International Association of Academic Journals

Journal of Applied Linguistics
Vol.1, No.1: 40-58, 2015
Available online @ www.iaajs.com/jal

The Effect of Computer-Assisted Language Instruction on Improving EFL Learners' Autonomy and Motivation

Abbas Ali Zarei [1]*, Mehrnoosh Hashemipour [2]

1. Associate Professor, Imam Komeini International University, Qazvin, Iran.
2. MA, Takestan Branch, Islamic Azad University, Takestan, Iran.
* Corresponding Author's Email: a.zarei@hum.ikiu.ac.ir

The present study was conducted to investigate the effect of CALL/Web-based and conventional instructions on improving EFL learners' autonomy and motivation. To this end, a sample of 110 intermediate level Iranian EFL students were selected and divided into two groups: an experimental group and a comparison group. Each group of participants was then randomly assigned to one of the treatment conditions. The CALL/Web-based instruction was used in the experimental group, while the conventional methods were employed in the comparison group. An autonomy questionnaire and a motivation questionnaire were administered to the participants of both groups prior to and after the treatment. The ANCOVA procedure was used to analyze the obtained data. Results indicated that CALL/Web-based instruction had a significant effect on both students' autonomy and motivation. The participants of the experimental group experienced significant improvements in their level of autonomy and motivation compared with the comparison group participants. The findings of the present study may have implications for L2 learners, teachers, and materials developers.

***Keywords*:** Web-based instruction**,** CALL**,** Autonomy**,** Motivation

I. INTRODUCTION

Nowadays, with the advent of computer and multimedia technology and the Internet, the role of computers in teaching and learning has become an important issue. Kang (1999) holds that computer and technology can positively affect EFL classrooms by allowing learners to learn in authentic situations. Given the wide expansion and usage of computers, language teachers need to consider the application of computers in language teaching and learning. Furthermore, Ahmad, Corbett, Rogers and Sussex (1985) claim that using computers has certain advantages for language teachers as it allows them to process and present real-life situations with flexibility. Computer-assisted learning involves the use of computer programs to facilitate learning. According to Huizhong (1985), computer-assisted learning is when computer is used as an aid to improve students' learning and to help them understand the content more efficiently. Hence, computer and Web-based instruction allow for better preparation for education (Cabada et al., 2009; Jones, 2002; Yazdanpanah, Sahragard & Rahimi, 2010). Web-based learning is a powerful and effective tool for learning. It has developed from computer-based, computer-assisted, computer-aided, Internet-based or

Web-based instruction. It allows learners to be involved in and to be responsible for their own learning, and in comparison with conventional methods, it may be a more appropriate one. It opens new horizons of foreign language learning and teaching. Computers and the Internet are important tools for developing autonomy through activities which help learners to study without assistance from teachers (Joshi, 2011).

In language learning, the role of autonomy has been discussed in the fields of EFL and ESL, and there has been an agreement among researchers about the need for a shift from teacher-centered instruction to learner-centered instruction (Benson, 2007; Godwin-Jones, 2011; Gremmo & Rilley, 1995; Holec, 1981; Lamb & Reinders, 2007; Little, 1991). According to Thanasolus (2000), learner autonomy is "the learner's willingness and capacity to control or oversee her own learning'' (p.117).

In addition, web-based learning has the potential to enhance learners' motivation and to engage learners in real situations and provide them with highly interactive language experience (Chun & Plass, 2000; Kung & Chuo, 2002; Osuna & Meskill, 1998). Since motivation is a vital element that everyone brings to every activity, increasing motivation among students is the main concern of instructional programs. Teachers employ different techniques to motivate their students because they know that without motivation, learning cannot happen. Keller and Litchfield (2002) define motivation as a person's willingness to follow an aim or accomplish a task.

The importance of computer and Web-based technology and the paucity of research on the effectiveness of such technology in improving learning signify the need for studies such as this one. This importance is further corroborated by considering the fact that attributes like autonomy and motivation have an undeniable role to play in learning, in general, and in EFL learning, in particular. In order to fill the above mentioned gaps, this study aims at answering the following research questions:

1. Is there a significant difference between the effects of CALL/Web-based instruction and conventional teaching methods on Iranian EFL learners' autonomy?
2. Is there a significant difference between the effects of CALL/Web-based instruction and conventional teaching methods on Iranian EFL learners' motivation?

II. LITERATURE REVIEW

A. Web-Based Instruction/Computer-Assisted Language Learning

Any form of instruction which is delivered in World Wide Web is defined as Web-based instruction. Conventional environments may ignore the personal needs of learners and the development of problem solving (Hannum & Brigg, 1982). Web-based instruction is a suitable environment for learners to learn on their own. In a Web-based environment, students can work in more comfortable places. According to Owston (1997), students who work, play and learn with computers are more visual and interactive learners than others because their environment is full of visual stimuli.

Moreover, there are those like McCormack and Jones (1998), who believe that one reason for using Web-based instruction for most instructors is that it is more 'effective', 'efficient', and 'enjoyable' (p.17). Web-based instruction can offer learners a 'virtual teacher' because they can access the materials anytime and anywhere they want. The World Wide Web can be used to provide instructional support, and offers learners with cooperative learning, social instruction, distance education and multimedia. So, learners are exposed to vast amounts of authentic materials, and in comparison with the conventional methods, the nature of materials becomes dynamic.

