis easier. As it could be reported, the majority of the variables are loaded on factors 1, 2 and 3. Factor 9, on the other hand, has only one variable loaded.

Overall, it could be concluded from the statistical analyses of this section that the researcher-designed questionnaire enjoyed an ample degree of internal consistency as well as validity, hence it was fully functional to be administered as the main tool for data collection.

4.3. Descriptive statistics

After the questionnaire had been administered to the 415 members of the sample, the papers were scored by the researchers and the quantitative data were imported to SPSS. Initially, the descriptive statistics were calculated. As shown in Table 8, the Skewness ratio for the scores of the whole questionnaire was -8.2, which was far beyond the normal range of ± 1.96 . Therefore, the data were not normally distributed and they are regarded as non-parametric. The mean of the whole sample was 157.54, and the standard deviation was 26.64.

Table 8. Descriptive statistics of the questionnaire

| | N | Mean | Std. Deviation | Variance | Skewness | | |
|---------------|-----|--------|----------------|----------|-----------|------------|-------|
| | | | | | Statistic | Std. Error | Ratio |
| Questionnaire | 415 | 157.56 | 26.64 | 710.08 | -.984 | .120 | -8.2 |

In addition, the researchers checked out the descriptive statistics of each construct separately. As Table 9 outlines, the Skewness ratio for all the three constructs (11.07, -10.92, and -05.29) did not fall within the normal distribution range of ± 1.96 . As a result, none of the constructs was normally distributed, and the data for each of them were non-parametric. It could also be reported that for computer literacy, the mean was 12.73 and the standard deviation was 1.15. For general attitude to computers, the mean was 51.97 and the standard

deviation was 10.32. And finally, the mean and the standard deviation for attitude toward computers were 92.85 and 18.75, respectively.

Table 9. Descriptive statistics of the three constructs

| | N | Mean | Std. Deviation | Variance | Skewness | | |
|-------------------|-----|-------|----------------|----------|-----------|------------|--------|
| | | | | | Statistic | Std. Error | Ratio |
| Computer Literacy | 415 | 12.73 | 1.15509 | 1.334 | 1.329 | .120 | 11.07 |
| CAL Attitude | 415 | 51.97 | 10.32768 | 106.661 | -1.311 | .120 | -10.92 |
| CALL Attitude | 415 | 92.85 | 18.75801 | 351.863 | -.635 | .120 | -5.29 |

Except for questions 17, 20, 32, and 33, whose Skewness ratios fell within the normal range, the data for the rest of the questions were not distributed normally.

4.4. Checking the overall differences between the variables

Before checking the research questions individually, the researchers decided to check whether or not there were any statistically significant differences among the data for all the four independent variables (age, sex, level of education, and being/not being Iranian). To do this, the researchers administered the Multivariate Analysis of Variance (MANOVA). As Table 10 shows, all the multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace, Roy's Largest Root) depicted a significant difference among the four variables ($p = .000$, $F = 6.22$, 43.18 , 478.46 , and 1445.68 , respectively). This means that the four variables had a holistic significant difference regarding the attitude of the sample toward the application of computers.

Table 10. Group effect multivariate tests

| Effect | | Value | F | Hypothesis df | Error df | Sig. |
|-------------|--------------------|---------|---------|---------------|----------|------|
| SEX * LEVEL | Pillai's Trace | 1.263 | 6.129 | 132.000 | 1113.000 | .000 |
| | Wilks' Lambda | .004 | 43.188 | 132.000 | 1106.656 | .000 |
| * AGE * | Hotelling's Trace | 171.778 | 478.463 | 132.000 | 1103.000 | .000 |
| | Roy's Largest Root | 171.456 | 1445.68 | 44.000 | 371.000 | .000 |

The full factorial MANOVA did not report any significant difference for the sex, age, and education level alone. However, it reported a statistically significant difference for the education level variable ($p = .044$, $.044$, $.043$, and $.009$). Besides, the full factorial MANOVA did not report any other significant difference in any of the analyses involving two or three factors. Nevertheless, only the Roy's Largest Root reported a significant difference for the involvement of the three factors of level, age, and Iranian/non-Iranian ($p = .011$).

4.5. Checking the research hypotheses

After determining the existence of a statistically significant difference among the four factors by group effect MANOVA, the researchers decided to administer independent statistical tests, and check the research hypotheses one by one.

4.5.1. Checking the first research hypothesis

The first research hypothesis was concerned with being Iranian or non-Iranian, and its influence on English language students' attitudes toward CALL. Since the data for the questionnaire were not normally distributed (Skewness ratio = -8.2), the researchers applied the non-parametric test of Mann-Whitney to check this research question. As Table 11 shows, the Asymptotic significant level of the Mann-Whitney test was $.180 > .05$. Hence, the first research hypothesis of this study was not rejected, which means that there were not any significant differences between the attitudes of Iranian and non-Iranian English language students toward the application of CALL.

Table 11. Mann-Whitney test on Iranian/non-Iranian variable

| | Overall |
|------------------------|-----------|
| Mann-Whitney U | 17952.000 |
| Wilcoxon W | 28392.000 |
| Z | -1.341 |
| Asymp. Sig. (2-tailed) | .180 |

To delve into this matter further, the researchers decided to investigate whether or not there were any significant differences between the attitudes of Iranian and non-Iranian students in every construct. Since the data for all the three constructs were not normally distributed (Skewness ratios = 11.07, -10.92, and -05.29), the researchers opted for the non-parametric test of Mann-Whitney. As Table 12 shows, the Mann-Whitney test revealed that there were significant differences between the computer literacy as well as between the attitudes of Iranian and non-Iranian English students toward CALL ($p = .000$ and $.033$, respectively). Thereafter, it could be argued that as far as computer literacy and attitudes toward CALL are concerned, statistically significant differences exist between the data drawn from Iranian and non-Iranian English students. The only construct on which Iranian and non-Iranian students did not report any significant difference was the general attitude toward CAL ($p = .343 > .05$).

Table 12. Mann-Whitney test on Iranian/non-Iranian variable for the three constructs

| | Computer Literacy | CAL Attitude | CALL Attitude |
|------------------------|-------------------|--------------|---------------|
| Mann-Whitney U | 15285.500 | 18410.000 | 17038.500 |
| Wilcoxon W | 25725.500 | 55266.000 | 27478.500 |
| Z | -3.840 | -.948 | -2.127 |
| Asymp. Sig. (2-tailed) | .000 | .343 | .033 |

In order to investigate the data even further, the researchers administered the Mann-Whitney test for all the 40 items of the questionnaire. The findings revealed that 16 out of 40 questions reported a significant difference between the attitudes of Iranian and non-Iranian English students towards CALL, and 24 questions did not report any difference.

