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## Digital Device Ownership, Computer Literacy, And Attitudes Toward Foreign And Computer-Assisted Language Learning

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### Abstract

The current study sought to investigate the relationship between computer literacy, attitudes towards foreign language learning and computer-assisted language learning. A total of 123 university students majoring in English as a foreign language from a major state university participated in the study. Data were collected using the Attitudes towards Foreign Language Learning (A-FLL) Scale and the Attitudes towards Computer-Assisted Language Learning (A-CALL) Scale. The findings revealed that there were statistically positive correlations between attitudes toward foreign language learning (A-FLL) and attitudes toward computer-assisted language learning (A-CALL), indicating that 28% of attitudes toward CALL could be predicted by attitudes toward FLL. Moreover, computer literacy was a significant determinant of attitudes toward CALL. Gender differences were also found to potentially affect computer literacy and prior CALL experience. It is concluded that inquiry into language learners' levels of computer literacy and their attitudes towards foreign language learning might provide useful insights into the nature of technology-based L2 learning, which can, in turn, greatly contribute to the betterment of L2 learning programs and better educational outcomes.

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*Keywords:* computer literacy; attitudes; foreign language learning; computer-assisted language learning

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### 1. Introduction

Motivation and attitudes toward learning a second or foreign language (L2) has been reported to be the most crucial factor for success in language study (Gardner, 1985, 2001; Dörnyei, 2005, 2014; Dörnyei & Ushioda, 2011; Hadfield & Dörnyei, 2013; Masgoret & Gardner, 2003) as well as computer-assisted language learning (CALL) context (Murday & Ushida, 2002; Rahimi & Yadollahi, 2011; Ushida, 2005; Warschauer, 1996a, 1996b, 2002).

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Indeed, motivation sets the psychological context for successful language learning and provides the necessary conditions for effective language learning. Viewed in this way, motivation is regarded as both the cause and product of effective instruction. However, Dörnyei (2009) proposes a process-oriented and dynamic conception of motivation and asserts that there is a myriad of environmental and temporal factors that affect one's behavior or action.

Previous research into L2 motivation has shown that positive attitudes toward language learning motivates learners and promotes language achievement in different areas while negative attitudes can serve as a psychological barrier which would hinder and impede ultimate attainment in L2 learning. Similarly, a number of studies (Başöz & Çubukçu, 2014; Fatemi Jahromi & Salimi, 2013; Tuncok, 2010) have established that positive attitudes toward the integration of CALL applications in language learning can enhance the motivation to use CALL. The present study, therefore, aims to find out whether there is any relationship between language learners' attitudes toward foreign language learning and application of technology in language learning environment.

## **2. Literature review**

Gardner (1985) argues that attitude is an evaluative feedback to some referent or attitude object and is thus linked to a person's values and beliefs. Similarly, Montano and Kasprzyk (2008) state that an individual's beliefs about outcomes of performing the behavior aligned with evaluations of those outcomes are significant determinants of his/her attitudes toward taking an action or performing a behavior. This implies that the more strong beliefs one holds about positively valued outcomes, the more positive attitudes s/he will have toward the behavior or action, or the other way round. Similarly, motivation provides answer to a person's desire to adopt certain learning behavior. For instance, Dörnyei (2014, p. 519) maintains that "motivation determines the direction and magnitude of human behavior or, in other words, the choice of a particular action, the persistence with it, and the effort expended on it".

The term "attitude", however, was later redefined and decomposed into three interrelated components, namely, cognitive, affective and behavioral (Liaw, 2002; Liaw, Huang, & Chen, 2007; Wenden, 1991). The cognitive component involves the beliefs, thoughts or perceptions of the objects of the attitude or situations related to attitudes. The affective component concerns with the individual's feelings and emotions towards the cognitive element and appraisal of these feelings. The behavioral component refers to one's tendency to adopt particular learning behaviors (Vandewaetere & Desmet, 2009). In the present study, our operational conceptualization of motivation and attitudes toward FLL and CALL is based on Dörnyei's (2009, 2014) conceptualization of motivation and latest redefinition and conceptualization of attitudes both in FLL and CALL-based L2 learning environment (Wenden, 1991; Vandewaetere & Desmet, 2009).

The mainstream research into attitudes and motivation is based on Gardner's (1985, 2001) socio-educational model in which integrative motivation with two basic sets of attitudes, i.e. integrativeness and attitudes toward the learning situation, and motivation has been subject of intensive inquiry as one of the important determinants of language achievement over the past few decades. The socio-educational model posits that an individual's openness to other cultures and taking on the characteristics of another cultural or linguistic group, i.e. integrativeness, influence his/her motivation to learn an L2. In other words, individuals' ethnolinguistic heritage as their sense of identity seems to be a major determinant of their willingness/unwillingness to be identified with the target language community. Besides, attitudes toward language learning situation, an enthusiastic and competent teacher, and administrative factors such as a well-designed curriculum corroborated by appropriate and meaningful evaluation procedures enhance motivation to learn an L2.