Conventional classrooms are space bound; learning occurs in classrooms, schools and other places. But the Web expands the boundaries of learning; it can occur in classrooms and in workplaces (Owston, 1997). Since the process of learning is integrated with the real world, the Web can promote experiential learning or learning on site, and the source of content change from book and teacher to different sources of information. In this pedagogical situation (Internet)-based, students have the right and power to make decisions (Crookes & Lehner, 1998). Web-based instruction has the advantages of combining several technologies such as email, word processing, online chat, Web sites, and World Wide Web resources. It also has the potential to enable learners to connect sources in many different forms, use resources at any time and any place.

Despite these benefits, Web-based instruction has some disadvantages; it is time consuming; it is not suitable for all activities in the classroom; it cannot cope with ambiguity; the time and effort required to develop CALL programs could be considerable, and thus its cost-effectiveness becomes questionable. It also requires competence in the target subject area, pedagogical skills and computer experience.

Galloway (1998) refers to three levels of Web-use. In level one, there is no online instruction; the Web is used as post course material. Students only use information rather than searching for it. In the second level, the Web is used as the medium of instruction. For example, group projects, lecture notes, and assignments are posted on the Web, and the role of the teacher is as a facilitator. Third, teachers and learners interact with each other on the Internet. Knowledge of using technology is very important at this level.

Computer-assisted language learning (CALL) is used as a tool to enhance and improve learning. Januszewski and Molenda (2008) define computer-assisted language learning as techniques for using technology in the field of language learning. Furthermore, there are different types of CALL including Traditional CALL, Explorative CALL, Multimedia CALL, and Web-based CALL programs. The common features of traditional CALL are discrete error analysis and feedback. In the early forms of traditional CALL, the stimulus was in the form of a text on screen, and learners responded to it by entering answers using the keyboard. It was a teacher-centered approach (Matthew, 1994). Explorative CALL is learner-centered rather than teacher-centered, and is distinguished by the use of concordance programs (Davies, Hewer, Rendall, and Walker, 2004). In Multimedia CALL, learners will be able to use interactive video discs. It provides the condition in which learners combine sound, photography, images and video recording in imaginative presentations. Davies et al. (2004) maintain that role play activity is the main

feature of Multimedia CALL. Learners can record and play back their voice. Finally, Web-based CALL can be used in Web-activation for teaching and learning language, and it can be combined with other types to create hybrid types of CALL.

A number of studies have been done in the field of CALL-based instruction. Licenjacka and Filologia (2007) compared the vocabulary learning of students in conventional and CALL-based instruction. They chose two groups; the comparison group was asked to memorize words without any access to computer or word processing programs, whereas the experimental group had opportunity to learn through computers. They concluded that the experimental group had a better performance.

Meihami, Meihami and Varmaghani (2013) explored the effect of CALL on Iranian EFL learners' listening comprehension. They concluded that CALL instruction has a significant effect on improving EFL learners' listening ability. Barimani and Naraghizadeh (2013) investigated the effect of CALL on the vocabulary learning of Iranian EFL learners. The results showed that the experimental group (using CALL) performed better in their vocabulary knowledge than the comparison group. Jang, Hwang, Kim, Kim, and Park (2005) reported similar results with a group of undergraduate nursing students learning electrocardiography (ECG).

B. Learner Autonomy

Independent learning of a foreign language has attracted the attention of many educators and teachers. Many definitions have been given for this term. Some define it as the ability to learn, others consider it as one of the characteristics of the learning process. Benson (2001) defines it as the learner accepting his/her own learning responsibilities. Similarly, Holec (1981) defines autonomy as "the ability to take care of one's own learning" (p.47). According to Little (1991), autonomy is "the learner's psychological relation to the process and content of learning-a capacity for detachment, critical reflection, decision-making, and independent action" (p. 45).

Schwienhorst (2003) believes that autonomy in CALL involves learners in critical self-assessment and independence. Also, for promoting learner autonomy, Schwienhorst (2003) sketches three approaches for CALL researchers and developers: individual-cognitive approach, social-interactive approach, and experimental participatory approach. In the first approach, reflective processes are gained through the act of writing (as opposed to speaking). Social- interactions are aided through interactions with peers or native speakers. In the last one, learners are made to be their own agents, and make their own choices.

Also, Dickinson (1993) believes that autonomous learners have five features: First, they are able to integrate what has been taught and what the teachers' intentions are. Second, they are able to manage their own learning purposes, whether in working with the teacher or in competition with him/her. Third, they are able to select and use suitable learning strategies. Fourth, they can control their use of the learning strategies and replace the effective strategies for the ineffective ones. Finally, they can make judgment about their own achievements.

As to the role of computer-assisted language learning in improving learner autonomy, Orina and Nyongesa (2012) conducted a study in Kisi high school, Kenya. The results of the study showed that computer-based language materials have the potential of encouraging learner autonomy. In a study by Hayta and Yaprak (2013), the relationship between learner autonomy and computer technology as a facilitator of autonomous language learning was examined. The questionnaire results showed a positive correlation between technology and autonomous learning activities.

Nowadays, fostering autonomy has turned into an important goal in educational systems. In this regard, Dam and Legenhausen (1996) conducted a project on learner autonomy of seventh grade Danish learners. They examined the language development process of a Danish comprehensive school class in an autonomous learning context. The results showed that in terms of c-test scores, the students in the autonomous class were better than those in a conventional class.