4.5.2. Checking the second research hypothesis

The second research hypothesis was concerned with being male and female, and its influence on English language students' attitudes toward CALL. Since the data for the questionnaire were not normally distributed (Skewness ratio = -8.2), the researchers applied the non-parametric test of Mann-Whitney to check this research question. As it could be accessed in Table 13, Mann-Whitney test did not report any significant differences ($p = .217 > .05$). As a result, the second research hypothesis of this study was not rejected, as no significant difference existed between the attitudes of male and female English language students toward CALL.

Table 13. Mann-Whitney Test on sex variable

| | Overall |
|------------------------|-----------|
| Mann-Whitney U | 14766.500 |
| Wilcoxon W | 20122.500 |
| Z | -1.233 |
| Asymp. Sig. (2-tailed) | .217 |

To delve into this matter further, the researchers decided to investigate whether or not there were any significant differences between the attitudes of male and female students in every construct. Since the data for all the three constructs were not normally distributed (Skewness ratios = 11.07, -10.92, and -05.29), the researchers opted for the non-parametric test of Mann-Whitney. Table 4.20 reports a significant difference between the computer literacy of men and women ($p = .027 < .05$). However, it does not report any statistically meaningful differences between the attitudes towards CAL and attitudes of male and female students towards CALL ($p = .401$ and $.06$, respectively). Hence, it could be concluded that

despite the difference between their computer literacy, male and female English students did not have any significance difference in their attitudes toward CALL.

Table 14. Mann-Whitney test on sex variable for the three constructs

| | Computer Literacy | General Attitude | Attitude |
|------------------------|-------------------|------------------|-----------|
| Mann-Whitney U | 13856.500 | 15181.500 | 14079.500 |
| Wilcoxon W | 19212.500 | 64009.500 | 19435.500 |
| Z | -2.214 | -.841 | -1.884 |
| Asymp. Sig. (2-tailed) | .027 | .401 | .060 |

In order to investigate the data even further, the researchers administered the Mann-Whitney test for all the 40 items of the questionnaire. The results showed that of the 40 questions, only 9 questions reported a significant difference between the attitude of male and female English students toward CALL, whereas in the other 31 questions, no significant differences could be reported.

4.5.3. Checking the third research hypothesis

The third research hypothesis of this study was concerned with education level and its influence on the attitudes of English language learners toward CALL. Since the data for education level variable was not distributed normally (Skewness ratio= -8.2), the researchers selected the non-parametric Kruskal Wallis test for this purpose. As Table 15 depicts, the Asymptotic Significant level of Kruskal Wallis was .566, which is larger than .05, and hence it does not report any significant differences. Accordingly, the third research hypothesis of this study was not rejected, and no significant differences among the attitudes of English students with different education levels toward CALL was reported.

Table 15. Kruskal Wallis test on education level variable

| | Overall |
|-------------|---------|
| Chi-square | 1.138 |
| Df | 2 |
| Asymp. Sig. | .566 |

To delve into this matter further, the researchers decided to perform the Scheffe test as the post-hoc analysis. Table 16 reveals that any of the education levels staged a significant difference in the post-hoc analysis ($p = .958, .702, \text{ and } .911$). Hence, any of the two groups of learners with different education level reported a significant difference in their attitude toward CALL.

Table 16. Post-hoc Scheffe test on education level variable

| (I) LEVEL | (J) LEVEL | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---------------|---------------|-----------------------|------------|------|-------------------------|-------------|
| | | | | | Lower Bound | Upper Bound |
| Undergraduate | Graduate | 1.01252 | 3.47 | .958 | -7.5280 | 9.5530 |
| | Postgraduate | 2.50854 | 2.971 | .702 | -4.8114 | 9.8285 |
| Graduate | Undergraduate | -1.01252 | 3.47 | .958 | -9.5530 | 7.5280 |
| | Postgraduate | 1.49602 | 3.45 | .911 | -6.9955 | 9.9875 |
| Postgraduate | Undergraduate | -2.50854 | 2.97 | .702 | -9.8285 | 4.8114 |
| | Graduate | -1.49602 | 3.45 | .911 | -9.9875 | 6.9955 |

It could be learned from Table 17 that all the English students in the three different education level groups enjoyed means which fell within a homogeneous subset. Besides, the overall significant level of the three groups in the same subset was $.751 > .05$, which meant no meaningful differences among the groups could be reported.

Table 17. Means for groups in different subsets on education level variable

| LEVEL | N | Subset for alpha = 0.05 |
|---------------|-----|-------------------------|
| | | 1 |
| Postgraduate | 163 | 156.2699 |
| Graduate | 94 | 157.7660 |
| Undergraduate | 158 | 158.7785 |
| Sig. | | .751 |

Moreover, the researchers decided to perform the Kruskal Wallis test on each of the constructs to probe where significant differences among the scores of learners with different education levels could be reported. As Table 18 illustrates, Kruskal Wallis reported significant differences among the attitudes of learners with different education levels in computer literacy as well as in attitude towards CAL ($p = .041$ and $.006$, respectively). However, there was no significant difference between the attitudes toward CALL among the English learners of different education levels.

Table 18. Kruskal Wallis test for each construct on education level variable

| | Computer Literacy | CAL Attitude | CALL Attitude |
|-------------|-------------------|--------------|---------------|
| Chi-square | 6.386 | 10.290 | 5.721 |
| df | 2 | 2 | 2 |
| Asymp. Sig. | .041 | .006 | .057 |

To delve into details further, the researchers also applied Scheffe post-hoc analysis to each of the constructs for different levels of education. The results, as outlined in Table 19, depict that for the construct of computer literacy, significant statistical difference only existed between the literacy of undergraduate and postgraduate English students ($p = .020$). In the

general attitude, however, the only meaningful difference was reported between undergraduate and graduate English students ($p = .022$). But no significant difference was reported among the three groups in the construct of attitudes.