Over the past few decades, CALL has been increasingly used in language teaching and learning. CALL is generally defined as any process that requires learners to use a computer in order to improve his or her language (Beatty, 2003). Therefore, language learners' digital device ownership, overall computer literacy, i.e. having greater digital and computer literacy to use a wide array of skills for general, or 'tech comfy' as well as educational purposes 'tech savvy' (Dudeny, Hockly, & Pegrum, 2013), frequency of using these devices for language learning purposes, weighted by their attitudes can be considered as potential determinants of language achievement. It is now agreed that negative attitudes toward the use of technology for language education impede language achievement (Yang & Huang, 2008), while positive attitudes contribute to the integration of technology into language teaching and learning and improve language enhancement (Chen, 2008).

Related literature, though scarce, has shown that language learners often express positive attitudes toward CALL-mediated language instruction. Aşkar, Yavuz, and Köksal (1992), for instance, reported that students had positive attitudes toward CALL both in computer assisted and traditional environments. Their findings also revealed that students' concentration and self-evaluation improved while studying in a CALL class. Warschauer (1996b) found that learners' perceptions of benefits of Computer-mediated Communication (CMC) increased their motivation to engage in communication. In the same vein, studies by Chun (1994), Kern (1995) and Warschauer (1996a) indicated that computer assisted classroom discussion (CACD), as opposed to face-to-face discussion, triggered student-initiated discussion more than teacher-initiated discussion, increasing opportunities for more output opportunities regardless of students' individual personality differences. Likewise, Önsoy's (2004) study that investigated the attitudes of both teachers and students toward integration of CALL into L2 learning programs revealed that both students and teachers expressed positive attitudes toward CALL.

In line with what has been stated so far, it seems logical and realistic to claim that mastery of a second or foreign language is largely contingent on the learners' attitudes toward the language and their level of motivation. However, motivation and attitudinal variables work in concert with other factors such as social, affective, behavioral, and individual variables. According to Dörnyei (2014), motivation always functions within a dynamic interplay with other personal and contextual factors, and its conceptualization demands focusing on motivational conglomerates of various motivational, cognitive, and emotional variables. Language learners' future vision of themselves as ideal L2 speakers is one of the most crucial conglomerates that serves as a driving force to language success in the long term process of L2 learning.

Even though the attitudes toward learning a L2 and various motivation models were originally proposed by Gardner (1985, 2001) and further developed by other distinguished scholars in the field (Crookes & Schmidt, 1991; Dörnyei, 1994, 2009, 2014; Dörnyei & Kubanyiova, 2014; Tremblay & Gardner, 1995), the systematic investigation of the issue of relationship between attitudes toward foreign language learning and computer-assisted language learning (CALL) seems to be lacking within L2 learning context in general, and CALL context in particular. Given the effectiveness of CALL in language achievement (Chapelle, 2001, Ayres, 2002) and recent studies carried out on the issue of relationship between mobile device ownership and L2 learning (Öz, 2014b), and attitudes toward foreign language learning and CALL (Oz, 2014a; Rahimi & Yadollahi, 2011), a systematic investigation of the issue based on sound theoretical frameworks would shed more light on the interplay of computer literacy, attitudes, and CALL-mediated L2 learning. The present study, therefore, sought to investigate the relationship between computer literacy, attitudes towards FLL and CALL. It is assumed that the study would help fill this research gap in the L2 research field and highlight the importance of attitudinal and motivational factors in a technology-mediated L2 learning environment. To address and achieve these objectives, the following research questions were formulated:

1. What are EFL learners' current state of digital device ownership and frequency of digital device use for foreign language learning?
2. Are there any significant differences in the participants' attitudes toward FLL and CALL with respect to their previous CALL experience, overall computer literacy, and frequency of computer use?
3. Do participants differ significantly in their computer literacy, frequency of computer use, CALL experience and their attitudes toward CALL and FLL with respect to their gender?

### 3. Method

#### 3.1. Setting and participants

The present study was conducted in a pre-service English teacher education program at a major state university in Ankara, Turkey. A total of 123 University students (female: 91, 74%; male: 32, 26%) majoring in English as a Foreign Language (EFL) participated in the study and gave consent for data collection. They ranged in age from 18 to 22 years ( $M = 19.08$ ,  $SD = .89$ ).