Mutlu and Eroz-Tuga (2013) investigated the role of computer-assisted language learning in promoting learner autonomy. To this end, a sample of 48 intermediate level students at a university in Ankara, Turkey, were selected. They were divided into two groups; the strategy training group (STG) and the non-strategy training group (NSTG). The STG received a five-week strategy training through CALL, while in the NSTG, regular curriculum was implemented. Questionnaires, semi-structured face to face interviews, classroom observations, and e-learning diaries were used for data collection. Based on the findings, it was concluded that the participants of the STG had higher motivation; they were more willing to take responsibility for their own learning, and they were more engaged than NSTG.

In a study by Rahman (2013), the relationship between CALL and learner autonomy was examined. Results showed that learner autonomy has a positive effect on learners' language learning when CALL was integrated into the learning process.

Wach (2012) investigated the relevance of computer-mediated communication as an autonomy enhancement instrument for advanced learners of English. The results of the study revealed that learners were more willing in using computer and online instruction as an autonomy enhancement instrument.

In line with the above study, Celik, Arkin and Sabriler (2012) investigated the use of information and communication technology (ICT) for self-regulated learning in EFL learners. The study showed no significant difference between males and females in the use of ICT for self-regulated learning and between elementary and intermediate level learners.

In another study, Kaur and Sidhu (2010) investigated the perspectives of Malaysian adult learners toward distance learning. Based on the findings, there were a positive relationship between online interactions and learner autonomy.

Peng (2001) investigated the effects of learner control on computer assisted language learning in hypertext environment versus a linear text environment. Two versions of English learning tutorial programs, a pretest, a post test, and an attitude questionnaire were used to collect data. The results revealed a significant relationship between hypertext method and

learner autonomy. Motivation and attitudes of the participants in the hypertext approach were better than those in the conventional methods.

WU (2009) compared the effectiveness of network-based multimedia autonomous teaching and learning model with a conventional one. To this end, two groups of freshmen (experimental and comparison) at the same level of English proficiency were selected. The network-based multimedia autonomous teaching and learning was used in the experimental group, whereas conventional learning and teaching was implemented in the comparison group. The results showed that the experimental group performed better than the comparison group. Additionally, Bedoya (2014) examined learner autonomy in a virtual EFL course in Colombia. The results revealed a positive correlation between course design, teacher's role and autonomy of the participants.

C. Motivation

With the aid of computer, excitement and interest can be enhanced, because it suggests an additional opportunity for success and learning. Jonassen (2000) believes that technology-equipped classes encourage students and teachers positively. According to Anderson and Speck (2001), equipped classrooms not only motivate learners but also engage them in the four skills.

However, in designing a Web-based or computer-based course, teachers must consider that each learner has different interests and expectations. The definition of motivation depends upon its application. However, according to Gardner (1985), motivation is "the extent to which the individual works or strives to learn the language because of a desire to do so and the satisfaction experienced in this activity (p.10)". Also, Dornyei (1994) believes that "the exact nature of the social and pragmatic dimensions of second language motivation is always dependent on who learns what languages where" (p.275).

According to Linnebrink and Pintrich (2003), motivation is personal and individual; however, instructors and teachers have an important role in fostering it. Increasing student motivation is a major aim of instructional design. Furthermore, it depends on a large number of factors including the psychological and emotional needs of students, learning environment, and so on. Keller (1983) holds that "Motivation refers to the choices people make as to what experiences or goals they will approach or avoid and the degree of effort they will exert in this respect" (p.389).

Keller and Litchfield (2002) believe that true motivation occurs at three phases: motivation to learn, motivation to work, and self-motivation. Each level puts particular responsibility on the learner. Moreover, a teacher or instructional designer can work with a variety of situations and different extrinsic motivators to increase self-motivation. These levels consist of three basic components in second language learning process: the target language, the language learner, and the learning environment (Clement, Dornyei &Novel, 1994).

The source of motivation can be either extrinsic (outside the person) or intrinsic (internal to the person)**.** Several theories emphasize the difference between intrinsic and

extrinsic motivation (Sansone & Harackiewicz, 2000). An individual decides whether or not to participate in learning. Hence, factors that affect this decision may be extrinsic or intrinsic (Keller & Litchfield, 2002). Intrinsically motivating activities are those which people are motivated to do not for external pressure or reward, but for their own sake. In other words, they are engaged in an activity because they are interested (Deci & Rayan, 1985).

Deci, Patrick, Rigby, and Ryan (1992) claim that the results of many studies on the relationship between motivation and learning achievement show that when learners are involved in learning, they will be more flexible and eager to learn new knowledge in their learning situations.

Deci and Ryan (1985) assert that intrinsic motivation refers to doing something, because it is innately interesting, attractive, enjoyable, and leads to creativity. Extrinsic motivation refers to the outcomes that can be separated. They report that intrinsic motivation leads to effective learning and is encouraged in conditions in which the learner has a measure of self-determination. It promotes a high quality of learning and creativity. Maslow (1970) believes that intrinsic motivation is better than extrinsic. According to Deci and Ryan (1985, p.35), extrinsic motivation refers to "learning situations where the reason for doing a task is something other than an interest in the task (or broader learning endeavor)".

Gardner and Lambert (1959) explain two types of motivation, instrumental and integrative motivation. Instrumental motivation is the desire to learn language for specific purposes (i.e. finding a job). On the other hand, integrative motivation is the desire to learn language for communicating with other people who speak the target language. The most well-known model for evaluating motivation is ARCS model. Keller (1983) holds that the ARCS model designs the motivational aspects of learning situations for stimulating and sustaining students' motivation to learn.