Table 19. Post-hoc Scheffe test for each construct on education level variable

| Dependent Variable | (I) LEVEL | (J) LEVEL | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|--------------------|---------------|---------------|-----------------------|------------|-------|-------------------------|-------------|
| | | | | | | Lower Bound | Upper Bound |
| Computer Literacy | Undergraduate | Graduate | .22825 | .14938 | .312 | -.1387 | .5952 |
| | | Postgraduate | .35983* | .12803 | .020 | .0453 | .6744 |
| | Graduate | Undergraduate | -.22825 | .14938 | .312 | -.5952 | .1387 |
| | | Postgraduate | .13158 | .14852 | .676 | -.2333 | .4964 |
| | Postgraduate | Undergraduate | -.35983* | .12803 | .020 | -.6744 | -.0453 |
| | | Graduate | -.13158 | .14852 | .676 | -.4964 | .2333 |
| General Attitude | Undergraduate | Graduate | -3.70172* | 1.33466 | .022 | -6.9805 | -.4229 |
| | | Postgraduate | -2.36802 | 1.14391 | .119 | -5.1782 | .4422 |
| | Graduate | Undergraduate | 3.70172* | 1.33466 | .022 | .4229 | 6.9805 |
| | | Postgraduate | 1.33370 | 1.32700 | .604 | -1.9263 | 4.5937 |
| | Postgraduate | Undergraduate | 2.36802 | 1.14391 | .119 | -.4422 | 5.1782 |
| | | Graduate | -1.33370 | 1.32700 | .604 | -4.5937 | 1.9263 |
| Attitude | Undergraduate | Graduate | 4.48600 | 2.43257 | .184 | -1.4900 | 10.4620 |
| | | Postgraduate | 4.51674 | 2.08491 | .097 | -.6052 | 9.6387 |
| | Graduate | Undergraduate | -4.48600 | 2.43257 | .184 | -10.4620 | 1.4900 |
| | | Postgraduate | .03074 | 2.41861 | 1.000 | -5.9110 | 5.9725 |
| | Postgraduate | Undergraduate | -4.51674 | 2.08491 | .097 | -9.6387 | .6052 |
| | | Graduate | -.03074 | 2.41861 | 1.000 | -5.9725 | 5.9110 |

The analysis of the means also outlined no significant difference between the means that fell within the same homogeneous subsets. For the construct of computer literacy, the mean for the graduate students fell within the same subset with the mean of the postgraduate students on the one hand, and fell within the same homogeneous subset with that of the undergraduates on the other hand. This case mirrors for the mean of the postgraduate learners for the construct of general attitude. On the one hand, it falls within the same subset with the mean of the undergraduate group, and on the other hand, it is in the same subset with the mean of the graduate groups. In the construct of attitude, however the means of the three groups fall under the same subset.

Table 20. Means for groups in different subsets for each construct on education level variable

| Construct | Computer Literacy | CAL Attitude | | CALL Attitude | |
|--------------|-------------------------|---------------|-------------------------|---------------|-------------------------|
| | LEVEL | LEVEL | LEVEL | LEVEL | LEVEL |
| | Subset for Alpha = 0.05 | | Subset for Alpha = 0.05 | | Subset for Alpha = 0.05 |
| | 1 | | 1 2 | | 1 |
| Postgraduate | 12.57 | Undergraduate | 50.20 | Postgraduate | 91.12 |

| | | | | | | | |
|---------------|-------|-------|--------------|-------|-------|---------------|-------|
| Graduate | 12.70 | 12.7 | Postgraduate | 52.57 | 52.57 | Graduate | 91.15 |
| Undergraduate | | 12.93 | Graduate | | 53.90 | Undergraduate | 95.64 |
| Sig. | .653 | .277 | | .178 | .577 | | .151 |

The researchers also administered Kruskal Wallis test for all the 40 questions in the questionnaire in order to investigate which of them report a significant difference among the attitudes of students with different education levels toward CALL, and which of them do not report any difference. As a result, only 16 of the 40 questions reported a significant difference among the attitudes of English students with different education levels toward CALL, and 24 questions revealed no differences.

5.5.4. Checking the fourth research hypothesis

The fourth research hypothesis of this study was concerned with age and its influence on the attitudes of English language learners toward CALL. Since the data for age variable was not distributed normally (Skewness ratio= -8.2), the researchers selected the non-parametric Kruskal Wallis test for this purpose. As Table 4.29 outlines, Kruskal Wallis did not report any significant differences ($p = .285 > .05$). Hence, the fourth research hypothesis of this study was not rejected, and the data analysis did not depict any statistically significant difference among the attitudes of learners of different age groups toward CALL.

Table 21. Kruskal Wallis test on age variable

| | Overall |
|-------------|---------|
| Chi-square | 3.792 |
| Df | 3 |
| Asymp. Sig. | .285 |

To delve into this matter further, the researchers decided to perform the Scheffe test as the post-hoc analysis. The Scheffe test, as illustrated in Table 22, did not report any significant difference among the attitudes of different age groups toward CALL ($p = .371, .638, \text{ and } .977 > .05$).

Table 22. Post-Hoc Scheffe test on age variable

| (I) Age | (J) Age | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval Lower Bound | Upper Bound |
|---------|--------------|-----------------------|------------|------|-------------------------------------|-------------|
| 18-23 | 24-29 | 5.81830 | 3.27 | .371 | -3.3884 | 15.0250 |
| | 30-35 | 5.02848 | 3.86 | .638 | -5.8098 | 15.8668 |
| | 35 and above | 1.67322 | 3.71 | .977 | -8.7586 | 12.1051 |
| 24-29 | 18-23 | -5.81830 | 3.27 | .371 | -15.0250 | 3.3884 |
| | 30-35 | -.78982 | 4.08 | .998 | -12.2591 | 10.6794 |
| | 35 and above | -4.14509 | 3.94 | .777 | -15.2311 | 6.9409 |
| 30-35 | 18-23 | -5.02848 | 3.81 | .638 | -15.8668 | 5.8098 |

| | | | | | | |
|--------------|--------------|----------|------|------|----------|---------|
| | 24-29 | .78982 | 4.08 | .998 | -10.6794 | 12.2591 |
| | 35 and above | -3.35526 | 4.44 | .903 | -15.8294 | 9.1188 |
| 35 and above | 18-23 | -1.67322 | 3.71 | .977 | -12.1051 | 8.7586 |
| | 24-29 | 4.14509 | 3.94 | .777 | -6.9409 | 15.2311 |
| | 30-35 | 3.35526 | 4.44 | .903 | -9.1188 | 15.8294 |

The analysis of the means, as shown in Table 23, reported no significant differences ($p = .529 > .05$). It also conveyed that the means of all the age groups fell within a homogeneous subset.

Table 23. Means for groups in different subsets on age variable

| LEVEL | N | Subset for Alpha = 0.05 1 |
|--------------|-----|------------------------------|
| 24-29 | 113 | 154.4602 |
| 30-35 | 68 | 155.2500 |
| 35 and above | 76 | 158.6053 |
| 18-23 | 158 | 160.2785 |
| Sig. | | .529 |

Moreover, the researchers decided to perform the Kruskal Wallis test on each of the constructs to probe where significant differences among the scores of learners of different age groups could be reported. According to the results, as shown in Table 24, significant differences could be reported among the attitudes of English students in different age groups toward CALL for the construct of computer literacy as well as for the construct of attitude towards CALL ($p = .003$ and $.019 < .05$, respectively). However, the attitude towards CAL did not report any significant differences ($p = .116 > .05$).

Table 24. Kruskal Wallis test for each construct on age variable

| | Computer Literacy | CAL Attitude | CALL Attitude |
|-------------|-------------------|--------------|---------------|
| Chi-square | 13.964 | 5.909 | 9.969 |
| df | 3 | 3 | 3 |
| Asymp. Sig. | .003 | .116 | .019 |

In the post-hoc analysis of each construct through Scheffe test, only two significant differences could be reported. There was a significant difference between the computer literacy of 24-29 age group and that of 18-23 ($p = .003 < .05$). Similarly, there was a difference between the attitudes of the same two age groups toward CALL. No other difference was reported between any other two groups in any other constructs.