#### 3.2. Materials

The Attitudes toward Foreign Language learning (A-FLL) Scale (Vandewaetere & Desmet, 2009) was used to measure the participants' attitudes toward foreign language learning. The A-FLL Scale consists of 31 statements which participants rate on a 7-point (ranging from "1. *totally disagree*" to "7. *totally agree*") Likert scale. It has three major components: cognitive component, affective/evaluative component with three sub-scales, and behavioral component with four subscales. The internal consistency of the A-FLL in this study was  $\alpha = .92$  for the entire scale.

Attitudes towards CALL were measured by the Attitudes toward Computer-Assisted Language Learning (A-CALL) Scale (Vandewaetere & Desmet, 2009). The A-CALL is a 7-point (ranging from "1. *totally disagree*" to "7. *totally agree*") Likert scale and consists of 20 statements. It has four major components: effectiveness of CALL vs. non-CALL, surplus value of CALL, teacher influence, and degree of exhibition. The internal consistency of A-CALL in this study was  $\alpha = .90$  for the entire scale. The instruments employed in the study also collected demographic and background information with regard to participants' gender, age, computer literacy and previous CALL experience.

#### 3.3. Procedures for data collection and analysis

Data analysis was done to address the research questions formulated for the present study. The research data drawn from the sample were fed into the computer and statistical analyses were carried out using IBM SPSS 21 Statistics, a comprehensive computer program used to help researchers perform statistical analysis easily and accurately. Descriptive statistics such as frequencies, percentages, and means were employed to characterize the participants' perceived levels of attitudes toward foreign language and computer-assisted language learning. Pearson product Moment correlation was conducted to assess the correlation between different sets of attitudes and computer literacy. The independent samples T-test was used to measure the role of gender factor in participants' attitudes toward foreign language learning. Finally, one-way analysis of variance (ANOVA) was conducted in order to assess the relationship between participants' overall computer literacy and their attitudes towards FLL and CALL.

### 4. Results

When asked about the digital device ownership, 90% of the participants had mobile phones, 95% had laptops, and 70% owned webcams. The other less frequently owned devices are diagrammatically illustrated in Figure 1 below. Moreover, as shown in Figure 1, laptops (51%) and mobile phones (34%) were the most preferred devices for foreign language learning purposes. However, digital device ownership and use did not significantly correlate with attitudes to FLL and CALL. The findings also revealed that 72% of the participants had previous CALL experience while 28% expressed that they had not received any CALL instruction before. Of those who had studied English via CALL, 52% had used dynd, 26% book-supplied CD-ROM / DVD-ROM , 48% websites, 22% blogs, 30% chat, and 22% other devices. As expected, the participants with CALL experience reported higher mean scores in both CALL and A-FLL than those who had no previous CALL experience.