A number of studies have investigated the relationship between CALL/Web-based instruction and motivation as well as the factors that may influence them. Wang and Reeve (2006) investigated the effects of a Web-based learning environment on students' motivation to learn science. Individual student interview, teacher interview, motivation questionnaire, and observation were used to collect data. Based on the results, it was concluded that web-based learning environment and the associated learning activities improved students' motivation.

Ghalami and Ahangari (2012) investigated the impact of CALL on Iranian EFL learners' task-based listening skill and motivation. Four male and female Iranian EFL university students were selected and divided into the experimental and comparison groups. The CALL and some extra task-based listening comprehension materials through e-mails were used in the experimental group while the conventional method was used in the comparison group. The results of the study revealed that the motivation of the experimental group was higher than that of the comparison group.

In a different study, Ilter (2009) investigated the effect of technology on EFL learners' motivation in language classes. To this end, 350 students, 186 male and 164 female students, were chosen. To collect data, a 15-item questionnaire on computer, films, videos, CDs, and

e-learning was used to examine the participants' attitudes. The results showed significant differences between female and male students' ideas on using technology. Female students wanted to use technology in the classroom more than males. The participants believed in a strong correlation between language learning motivational factors and using technology.

In another study, Nguyen, Hsieh, and Allen (2006) explored whether or not a Web-based learning environment would improve the attitudes of middle school students towards mathematics. To this end, various instruments including printed worksheets, papers, pencils, the Internet, and interviews were used. They concluded that students were more enthusiastic about Web-based learning than conventional learning.

Similarly, Warschauer (1996) explored the relationship between motivation and computer assisted instruction among university students. The results showed a significant and positive relationship between students' motivation and computer-assisted instruction.

In another study with 90 college freshmen, Chang (2010) investigated the effect of self-monitoring strategy use on Web-based language learners' performance and motivation. To this end, general English proficiency tests, a course-based reading comprehension test, and a modified version of motivation strategies for learning questionnaire (MSLQ) were used as data collection instruments. The results showed significant correlations between self-monitoring strategy use and better academic performance. The results also showed the existence of positive motivational beliefs in Web-based learning environments.

Granito and Chernobilsky (2012) investigated the effect of technology on students' motivation and knowledge retention. Two treatments were given over the course of nine weeks; conventional and computer-based learning. The results of the study revealed that students retained knowledge, regardless of the type of treatment (conventional or computer-based) they received.

Similarly, Chien, Kao, Yeh and Yilin (2012) examined 322 elementary school teachers' attitudes and motivation toward Web-based professional development. Based on the results, a positive correlation was found between the teachers' attitudes and their motivation toward web-based professional development. In a similar study, Erdogan, Bayram and Deniz (2008) investigated factors influencing academic achievement and attitudes in web-based instruction and concluded that web-based education has positive effects on the improvement of learners' academic achievement and motivation.

Additionally, Genc and Aydin (2010) conducted a study with 126 EFL learners in Turkey. They investigated the relationships between the level of motivation and other variables such as age, gender, types of high school, parents, educational background, compulsory and voluntary learning of a foreign language, and Web-based instruction. They reported that EFL learners had a high level of motivation towards using Web-based instruction and computer in the learning process. A positive correlation was also reported between learners' beliefs and the level of their motivation.

In another study, Shirani Bidabadi (2012) examined the motivational English language learning strategies 0f 48 Iranian female freshman EFL learners through computer. The results of the study revealed that learners had a high level of motivation towards

computer use while learning English, and that computers were good motivators for learning English.

In yet another study, Hodge, Richardson and York (2009) investigated students' motivation and perceptions of learning in relation to the use of a Web-based homework tool. The results showed that the students in the Web-based environment were more motivated than those in the conventional method.

On the contrary, in some EFL classes, conventional instruction has been shown to be more efficient than instruction using technology. Izzo (1996) found that hand-written essays were more organized than that of the students who used computer in learning English for specific purposes (ESP) because instead of the writing process, the teacher spent more time on teaching how to use the workstations.

In another study with college students in Taiwan, Huang (1998) reported that students who used face to face discussions in conventional classrooms performed better than students who used computer-meditated discussions in producing written essays because they could support each other, while in the computer-meditated environment, they moved quickly without explaining about their reasons.

III. METHOD

A. Participants

In the present study, a sample of 110 (both male and female) intermediate level Iranian EFL learners with an age range of 16 to 25 studying English at different language institutes in Qazvin, Iran was selected. After homogenization and the administration of the questionnaires, only 97 homogeneous participants who had answered all of the questionnaires were selected as the participants of the study.

B. Instrumentation

The following materials and instruments were used in the present study:

1. The first instrument was the Michigan English Language Proficiency (MTELP), which was used to homogenize the participants. The MTELP used in the present study was a 100-item multiple choice test consisting of three sections, measuring learners' grammar, vocabulary, and reading comprehension. The test included 40 items on grammar, 40 items on vocabulary, and 20 items on reading comprehension.
2. The second instrument used to assess the participants' independence was an autonomy questionnaire with 21 items on a five-point Likert scale and coded as (A. Never, B. Rarely, C. Sometimes, D. Often, E. Always).
3. The third instrument, used to elicit the participants' motivation, was a modified version of Gardner's Attitude/Motivation Test Battery (AMTB) on a 5-point Likert scale from 'strongly disagree' to 'strongly agree' including 25-items.