The analysis of the means in the post-hoc test, also, did not reveal any differences between the means of any two groups. In the construct of general attitude as well as in the construct of attitude, the means of all three groups fell within the same homogeneous subset. In the construct of computer literacy, however, the mean of 24-29 and the mean of 18-23 age

groups fell under to separate subsets. The mean of the 30-35 and the mean of the 35 and above age groups fell within both subsets.

Table 25. Means for groups in different subsets for each construct on age variable

| Construct | Computer Literacy | | General Attitude | | Attitude | |
|------------|-------------------------|-------|------------------|-------------------------|------------|-------------------------|
| | Subset for Alpha = 0.05 | | Age | Subset for Alpha = 0.05 | Age | Subset for Alpha = 0.05 |
| Age | 1 | | 1 | 1 | | |
| 24-29 | 12.48 | | 18-23 | 50.8354 | 24-29 | 89.5575 |
| 35 & above | 12.59 | 12.59 | 30-35 | 52.0735 | 30-35 | 90.5147 |
| 30-35 | 12.66 | 12.66 | 24-29 | 52.4159 | 35 & above | 92.4342 |
| 18-23 | | 13.01 | 35 & above | 53.5789 | 18-23 | 96.4241 |
| Sig. | .777 | .089 | | .351 | | .098 |

Finally, the researchers decided to administer the non-parametric test of Kruskal Wallis for all the 40 questions of the questionnaire to report the significant difference. 18 of the 40 questions staged a meaningful difference in the attitude of different age groups toward CALL, and 22 questions did not report any difference.

5.6. Analyzing the qualitative data

Other than the 40 quantitative questions that were analyzed in-depth in the previous sections, the questionnaire also contained two qualitative questions. Question 41 was concerned with the English language students' experience in using English language self-study software. Among the participants, 221 students (about 53.3%) responded to this optional item. Table 26 shows the categories of the CALL software (or applications) collected by the questionnaire. As shown in Table 26, English language students prefer to use the skill-based computer software rather than other types of software. Moreover, among all the software types, "Rosetta Stone" is the most popular one.

Table 26. Categorizing the CALL tools

| Category | | Software/Application | No. of Ss. |
|----------|---------------------------------------------------|----------------------|------------|
| 1 | Comprehensive 4-Skill Instructional Software (33) | Rosetta Stone | 18 |
| | | Englishtown | 1 |
| | | DynEd | 1 |
| | | Wall Street | 1 |
| | | AIEP | 1 |
| | | Byki | 1 |
| | | English Today | 1 |
| | | English For You | 1 |
| | | English World | 1 |
| | | Tell Me More | 7 |

| | | | |
|----|----------------------------------------------------------------|--------------------------------------------|----|
| | | Wordsmith | 2 |
| 2 | Vocabulary Practice Software (3) | Learning Vocabulary with Solving Puzzle | 1 |
| 3 | Audio-Visual Software (7) | TED Talks | 1 |
| | | English through news YouTube | 1 |
| | | | 5 |
| 4 | Teaching Children (4) | Magic English | 1 |
| | | English World | 1 |
| | | Mingoville | 1 |
| | | Clue Friends | 1 |
| 5 | Dictionary Software (12) | Longman Dictionary of Contemporary English | 5 |
| | | Oxford Collocations Dictionary | 1 |
| | | Cambridge English Dictionary | 2 |
| | | Urban Dictionary | 2 |
| | | KAMUSKU Dictionary | 1 |
| | | Merriam-Webster | 1 |
| 6 | Audio Software (6) | Nosrat | 1 |
| | | SATEL | 1 |
| | | McMillan Sounds App | 1 |
| | | BBC News | 1 |
| | | JapanesePod101 | 1 |
| | | Tactics for listening | 1 |
| 7 | Translation Software (27) | ETSAM-English .com | 2 |
| | | Duolingo | 11 |
| | | Google Translate | 13 |
| | | Translation APP | 1 |
| 8 | Idioms Practice Software (3) | American slang 1,2,3 | 1 |
| | | Speak English Like an American | 2 |
| 9 | Exam Preparation Software (12) | Exam essentials | 1 |
| | | TOEIC i phone | 2 |
| | | IELTS Software | 4 |
| | | TOEFL Software | 5 |
| 10 | Interactive Software (4) | SPACE ALC | 2 |
| | | Kahoot | 2 |
| 11 | Course-Book-Based Software (2) | English Files | 1 |
| | | English Result | 1 |
| 12 | Supplementary-Book-Based Software (6) | 504 Essential Words | 2 |
| | | 1100 Words | 1 |
| | | Oxford Living Grammar | 1 |
| | | Oxford Word Skills | 2 |
| 13 | Corpus-Based Software (2) | British National Corpus | 2 |
| 14 | Social Networks (5) | Twitter | 3 |
| | | Instagram | 2 |
| 15 | Alternative Websites (4) | Eteacherenglish.com | 2 |
| | | Wikipedia | 1 |
| | | British Council websites | 1 |
| 16 | Software in General, No Reference to a particular Software (6) | English Dictionaries in General | 1 |
| | | Electronic Dictionaries, Articles, & Books | 4 |
| | | Android Applications in General | 1 |
| | | Software for all the books I am teaching | 3 |

Question 42, which as an open-ended question as well, dealt with the CALL experience of the learners in their own words. Out of the 415 learners of the sample, 211 participants (50.8%) provided acceptable responses for this question. Out of these 211

learners, 91.9% (194 learners) expressed absolutely positive attitudes toward the application of CALL in language learning. These learners used phrases such as “a wonderful experience”, “of great use”, “got great benefits”, “does magic”, “very accommodating”, “an amazing method”, “a by-product of the Internet”, and “a refreshing method of learning” in order to describe their attitude toward CALL in language learning. Some other learners used statements such as “CALL gives you such a heuristic and vicarious mode enriching your experience”, “CALL makes your environment conducive for learning”, “CALL helped me tremendously”, “CALL is worth it”, “The age of blackboard and chalk is over”, “CALL facilitates everything”, “I feel the target language come far closer to me as a learner by CALL”, and “CALL boosts my enthusiasm and self-confidence for learning”. These statements let us see the positive the attitudes of the learners in this study toward CALL, and given the fact that the learners of the sample enjoyed an ample level of generalization regarding their country of origin, it would be plausible to say that the overall attitude of English learners toward CALL is positive.