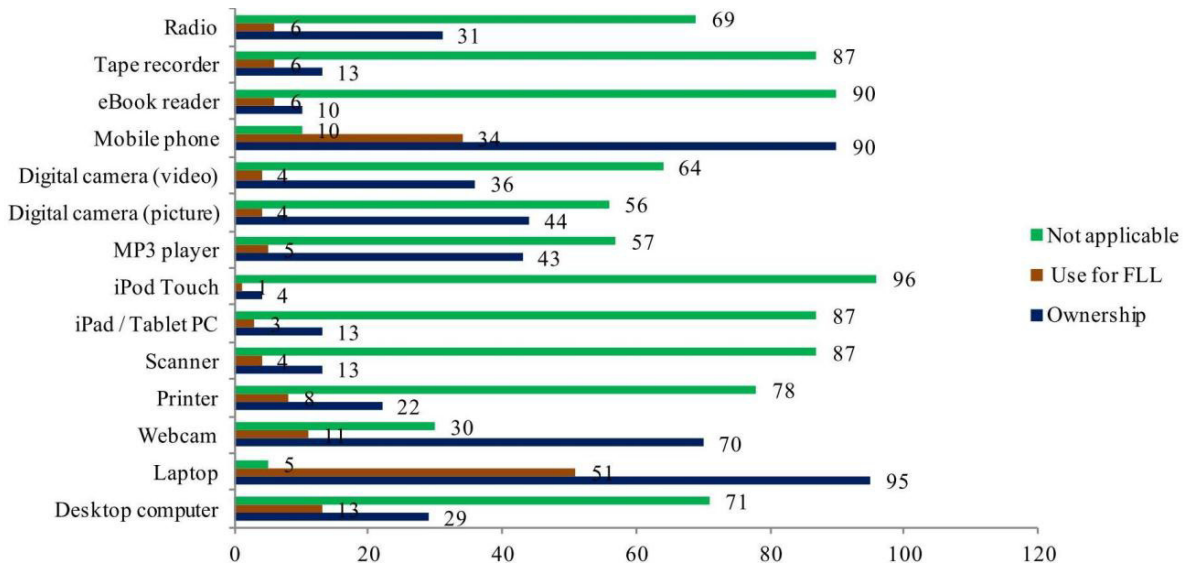


Figure 1. Percentages of digital device ownership and use

There were statistically significant differences between participants’ attitudes toward CALL,  $t(123) = 2.05, p < .05$ , attitudes toward FLL,  $t(123) = 2.21, p < .05$ , and affective/evaluative component of A-FLL,  $t(123) = 2.26, p < .05$ , with a small effect size,  $\eta^2 < .059$ , for all significant variables. The scrutiny of these results also revealed that these differences in attitudes occurred only in female group, indicating that gender differences also moderate on learners’ attitudes toward CALL and FLL.

Nearly six in ten (56%) of the participants stated they used computer more than 8 hours per day, 18% used 3-6 hours a day, 15% used 6-8 hours a day, and 11% used computers less than three hours a day. Furthermore, as shown in Figure 2, the highest mean score in CALL was obtained for ‘6-8’ hours a day, while the highest mean score in A-FLL was observed in ‘3-6’ hours per day. In other words, the participants with positive attitudes toward CALL spent more hours using computers than those with positive attitudes toward FLL. In addition, there was a statistically significant relationship between the participants’ frequency of computer use and their attitudes toward CALL,  $r(123) = .31, p < .01$  and FLL,  $r(123) = .28, p < .01$ .

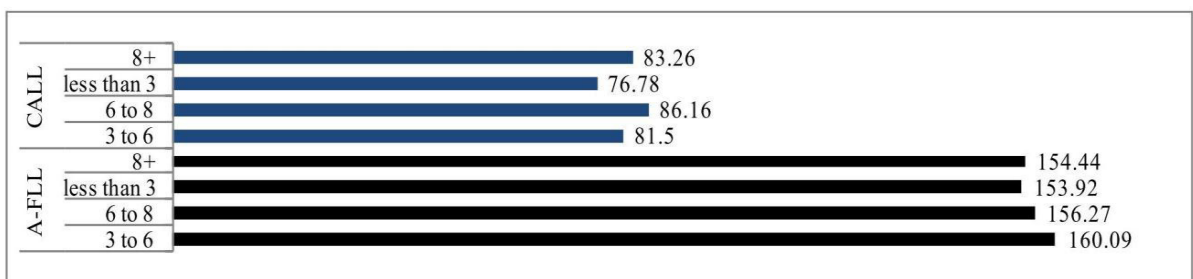


Figure 2. Descriptive statistics for frequency of computer use

The participants’ overall computer literacy was also found to be a significant determinant of their attitudes toward CALL and FLL. The participants differed significantly in their attitudes toward CALL,  $F(4,118) = 2.51, p < .05$ , and FLL,  $F(4,118) = 4.45, p < .05$ , with a moderate effect size,  $\eta^2 < .14$ , in both variables. Furthermore, as shown in Table 1, significant differences were found among the participants in all three components of A-FLL.

Table 1. Relationship between computer literacy and attitudes toward CALL and FLL

Variables	N	F	df	Sig.	$\eta^2$
Overall CALL	123	2.51	4.118	.045	.07
Cognitive	123	2.60	4.118	.042	.08
Affective/evaluative	123	4.71	4.118	.001	.14
Behavioral	123	3.91	4.118	.005	.12
Overall A-FLL	123	4.45	4.118	.002	.13

Pearson correlation coefficients revealed a statistically strong positive correlation between A-FLL and CALL,  $r(123) = .53, p < .01$ , suggesting that 28% of the variance in the participants' attitudes toward CALL can be predicted by their attitudes toward FLL. Moreover, as shown in Table 2, statistically slight significant correlations were found between affective/evaluative and behavioral components of A-FLL and CALL, while cognitive component correlated positively with CALL with a moderate effect size.

Table 2. Correlation between A-FLL and components of A-CALL

Variables	1	2	3	4	5
1- CALL	1				
2- Cognitive	.300**	1			
3- Affective/ Evaluative	.282**	.519**	1		
4- Behavioral	.226*	.416**	.414**	1	
5- Overall FLL	.533**	.739**	.865**	.764**	1

\* Significant at .05 level.

\*\* Significant at .01 level.