4. The teaching materials included Iran Language Institute Intermediate (1, 2, & 3) student books. They included 8 units from page 1 to 122.

C. Procedure

To achieve the purpose of the study, the following procedure was followed. First, 110 participants with the afore-mentioned characteristics were selected. Second, the Michigan language proficiency test was administered. The time duration of this test was 60 minutes. After homogenization, 97 students who scored between one standard deviation above and below the mean remained as the participants. Next, the participants were into two groups: experimental and comparison. Each group of participants was then randomly assigned to one of the treatment conditions. The CALL/Web-based instruction was used in the experimental group, while the conventional methods were used in the comparison group. All computers in the experimental classrooms were connected to the Internet. The participants' experience of computer and the Internet, ranged from 2-5 years. Then, the autonomy and motivation questionnaires were given to all the participants. The participants had 30 minutes to complete these questionnaires. The participants were given their treatments, during which the experimental group participants were instructed through web-based/CALL-based activities, and the other group received conventional classroom instruction. At the end of the experimental period, all the participants were asked to respond to the same questionnaires again. The obtained data were then submitted to statistical analyses. To analyze the collected data and to answer the research questions, two separate ANCOVA procedures were used.

IV. RESULTS AND DISCUSSION

A. The First Research Question

The first question attempted to investigate the effects of CALL/Web-based instruction on Iranian EFL learners' autonomy. To answer this question, an ANCOVA procedure was used. Table 1 shows the results of the descriptive statistics. As Table 1 shows, the mean score of the experimental group, which received CALL/Web-based instruction, is higher than that of the comparison group, which received conventional methods.

Table 1: ***Descriptive Statistics for the ANCOVA on autonomy***

Group	Mean	Std. Deviation	N
Experimental	71.45	9.53	59
Comparison	44.63	6.91	38
Total	60.94	15.70	97

Test statistics were checked to see whether or not the observed difference between the groups was statistically significant. The results are given in Table 2.

Table 2: ***Test statistics for the ANCOVA on autonomy***

Source	Type II Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared	Non cent. Parameter	Observed Power [b]
Corrected Model	20567.60[a]	2	10283.80	311.31	.00	.86	622.63	1.00
Intercept	846.47	1	846.47	25.62	.00	.21	25.62	.99
Autonomy pre	3934.34	1	3934.34	119.10	.00	.55	119.10	1.00
Group	7369.25	1	7369.25	223.08	.00	.70	223.08	1.00
Error	3105.14	94	33.03					
Total	384000.00	97						
Corrected Total	23672.74	96						

a. R Squared = .869 (Adjusted R Squared = .866)

b. Computed using alpha = .05

As Table 2 shows, there is a significant difference between the effects of CALL/Web-based instruction and conventional methods on Iranian EFL learners' autonomy. It can also be seen from Table 2 that there was a significant difference between the groups on the pre-test. Therefore, care must be exercised in interpreting the results. Meanwhile, the index of the strength of association indicates that about 70% of the observed difference between the groups is attributable to the independent variable. This means that the remaining 30% of the variance has yet to be explained.

B. The Second Research Question

The second research question sought to investigate the effects of CALL/Web-based instruction on Iranian EFL learners' motivation. To this end, the ANCOVA procedure was used. Table 3 shows the results of the descriptive statistics. It can be seen that the experimental group, which received CALL/Web-based learning, has a higher mean score than the comparison group, which received conventional method.

Table 3: ***Descriptive statistics for the ANCOVA on motivation***

Group	Mean	Std. Deviation	N

experimental	93.74	11.43	59
comparison	71.34	7.21	38
Total	84.96	14.82	97

To see whether or not the observed difference between the groups was statistically significant, the test statistics were also checked. The results of the ANCOVA are given in Table 4.

Table 4: ***Test statistics for the ANCOVA on motivation***

Source	Type II Sum of Squares	Df	Mean Square	F	Sig	Partial Eta Squared	Non cent. Parameter	Observed Power [b]
Corrected model	11746.26[a]	2	5873.13	58.95	.00	.556	117.90	1.00
Intercept	27050.51	1	27050.51	271.52	.00	.74	271.52	1.00
Motivation pre	145.10	1	145.10	1.45	.23	.01	1.45	.22
Group	7893.82	1	7893.82	79.23	.00	.45	79.23	1.00
Error	9364.63	94	99.62					
Total	721426.00	97						
Corrected Total	21110.90	96						

a. R Squared = .556 (Adjusted R Squared = .547)

b. Computed using alpha = .05

As table 4 shows, there is a significant difference between the effects of CALL/Web-based instruction and conventional methods on Iranian EFL learners' motivation. Since there was no significant difference in their pretest scores, it may be safely concluded that the observed difference between the two groups in terms of their motivation is statistically significant and meaningful. Moreover, the index of the strength of association indicates that 45% of the observed difference between the groups is attributable to the independent variable. This means that the remaining 55% of the variance is left unaccounted for. Also, the index of cook's distance was checked and there was no problem with it.

C. Discussion

One of the findings of the present study was that there was a significant difference between the effects of CALL/Web-based instruction and conventional methods on Iranian EFL learners' autonomy. This finding corroborates those of Dam and Legenhausen (1996), who reported that students in a CALL-based classroom were more autonomous than those in

a conventional one. In addition, this finding is compatible with the finding of Orina and Nyongesa (2012), who found that computer-based language materials have the potential to improve learner autonomy. They concluded that computer-based instruction increases student independence.