The researchers found another proof regarding the positive attitude of the sample toward CALL in language learning in the fact that three of the learners (1.42%) expressed they were unlucky since, at their school years, CALL had not been developed and implemented yet. Besides, 12 participants (5.68%) expressed their regret from the fact that their CALL experience was not as much as they wished it to be, and they had planned both to expand their IT skills, and to increase the application of CALL tools in their language learning. Other positive attitudes of learners toward CALL have been classified and laid out in Table 27.

As Table 28 depicts, 32 of the learners (15.16%) described CALL as easy, useful, practical, and effective; and 15 learners (7.1%) mentioned that CALL increased their motivation, promoted their self-confidence, and reduced their anxiety. 12 learners (5.68%) proposed that CALL adds the spice of fun to their classes, and in a significant attitude, 4 learners (1.89%) mentioned that CALL could make up for the lack or absence of exposure to native production in EFL settings.

Table 28. Positive attitudes toward CALL in language learning

| Positive attitudes | No. of Learners |
|---------------------------------------------------------------------------------------|-----------------|
| Easy, useful, practical, and effective | 32 |
| CALL increased their motivation and self-confidence, and it has reduced their anxiety | 15 |
| CALL adds fun to learning, and it is much better than traditional learning methods | 12 |
| Use CALL to produce and present material for the classroom | 9 |
| Used CALL for research purposes | 6 |
| Helpful for self-studying | 6 |

| | |
|-------------------------------------------------------------------------------------|---|
| CALL could make up for the lack/absence of exposure to native English | 4 |
| CALL saves time | 4 |
| CALL can be used anywhere and anytime | 4 |
| Useful for doing homework | 3 |
| Use CALL tools to gain ideas as to how they could teach a particular language point | 3 |

Other than expressing their positive attitudes, the learners in the sample described how they applied CALL in their approaches to study English, as laid out in Table 29. Thirty-six learners stated that they use software such as Google Translate or YouTube Videos to learn English, or Social Networks such as Twitter and Instagram. Moreover, 33 learners (15.63%) mentioned that they use their mobile phones or smart phones as a means for language learning. Forums and chat rooms, as well as CALL dictionaries were also popular.

Table 29. Different genres of CALL applied by learners

| Genres of CALL Application | No. of Learners |
|-------------------------------------------------------------------------------------------------|-----------------|
| Named Software such as Twitter, Google, YouTube, Instagram, or specific genres (e.g., podcasts) | 36 |
| Use mobile phones and smart phones | 33 |
| Forums and chatrooms have helped them | 7 |
| Use CALL Dictionaries | 6 |
| have subscriptions to website they find useful | 1 |

The researchers also classified the application of CALL tools based on the skills and sub-skills. As Table 30 outlines, 8 learners (3.79%) used CALL tools for the sake of promoting their listening skills. Vocabulary progress, particularly the ESP/EAP vocabulary, and pronunciation progress were the targets which had the next ranks of frequency. Visual exposure to English as well as reading, with 4 respective participants (percentage), were also targets that learners had set for themselves to reach via CALL usage purposes.

Table 30. CALL tools applied by learners to promote language skills

| Tools of CALL | No. of Learners |
|-------------------------------------------------------------|-----------------|
| Use CALL for listening (movies and songs) | 8 |
| Use CALL to practice and learn vocabulary, particularly ESP | 7 |
| Use CALL for pronunciation | 5 |
| Use CALL for reading | 4 |
| Use CALL to have visual exposure to English | 4 |
| Use CALL for checking spelling and grammar | 3 |
| Use CALL for enhancing their oral production | 3 |
| Use CALL for Idioms | 1 |

On the other hand, 17 out of the 211 learners (8.1%) expressed that they had negative attitudes toward the application of CALL in English learning. As Table 31 shows, 4 of the learners admitted that CALL was useful, yet they stated that it does not substitute the real

face-to-face classroom. Besides, 3 learners mentioned that CALL lacked teacher correction possibilities. No human interaction and boredom were the negative attitudes which were mentioned by 2 participants. Two of the teachers also mentioned that they were skeptic toward the use of CALL, seeing that they themselves had learnt their second languages by using traditional methods. One of these teachers went as far as calling CALL a total “fiasco”.

Table 31. Negative attitudes toward the application of CALL in language learning

| Negative attitudes | No. of Learners |
|------------------------------------------------------------------------------------------------------------|-----------------|
| It is useful but does not replace the real classroom | 4 |
| No teacher correction | 3 |
| No human interaction | 2 |
| It is boring to study with software alone at home. | 2 |
| Expressed skepticism toward CALL since they have been reared by traditional methods, does not rely on CALL | 2 |
| Just a supplementary tool | 1 |
| CALL is still incomplete, it needs to be developed | 1 |
| Can be laborious if not classified well | 1 |
| CALL needs to have better evaluation | 1 |

Participants also expressed some of the problems that they had experienced with CALL in language learning. According to Table 32 below, 5 participants mentioned that they could not make use of CALL tools due to the lack or absence of equipment in their schools. One of the participants stated they would develop eye strain when staring at the monitor for long hours, and another one complained that teachers themselves do not know how to use CALL tools at times. Besides one of the participants objected that the majority of CALL tools these days are restricted to gap filling or MCQ exercises, so they lack creativity.

Table 32. The problems that learners reported with CALL

| Problems with CALL | No. of Learners |
|-------------------------------------------------------------------|-----------------|
| Do not use tools in the class due to the lack of equipment | 5 |
| When I used it for a long time, I had eye strain | 1 |
| Complained that teachers cannot work with software and CALL tools | 1 |
| CALL is limited to gap filling and MCQ, it could be far more fun | 1 |

Overall, 91.9% of the sample expressed their positive attitudes toward the application of CALL in English learning. Even the 8.1% who expressed negative attitudes admitted that CALL was useful, but they had their own concerns regarding its pitfalls.

6. Discussion

The purpose of this study was to compare the attitudes of Iranian and non-Iranian English language students' attitudes towards Computer-Assisted Language Learning. A convergent

mixed methods design was used for analyzing both quantitative and qualitative data. In data collection procedure, an online web-based questionnaire was applied, which contained 48 items. In the data analysis phase, both descriptive and non-parametric analyses were performed. In this section, the findings and conclusions of the study are discussed. Moreover, pedagogical implications and recommendations for further research are presented.

6.1. Research Question 1

The first research question was designed to find out if there are any differences between Iranian and non-Iranian English language students' attitudes towards CALL. The findings revealed that there are no differences between Iranian and non-Iranian English language students' attitudes towards CALL. As data analysis of each construct outlined, there were significant differences between the computer literacy, as well as the attitudes of Iranian and non-Iranian English students towards CALL. The only construct on which Iranian and non-Iranian students did not report any significant differences was their general attitude toward CAL.