Finally, the findings also revealed a statistically significant difference between males and females in their computer literacy,  $t(123) = -3.36, p < .05$ , and CALL experience,  $t(123) = -2.26, p < .05$ . Further scrutiny of the results indicated that males had higher mean scores,  $M = 3.97, SD = .89$ , and  $M = 1.44, SD = .50$ , than females,  $M = 3.42, SD = .76$ , and  $M = 1.22, SD = .43$ , both in computer literacy and CALL experience, respectively. However, no significant differences were found between groups in relation to their attitudes toward FLL and CALL, frequency of computer use.

## 5. Discussion and conclusions

This study sought to explore the relationship between computer literacy, previous CALL experience and language learners' attitudes toward foreign and computer-assisted language learning in a Turkish context. Findings indicated that 72% of Turkish EFL students had positive attitudes toward FLL and 76% expressed positive attitudes toward CALL-mediated instruction. Similar results were found by other studies (Ayres, 2002; Akbulut, 2008; Fatemi Jahromi and Salimi, 2013; Oz, 2014a; Rahimi & Yadollahi, 2011). Başöz and Çubukçu (2014) investigated the pre-service EFL teachers ( $N = 112$ ) majoring in English as a foreign language at the English Language Teaching (ELT) Department of Dokuz Eylül University in Turkey. Their findings indicated that most of the participants had positive attitudes toward CALL and believed that CALL-mediated language learning is as valuable as traditional language learning. They also expressed that CALL develops their listening skills and vocabulary knowledge, gives flexibility to language learning, and constitutes a more relaxed and stress-free atmosphere.

The current study also found that a significant majority of students owned mobile phones (90%) and laptops (95%) followed by webcams (70%). Interestingly, mobile phones and laptops were also the most preferred tools for foreign language learning. Similar results were obtained by Öz (2014b) who reported that 95% of the participants owned laptops or tablet computers and used their devices to view websites both for study, e.g., reading, and private

purposes, e.g., internet access, database, multimedia, and games, in daily, weekly and monthly basis. Likewise, Pearson Student Mobile Device Survey conducted online by Harris Interactive on behalf of Pearson between January 28 and February 24, 2013 among 2,350 U.S. students revealed that a great majority of the students own and use mobile devices for learning purposes and that the rate of mobile device ownership and usage varies in terms of their grade. From a pedagogical perspective, these findings suggest that schools and faculties should be equipped with digital devices since it is beyond dispute that the increasing ubiquity and accessibility of digital and mobile devices have rendered the CALL-mediated instruction globally an inevitable part of education in general (Hockly, 2013) and L2 learning in particular.

Another important finding of this study was that attitudes towards FLL positively correlated with attitudes toward CALL. This supports previous research (Link & Marz, 2006; Ushida, 2005) on attitudes toward computer-assisted learning in general and language learning attitudes in particular (Rahimi & Yadollahi, 2011; Vandewaetere & Desmet, 2009). Additionally, findings revealed that there were statistically significant relationship between frequency of computer use and attitudes toward FLL and CALL. This can be attributed to the time allotted to daily computer use. That is, the participants proportionally spend much time a day using computers, specifically for language learning purposes, and, consequently, their attitudes toward FLL and CALL are influenced by the frequency of computer use. Put another way, the more they students use computers, the more positive attitudes they will have toward FLL and computer-assisted language learning. From a pedagogical perspective, positive CALL attitudes of participants have implications for L2 teaching and learning. That is, it can be inferred that students as well as teachers will use computers at schools for language learning purposes once they are available and this will, in turn, contribute to the enhancement of language skills among students. Therefore, it is strongly recommended that both language teachers and students receive adequate training in order to get the most out of CALL-mediated language instruction.

Another significant finding of the study was that participants differed greatly in their attitudes toward FLL and CALL with respect to their computer literacy. In other words, mastery of computer-related skills has great impact on learners' attitudes toward FLL and CALL. Obviously, computer literacy comprises a complex array of skills to master. Therefore, teachers can play an important role in helping learners to acquire the necessary skills by integrating them into their regular classroom practice. They can help students to professionally use computers for language learning both in classroom and beyond. Indeed, successful technology-based curriculum can provide opportunity to combine computer literacy of 'tech-comfy' students with the technological experience of more 'tech-savvy' teachers (Dudeney, Hockly & Pegrum, 2013) for language achievement beyond the classroom in increasingly technology-based language instruction.

The current study yielded more useful results regarding the attitudes toward FLL and application of CALL in language learning environment, supporting the previous research in the field. However, the findings of the study should be taken cautiously since there are many important factors such as age, setting and grade level of the participants that may as well influence their attitudes. Thus, it is recommended that further research should focus on the other important factors that might have interaction effect on attitudes toward FLL and CALL.

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