Furthermore, the findings of the present study partially approve those of Hayta and Yaprak (2013), and Rahman (2013). Hayta and Yaprak reported a significant relationship between learner autonomy and computer technology. Also, Rahman (2013) concluded that learner autonomy has a positive effect on learner' language learning in CALL environments. Moreover, in line with the findings of this study, Mutlu and Eroz-Tuga (2013) reported a significant relationship between computer-assisted language learning and autonomy.

In addition, this finding of the present study is compatible with that of Wach (2012), who reported that computer and online instruction increase student autonomy. The findings also corroborate the findings of Wu (2009), who confirmed the effectiveness of network-based multimedia teaching model in the development of students' autonomy.

Based on the results, it can be concluded that Iranian EFL students will have higher autonomy if they are given CALL/Web-based instruction. This lends support to Kaur and Sidhu (2010), who showed that online interactions help learners to develop autonomy. Furthermore, the findings of the present study partially approve those of Bedoya (2014). Bedoya examined learner autonomy in a virtual EFL course. Results showed a significant correlation between computer use and autonomy.

On the other hand, the finding contradicts those of Celik et al. (2012), who found no significant difference in use of ICT for self-regulated learning between high and low autonomy students.

Another finding of the present study was that there was a significant difference between the effects of CALL/Web-based instruction and conventional methods on Iranian EFL learners' motivation. This finding supports that of Warschauer (1996), who reported that CALL has a positive relationship with students' motivation. The results of the present study are also in line with those of Erdogan et al. (2008) that web-based education has positive effects on the improvement of motivation and academic achievement for learning. In addition, the findings of the present study corroborate those of Wang and Reeve (2006). They showed that Web-based learning activities improved students' motivation.

In addition, the findings of the present study corroborate those of Ghalami and Ahangari (2012), who reported that motivation of EFL students increased in Web-based instruction. Moreover, the findings of the present study lend partial support to Genc and Aydin's (2010) findings, based on which there was a significant relationship between motivation of EFL learners and Web-based instruction.

Parts of the findings of the present study addressing the significant relationship between Web-based environment and students' motivation lend support to Hodge et al.'s (2009) findings; the students in the Web-based environment were more motivated than those in the conventional method. The results further support those of Shirani Bidabadi (2012), who suggests that computer improves the motivation of Iranian EFL learners.

Nevertheless, the findings of the present study are different from those reported by Granito and Chernobilsky (2012), who found that students retained knowledge no matter which method was chosen. Furthermore, the findings of the present study are in contrast with those of Izzo (1996), who found conventional instruction to be more efficient than instruction using technology. Moreover, the results of this study are different from those reported by Huang (1998), who found that students who used face to face discussion in conventional classrooms performed better than students who used CALL.

The findings of the present study may have been affected by a number of factors such as students' level of proficiency, gender differences, personality of the learners, and multiple intelligences. Furthermore, in the present study, the participants were studying in an EFL context. This means that part of the difference between the results of this study and those of the above-mentioned studies, which were conducted in ESL settings, could be attributed to the context of study.

V. CONCLUSION

Based on the findings of this study, it may be concluded that CALL/Web-based instruction can be considered as a way of improving learners' autonomy. In crowded, teacher-centered classrooms, and with the constant pressure of time constraints, relying too much on teachers' efforts and hoping that the teacher alone can guarantee effective learning is actually leaving too much to chance. Modern teaching requires that a greater share of the responsibility be given to the learners. In other words, modern teaching calls for learner autonomy as an important element for facilitating learning. Computer-based instruction lends itself much better to learner-centered education than the conventional instructional methods.

Based on the above, it may be concluded that for creating autonomy, it is necessary for educational authorities to edit English textbooks, to design books which promote self-study, such as electronic books with glossaries, hyperlinks, footnotes, electronic dictionaries, CD-ROM, etc.

Many psychologists and researchers believe that motivation positively influences behavior and learning. There are those like Gardner (1985), and Scarcella and Oxford (1992), who believe that motivation is one of the important elements in learning a second language. By integrating technology into educational curriculum, one of the most important problems of education, lack of motivation, can be solved.

Moreover, designing CALL/Web-based instruction can increase learners' motivation for classroom activities in various task-based activities. With access to the Internet, learners may be encouraged to communicate with native speakers, and their motivation can be improved. It may, therefore, be concluded that designing computer-based course books and incorporating computer, the internet, and multimedia into language teaching classrooms can improve learners' motivation and hence boost their academic achievement.

Also, successful and effective implementation of computer technology in language classrooms requires that instructors and students have computer literacy. Teachers need to be provided with in-service training to become familiar with the applications of technology in

education in general and language teaching, in particular. Furthermore, since Rieber (1994) believes that remembering information through visual processing is easier than verbal processing, it may be concluded that CALL-based classrooms can directly facilitate learning; computer can be an effective complement to verbal sources. That is, CALL/Web-based instruction may help learners in interpreting and storing information through visual and verbal codes.

The findings of the present study may have implications for teachers, learners, and curriculum designers. The knowledge of how CALL/Web-based instruction may influence students' learning can help teachers make more informed decisions as to how to provide input. The findings may also help materials developers and syllabus designers to consider the importance of CALL/Web-based learning while planning textbooks and materials.

REFERENCES

Ahmad, K., Corbett, G., Rogers, M. & Sussex, P. (1985). *Computer Language Learning and Language Teaching.* Cambridge: Cambridge University Press.