This construct analysis shows that if there is a tendency in Iranian English language context to apply CALL materials and tools in English classes, the computer literacy of Iranian English students should be considered. Moreover, English language policy makers should consider the positive attitudes of students and therefore provide a situation in which students benefit from the technology-based educational materials. On the other hand, the difference between computer literacy of Iranian and non-Iranian English language students indicates that it is not possible to apply all the CALL materials produced in other cultures and contexts in our context. Therefore, we have to select the best CALL materials based on our students' computer literacy. Moreover, it is a great responsibility on the shoulders of educational policy makers to enhance the skills of the 21st century students, such as computer literacy.

6.2. Research Question 2

The second research question investigated the way in which gender is related to the attitudes of Iranian and non-Iranian English language students towards CALL. The data analysis indicated that there is no difference in the attitudes of English language students towards CALL based on gender. The investigation of the relationship between gender and attitudes of English language students reported a significant difference between computer literacy of men and women. However, it does not report any statistically meaningful differences between the attitudes of male and female students towards CAL and CALL.

It could be discussed that despite the fact that both female and male students hold positive attitudes towards the application of computers in learning and language learning, female students' computer literacy is lower than that of male students. From the responses to the attitudes towards CAL and CALL constructs, it was apparent that female English language students distinguished the need for computers and technology in their learning, but they are not as competent in their use as male students.

Moreover, the findings also revealed that educational policy makers should put more emphasis on training female students with computers. Also, applying the CALL materials in mixed-gender English language classrooms may provide some difficulties for female students to cope with technologies. Furthermore, to design some specific remedial courses for female students to get more familiar with computers it could be suggested in order to improve their computer literacies. At the end, providing female students with more CALL-related courses and materials prepares them for the new generation's skills at the same time that it makes them more competent in society.

6.3. Research Question 3

The third research question asked how education level related to the attitudes of Iranian and non-Iranian English language students towards CALL. The findings showed that there is no difference in the attitudes of English language students towards CALL based on education level. Finding the relationship between the education level and each construct of the study reported significant differences among the attitudes of learners with different education levels in computer literacy, as well as in attitude towards CAL. However, there was no significant difference between the attitudes toward CALL among the English learners of different education levels.

For the construct of computer literacy, significant statistical difference only existed between the literacy of undergraduate and postgraduate English students. By which, the higher level of English language among students, the more literate they are in computer knowledge. In the CAL attitude construct, however, the only meaningful difference was reported between undergraduate and graduate English students.

6.4. Research Question 4

The fourth research question examined whether and how age is related to the attitudes of Iranian and non-Iranian English language students towards CALL. The analysis of the data revealed that there is no difference in the attitudes of English language students towards

CALL based on age. According to the construct analysis, significant differences could be reported among the attitudes of English students in different age groups toward CALL for the construct of computer literacy, as well as for the construct of CALL attitude. However, the attitudes towards CAL did not report any significant difference. There was a significant difference between the computer literacy of 24-29 age group and that of 18-23. As well, there was a difference between the attitudes of the same two age groups toward CALL. No other difference was reported between any other two groups in any other constructs.

7. Conclusions

According to the findings of this study, to be Iranian or not, together with other variables such as gender, age and education level had no relationship to the attitudes of English language students towards computer-assisted language learning. In general, both Iranian and non-Iranian English language students hold positive attitudes towards CALL. Moreover, the responses indicated that most English language students understand the significance of computer skills in both their professional and daily lives. Furthermore, according to the results, the positive attitudes of English language students towards Computer-Assisted Learning are obvious. These findings may be used as a fact showing that computer literacy is a need for the future educational context. These findings also suggest that it is crucial to encourage female English language students to achieve more computer literacy to use it as an opportunity for better learning and developing a career. In the near future, English language students must be able to cope with computer- and technology-based educational materials in their classrooms. Applying CALL materials in educational settings is inevitable, and the tendency among students (which this study has corroborated) is to use these materials profusely. Nevertheless, specific training of both female and male students should be considered. In some contexts, males or females may show lack of access to the Internet and/or other technologies, and in delicately balanced opportunities more fruitful success will be achieved.

Although teacher education is not the main concern of this study, its necessity is an important aspect of language learning (Hall & Higgins, 2005). Also, teachers should be literate in computer use, which can be achieved by continuous and regular ICT training sessions. No doubt that inadequacy in manipulating technologies decreases the value and the efficacy of technology-based materials.

The focus of this study was CALL and specifically, CALL usage among my English language students. Within the field of CALL there are many areas of research, but this study

has focused on how English language students perceive the use of CALL in learning English. This evaluation must be noted as an action research-based study, so its results may not be applicable to all CALL related situations. The success of CALL in other contexts may yield to different results, so further research should be undertaken into exploring what precisely ESL students are doing on computers and the Internet. Incorporating technological tracking devices into the participants' computers would provide a daily log of English usage. This would aid in providing more direct answers to questions, asked not only by this study but also for future investigations.

As a final remark, CALL may be a vital supplementary tool for English language teaching and learning. However, all aspects of using CALL should be considered, also understanding that "technology's double face" is the key factor in applying CALL (Saeedi, 2013, p. 41). We have to pay attention to "technocentrism" and the lack of experimentation in applying CALL (Plana & Ballester, 2009; as cited in Saeedi, 2013, p. 46). Warschauer and Whittaker (1997) gave some suggestions for successful planning and implementing technology in language courses. They believed that teachers should carefully consider their goals, since little is gained by adding random on-line activities into the classroom. Clarifying course goals acts as an important first step toward the successful use of technology in classrooms. The next vital aspect of technology-based instruction is integration, and the teacher should think about how to integrate technology-based activities into the syllabus. Also, the teacher should be aware of all the complexities of using technology in learning environments, such as cultural, infrastructural or structural difficulties. According to CALL advantages, it is not logical to judge CALL as a substitute for language teachers. We should rather consider technology as the vital supplementary tool in language classes. Technology offers learners opportunities for much more valuable communicative interaction in the target language than what was ever possible in the traditional language classes (Chirimbu & Tafazoli, 2013). Therefore, there exists a need to urge language teachers to make use of technology in their language classrooms. Although it is to some extent impossible to present all CALL advantages and disadvantages in a paper, this study has reviewed a range of projects, papers and studies on CALL. From the data obtained, the researchers believe that choosing, planning and applying the CALL courseware will provide a wide range of opportunities for language teachers and learners.

The findings of the present study can be looked upon as a general driving force to the educational policy makers to allocate more budgets on providing state-of-the-art CALL programs and devices in schools and universities. In addition, course designers can benefit

from the outcome of the present study by allocating more computer activities in all stages of the educational curricula. A better familiarity with computers can result in a more frequent use of the computer in EFL classes by the teachers.

To sum up, we would like to build upon Warschauer and Whittaker (1997) to conclude with some general remarks about successful planning and implementing technology in EFL/ESL classes. They stated that teachers should carefully consider their goals, since little is gained by adding random on-line activities into the classroom. Clarifying course goals acts as an important first step toward the successful use of technology in classrooms. The next vital aspect of the technology-based instruction is integration, so the teacher should think about how to integrate technology-based activities into the syllabus. Also, the teacher should be aware of all the complexities of using technology in learning environment, such as cultural, infrastructural or structural difficulties.