Anderson, R. & B. Speck. (2001). *Using technology in K-8 literacy classrooms.* Upper Saddle River, N: J: Prentice Hall.

Barimani, S., & Naraghizadeh, M. (2013). The Effect of CALL on Vocabulary Learning of Iranian EFL Learners. *Journal of Academic and Applied Studies, 3* (3), 1-12.

Bedoya, P. A. (2014). The Exercise of learner autonomy in a virtual EFL course in Colombia. *A Colombian Journal for Teachers of English*, *21*(1), 82-102.

Benson, P. (2001). *Teaching and Researching Autonomy in Language Learning.* Longman, London.

Benson, P. (2007). Autonomy in language teaching and learning. *Language Teaching*, *40*, 21-40.

Cabada, R., Estrada, M., Sanchez, L., Sandoval, G., Velazquez, J., & Barrientos, J. (2009). Modeling student's learning styles in Web 2.0 learning systems. *World Journal on Educational Technology, 1*(2), 75-88.

Celik, s., Akin, E. & Sabriler, D. (2012). EFL learners' use of ICT for self- regulated learning. *Journal of Language and Linguistic Studies, 8* (2), 98-118.

Chang, M.M. (2010). Effects of self-monitoring on Web-based language learning and teaching. *CALICO Journal, 27*(2), 298-310.

Chien, H. M., Kao. C. P, Yeh, J. J., & Yilin, K. (2012). Examining the relationship between teachers' attitudes and motivation toward web-based professional development: A structural equation modeling approach. *Journal of Educational (TOJET) Technology*, *11*(2), 120-127.

Chun, D. M., & Plass, J. L. (2000). Networked multimedia environments for second language acquisition. In Warschauer, M., & Kern, R. (Eds.), *Network-based language teaching: Concepts and Practice.* New York: Cambridge University Press.

Clement, R., Dornyei, Z., & Noel, K. A. (1994). Motivation, self-confidence, and group cohesion in the foreign language classroom. *Journal of Language Learning*, *44*(3), 417-448.

Crookes, G. & Lehner, A. (1998). Aspects of process in an ESL critical pedagogy teacher education course. *TESOL Quarterly, 32* (2), 319-328.

Dam, L. & Legenhausen, L. (1996). The acquisition of vocabulary in an autonomous learning environment -the first months of beginning English. In Pemberton, R. (eds). *Taking Control: Autonomy in Language Learning*: 265-280. Hong Kong: Hong Kong University Press.

Davies, G., Hewer, S., Rendall, H. & Walker, R. (2004). ICT4LT Module 1.4: Introduction to computer assisted language learning (CALL). http://www.ict4lt.org/en/en_mod1-4.htm

Deci, E.L. & Ryan, R. M. (1985). *Intrinsic Motivation and Self-determination in Human Behavior*. New York, NY: Plenum Press.

Deci, E. L., Patrick, B. C., Rigby, C. S., & Ryan, R. M. (1992). Beyond the intrinsic-extrinsic dichotomy: Self-determination in motivation and learning. *Motivation and Emotion*, *16*(3), 165–185.

Dickinson, L. (1993). Talking shop: Aspects of autonomous learning. *ELT Journal*, *47*(4), 33-36.

Dornyei, Z. (1994). Motivation and motivating in the foreign language classroom. *The Modern Language Journal*, *78*(3), 273-284.

Erdogan, Y., Bayram, S., & Deniz, L. (2008). Factors that influence academic achievement and attitudes in web-based education. *International Journal of Instruction,1*(1), 31-48.

Galloway, G. M. (1998). *A model of Internet usage for course delivery*. Paper presented at the 9th Annual International Conference of the Society for Information Technology and Teacher Education (*SITE*): Washington DC.

Gardner, R. C., & Lambert, W. E. (1959). Motivational variables in second language acquisition. *Canadian Journal of Psychology, 13,* 266-272.

Gardner, R. C. (1985). *Social psychology and language learning: The role of attitudes and motivation.* London: Edward Arnold.

Genc, G. & Aydin, S. (2010). Students' motivation towards computer use in EFL learning. *IETC,* 1367-1369.

Ghalami, N. A., & Ahangari, S. (2012).The impact of computer-assisted language learning on Iranian EFL learners' Tasked-based listening skill and motivation. *Journal of Academic and Applied Studies, 2* (1), 39-61.

Godwin-Jones, R. (2011). Emerging technologies autonomous language learning. *Language Learning & Technology*, *15*(3), 4-11.

Granito, M., & Chernobilsky, E., (2012). The Effect of technology on a student's motivation and knowledge retention.3 *NERA Conference Proceedings.* Paper 17. http://digitalcommons.uconn.edu/nera_2012/17

Gremmo, M. J., & Riley, P. (1995). Autonomy, self-direction and self-access in language teaching and learning: *The history of an Idea. System*, *23*(2), 151-164.

Hannum, W., & Briggs, L. (1982). How does instructional system design differ from traditional instruction? *Educational Technology, 22*(1), 9-14.

Hayta, F., & Yaprak, Z. (2013). Learner autonomy and computer technology as a facilitator of autonomous language learning. *Journal of Education and Instructional Studies in the World*, 3 (2), 57-63.

Hodge, A., Richardson, J.C., & York, C. S. (2009). The impact of a Web-based homework tool in University Algebra courses on student learning and strategies. *Journal of Online Learning and Teaching*. *5*(4), 618-629.