We have to be careful that computers cannot change the role of teachers, but they are used to support and assist teachers and learners in different situations. Technology offers learners opportunities for much more valuable communicative interaction in the target language than what was ever possible in the traditional language classes.

We would urge language teachers to make use of technology in their language classrooms. Having such projects is a good way of motivating students to use technology outside the classroom and to make learning a part of their daily lives.

References

- AbuSeileek, A. F. & Abu Sa'aleek, A. O. (2012). Computer assisted language learning: Merits and demerits. *Language in India*, 12(4), 23-36.
- Almahboub, S. F. (2000). *Attitudes toward Computer Use and Gender Differences among Kuwaiti Sixth-Grade Students*. Unpublished doctoral dissertation, University of North Texas, Denton.
- Barson, J. & Debski, R. (1996). Calling back CALL: technology in the service of foreign language learning based on creativity, contingency, and goal-oriented activity. In M. Warschauer (Ed.), *Telecollaboration in Foreign Language Learning* (pp. 49-68). Honolulu: University of Hawaii, Second Language Teaching and Curriculum Center.
- Baylor, A. L. & Ritchie, D. (2002). What factors facilitate teacher skill, teacher morale, and perceived student learning in technology-using classrooms? *Computers and Education*, 39, 395-414.
- Belz, J. A. (2002). Social dimensions of telecollaborative foreign language study. *Language Learning & Technology*, 6(1), 60-81. Retrieved September 24, 2003, from http://www.lltjournal.org/collection/col_10125_35883
- Belz, J. A. & Thorne, S. L. (2006). *Internet-Mediated Intercultural Foreign Language Education*. Boston: Thomson Heinle.

- Breckler, S. J. (1984). Empirical validation of affect, behavior, and cognition as distinct components of attitude. *Journal of Personality and Social Psychology*, 47, 1191-1205.
- Breckler, S. J. & Berman, J. S. (1991). Affective responses to attitude objects: Measurement and validation. *Journal of Social Behavior and Personality*, 6, 529-544.
- Breckler, S. J. & Wiggins, E. C. (1989). Affect versus evaluation in the structure of attitudes. *Journal of Experimental Social Psychology*, 25, 253-271.
- Breckler, S. J. & Wiggins, E. C. (1991). Cognitive responses in persuasion: Affective and evaluative determinants. *Journal of Experimental Social Psychology*, 27, 180-200.
- Cabrini Simões, L. (2007). An overview on the use of new technologies in English language teaching. *Acta Scientiarum. Human and Social Sciences*, 29(1), 31-34.
- Chapelle, C. A. (2001). *Computer Applications in Second Language Acquisition: Foundations for Teaching, Testing, and Research*. Cambridge: Cambridge University Press.
- Chapelle, C. A. (2003). *English Language Learning and Technology*. Amsterdam: John Benjamins.
- Chapelle, C. A. (2008). Computer Assisted Language Learning. In B. Spolsky & F. M. Hult (Eds.), *The Handbook of Educational Linguistics* (pp. 585-595). Oxford: Blackwell Publishing Ltd.
- Chapelle, C. & Jamieson, J. (1986). Computer-Assisted Language Learning as a predictor of success in acquiring English as a second language. *TESOL Quarterly*, 20, 27-41.
- Chen, X.-B. (2013). Tablets for informal language learning: Student usage and attitudes. *Language Learning & Technology*, 17(1), 20-36.
- Chirimbu, C. S. & Tafazoli, D. (2013). Technology & media: Applications in language classrooms (TEFL, TESL & TEOL). *Professional Communication & Translation Studies*, 6(1/2), 187-194.
- Corrêa, D. M. (2001). New technologies in teaching and learning English. In M. B. M. Fortkamp & R. P. Xavier (Eds.), *EFL Teaching and Learning in Brazil: Theory and Practice* (pp. 211-222). Florianópolis: Insular.
- Creswell, J. W. & Plano Clark, V. L. (2011). *Designing and Conducting Mixed Methods Research (2nd ed.)*. Thousand Oaks, CA: Sage.
- Davis, F. (1993). User acceptance of information technology: System characteristics, user perceptions and behavioral impacts. *International Journal of Man-Machine Studies*, 38, 475-487.
- Department of Education and Early Childhood Development (DEECD). (2010). *Teaching and learning with Web 2.0 technologies*. State of Victoria. Retrieved from <http://www.education.vic.gov.au/edulibrary/public/teachlearn/innovation/technology/web2report.pdf>
- Donato, R., Antonek, J. & Tucker, G. R. (1994). A multiple perspective analysis of a Japanese FLES program. *Foreign Language Annals*, 27, 365-377.
- Donato, R., Antonek, J. & Tucker, G. R. (1996). Monitoring and assessing a Japanese FLES program: Ambiance and achievement. *Language Learning*, 46, 497-528.
- Doughty, C. J. & Long, M. H. (2003). Optimal psycholinguistic environments for distance foreign language learning. *Language Learning & Technology*, 7(3), 50-80.
- Dudeney, G., Hockly, N. & Pegrum, M. (2013). *Digital Literacies*. London: Pearson Education.
- Eagly, A. H. & Chaiken, S. (1998). Attitude, Structure and Function. In D. T. Gilbert, T. S. Fisk, & G. Lindsey (Eds.), *Handbook of Social Psychology* (pp. 269-322). New York: McGowan-Hill.

- Fang, X. & Warschauer, M. (2004). Technology and curricular reform in China: A case study. *TESOL Quarterly*, 38(2), 301-321.
- Field, A. (2005). *Discovering Statistics Using SPSS* (2nd ed.). London: SAGE.
- Fishbein, M. & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction in Theory and Research*. Reading, MA: Addison-Wesley.
- Gillespie, H. (2006). *Unlocking Learning and Teaching with ICT: Identifying and Overcoming Barriers*. London: David Fulton.
- Godwin-Jones, R. (2006). Tag clouds in the blogosphere: Electronic literacy and social networking. *Language Learning & Technology*, 10(2), 8-15.
- Hall, I. & Higgins, S. (2005). Primary school students' perception of interactive whiteboards. *Journal of Computer Assisted Language Learning*, 21(2), 102-117.
- Han, W. (2008). Benefits and barriers of computer assisted language learning and teaching. *US-China Foreign Language*, 6(9), 40-43.
- Hope, G. R., Taylor, H. F. & Pusack, J. P. (1984). *Using Computers in Teaching Foreign Languages*. New York: Harcourt Brace Jovanovich.
- Ismail, A. & Almekhlafi, A. G. (2010). Teachers' perceptions of the use of technology in teaching languages in United Arab Emirates' schools. *International Journal for Research in Education*, 27, 37-56.
- Jacobsen, D. M. & Lock, J. V. (2005). Technology and teacher education for a knowledge era: Mentoring for student futures, not our past. *Journal of Technology and Teacher Education*, 12(1), 75-87.
- Kaiser, H. F. & Rice, J. (1974). Little jiffy, mark iv. *Educational and Psychological Measurement*, 34(1), 111-117.
- Kiesler, C. A., Collins, B. E. & Miller, N. (1969). *Attitude Change: A Critical Analysis of Theoretical Approaches*. New York: John Wiley & Sons.
- Lacina, J. (2004). Promoting language acquisitions: Technology and English language learners. *Childhood Education*, 81, 113-115.
- Lee, K.-W. (2000). English teacher's barrier to the use of computer-assisted language learning. *The Internet TESL Journal*, VI (12). Retrieved from <http://iteslj.org/Articles/Lee-CALLbarriers.html>
- Levy, M. (1997). *CALL: Context and Conceptualization*. Oxford: Oxford University Press.
- Liaw, S. S. (2002). An Internet survey for perceptions of computers, and the World Wide Web: Relationship, prediction, and difference. *Computers in Human Behavior*, 18(1), 17-35.
- Loyd, B. H. & Gressard, C. (1984). The effects of sex, age, and computer experience on computer attitudes. *AEDS Journal*, 18, 67-77.
- Mantle-Bromley, C. (1995). Positive attitudes and realistic beliefs: Links to proficiency. *The Modern Language Journal*, 79, 371-386.
- Mantle-Bromley, C. & Miller, R. B. (1991). Effect of multicultural lessons on attitudes of students of Spanish. *The Modern Language Journal*, 75, 418-425.
- Matsumoto, D. & Yoo, S.H. (2006). Toward a new generation of cross-cultural research. *Perspectives on Psychological Science*, 1(3), 234-250.

- Maushak, N. & Simonson, N. (2001). Instructional technology and attitude change. In D.H. Jonassen (Ed.), *Handbook of Research for Educational Communications and Technology* (pp. 327-374). Hillsdale, NJ: Erlbaum.
- McGrail, E. (2005). Teachers, technology, and change: English teachers' perspectives. *Journal of Technology and Teacher Education*, 13(1), 5-14.
- Murphy, C. (2006). The impact of ICT on primary science. In P. Warwick, E. Wilson & M. Winterbottom (Eds.), *Teaching and Learning Primary Science with ICT* (pp. 13-32). Berkshire, England: Open University Press.
- Murray, L. & Hourigan, T. (2007). Blog writing integration for academic language learning purposes: towards an assessment framework. *Iberica*, 14, 9-32. Retrieved from http://www.aelfe.org/documents/14-02_murray.pdf.
- O'Dowd, R. (2003). Understanding the "other side": Intercultural learning in a Spanish-English e-mail exchange. *Language Learning & Technology*, 7(2), 118-144. Retrieved August 26, 2003, from <http://llt.msu.edu/vol7num2/odowd>.
- Plana, M. G. & Ballester, E. P. (2009). Beyond technology in computer assisted language learning: Learners' experiences. *English Language Teaching*, 2(4), 3-12.
- Prensky, M. (2007). *Digital Game Based Learning*. St. Paul, MN: Paragon House.
- Reinking, D. (1994). *Electronic literacy*. Retrieved online from <http://curry.edschool.virginia.edu/go/clic/nrrc/reinking.html>
- Riasati, M. J., Allahyar, N. & Tan, K.-E. (2012). Technology in language education: Benefits and barriers. *Journal of Education and Practice*, 3(5), 25-30.
- Saeedi, Z. (2013). Care with CALL. In D. Tafazoli & S. C. Chirimbu (Eds.), *Language & Technology: Computer Assisted Language Learning* (pp. 40-47). Tehran, Iran: Khate Sefid Press.
- Saettler, P. (1990). *The Evolution of American Educational Technology*. Englewood, CO: Libraries Unlimited.
- Salaberry, M. R. (2001). The use of technology for second language learning and teaching: A retrospective. *The Modern Language Journal*, 85 (1), 39-56.
- Shyamlee, S. D. & Phil, M. (2012). Use of technology in English language teaching and learning: An analysis. *Proceedings of the International Conference on Language, Medias and Culture*, Singapore, 150-156.
- Singhal, M. (1997). The internet and foreign language education: Benefits and challenges. *The Internet TESL Journal*, III (6). Retrieved from <http://iteslj.org/Articles/Singhal-Internet.html>
- Son, J.-B. (2004). Teacher development in e-learning environments. In J.-B. Son (Ed.), *Computer-Assisted Language Learning: Concepts, Contexts and Practices* (pp. 107-122). Lincoln, NE: iUniverse.
- Son, J.-B., Robb, T. & Charismiadji, I. (2011). Computer literacy and competency: A survey of Indonesian teachers of English as a foreign language. *CALL-EJ*, 12(1), 26-42.
- Song, Y. & Fox, R. (2008) Uses of the PDA for undergraduate students' incidental vocabulary learning of English. *ReCALL*, 20(3), 290-314.
- Stigler, J. & Hiebert, J. (1999). *The Teaching Gap*. NY, New York: The Free Press.
- Tafazoli, D., Gómez Parra, M. E. & Huertas Abril, C. A. (2017). Computer literacy: Sine qua non for digital age of language teaching & learning. *Theory and Practice in Language Studies*, 7(9), 716-722.

- Warschauer, M. (1996). Computer-assisted language learning: An introduction. In S. Fotos (Ed.), *Multimedia Language Teaching* (pp. 3-20). Tokyo: Logos International.
- Warschauer, M. (2000). CALL for the 21st Century. *Presented paper at the IATEFL and ESADE Conference*, July 2000, Barcelona, Spain.
- Warschauer, M. & Healey, D. (1998). Computers and language learning: An overview. *Language Teaching*, 31(1), 57-71.
- Warschauer, M., Knoebel, M. & Stone, L. (2004). Technology and equity in schooling: Deconstructing the digital divide. *Educational Policy*, 18, 562-588.
- Warschauer, M., Shetzer, H. & Meloni, C. (2000). *Internet for English Teaching*. Alexandria, VA: TESOL Publications.
- Warschauer, M. & Whittaker, P. F. (1997). The Internet for English Teaching: Guidelines for Teachers. *The Internet TESL Journal*, 3(10). Retrieved from <http://iteslj.org/Articles/Warschauer-Internet.html>.
- Wenden, A. (1998). *Learner Strategies for Learner Autonomy*. New York: Prentice Hall.
- Wood, W. (2000). Attitude change: Persuasion and social influence. *Annual Review of Psychology*, 51, 539-570.
- Zimbardo, P. & Leippe, M. (1991). *The Psychology of Attitude Change and Social Influence*. Philadelphia, PA: Temple University Press.