Holec, H. (1981). *Autonomy and foreign language learning*. Oxford: Pergamon Press.

Huang, S. (1998). Differences in the nature of discussion between peer response sessions conducted on networked computers and those conducted in the traditional face-to-face situation. *ERIC Document Reproduction*.

Huizhong, Y (1985). *The use of computers in English teaching and research in china.* In R. Quirk & H.G. Widdowson (eds). *English in the World 86 – 1000*. Cambridge: Cambridge University Press.

Ilter, G. (2009). 'Effect of Technology on Motivation in EFL Classrooms', *Turkish Online Journal of Distance Education* (*TODJDE*), *10* (4), 1-9.

Izzo, J. (1996). An analysis o f computer workstation and handwriting use by ESP students. *ERIC* (ED394295).

Jang, S.K., Hwang, S.Y., Kim, M.Y., & Kim, J.M., & Park, J.S. (2005). Effects of a Web-Based Teaching Method on Undergraduate Nursing Students' Learning of Electrocardiography. *Research Brief, 44*(1), 35-39.

Januszewski, A., & Molenda, M. (Eds.). (2008). *Educational technology: A definition with commentary*. New York: Lawrence Erlbaum Associates oft Corporation.

Jones, S. (2002). *The Internet goes to college: How students are living in the future in the today's technology*. Retrieved September 30, 2011 from http://www.eric.ed.gov/PDFS/ED472669.

Joshi, K.R. (2011). Learner Perceptions and Teacher Beliefs about Learner Autonomy in Language Learning. *Journal of NELTA, 16*, 13-29.

Kang, S. (1999). Learning styles: Implications for ESL/EFL instruction: *English Teaching Forum*, 37-40.

Kaur, R., & Sidhu, G.K. (2010). Learner autonomy via asynchronous online interactions: A Malaysian perspective. *International Journal of Education and Development Using Information and Communication Technology*, *6*(3), 88-110.

Keller, J. M. (1983). *Motivational design of instruction.* In C. M. Reigeluth (Ed.), *Instructional Design Theories and Models*, 386-433, Hillsdale, NJ: Erlbaum.

Keller J., & Litchfield B. (2002). *Motivation and performance*. In R.A. Reiser & J.V. Dempsey (Eds.). *Trends and Issues in Instructional Design and Technology*. 83-98.

Kung, S.-C., & Chuo T.-W. (2002). Students' perceptions of English learning through ESL/EFL Websites. *TESL-EJ*, *6*(1), A-2. Retrieved March 3, 2005, from TESL-EJ/ej21/a2.html.

Lamb, T. E. & Reinders, H. (eds.) (2007). *Learner and Teacher Autonomy. Concepts, realities, and responses.* Amsterdam: John Benjamin.

Licenjacka, P. & Filologia, N. K. (2007). *Computer-assisted language learning.* Effectiveness of vocabulary learning with the help of the author application of application of the catching practice, M.A. thesis, University of Koleguim.

Linnebrink, E.A., and Pintrich, P.R. (2003). The role of self-efficacy beliefs in student engagement and learning in the classroom. *Reading & Writing Quarterly*.

Little, D. (1991). *Learner autonomy* 1: Definitions, issues, and problems. Dublin, Ireland: Authentik.

Maslow, A. H. (1970). *Motivation and Personality*. (2nd ed), New York: Harper & Row.

McCormack, C., & Jones, D. (1998). *Building a Web-Based Education System.* New York: Wiley.

Meihami, H., Meihami, B., Varmaghani, Z. (2013). The Effect of Computer-Assisted Language Learning on Iranian EFL Students Listening Comprehension. *International Letters of Social and Humanistic Sciences, 11*, 57-65.

Mutlu, A., & Eroz-Tuga, B. (2013). The Role of Computer-Assisted Language Learning (CALL) in Promoting Learner Autonomy. *Journal of Educational Research*, *51*, 107-122.

Nguyen, D., Hsieh, Y., & Allen, G. (2006). The impacts of web-based assessment and practice on Students' mathematics learning attitudes. *Journal of Computers in Mathematics and Science Teaching. 25* (3), 251-279.

Orina, d., & Nyongesa, w. j., (2012) Computer-based language learning materials and learner autonomy: Classroom perspective. *Research Journal in Engineering and Applied Sciences 1*(6), 355-361.

Osuna, M. M., & Meskill, C. (1998). Using the World Wide Web to Integrate Spanish Language and Culture: A pilot study. *Language Learning & Technology, 1*(2), 71–92.

Owston, R. (1997). The teaching Web: A guide to the World Wide Web for all teachers. Retrieved August 28 from: http://www.edu.yorku.ca/~rowston/chapter.html

Peng, F. M. (2001). The effects of learner control on computer assisted language learning in hypertext environment vs. a linear text environment, *Journal of Humanities and Social Sciences, 2*, 207-231.

Rahman, M. M. (2013). CALL in promoting EFL learner autonomy at the tertiary level in Bangladesh. *International Conference on Tertiary Education (ICTERC*). Daffodil International University, 71-80.

Reeves, T. C., & Reeves, P. M. (1997). *The effective dimensions of interactive learning on the WWW*. In B. H. Khan, (Ed.), *Web-based instruction* (pp. 59-66). Englewood Cliffs, NJ: Educational Technology.

Rieber, L.P. (1994) *Computers, Graphics and Learning.* Madison, WI: WCB Brown & Benchmark.

Sansone, C., & Harackiewicz, J.M. (2000). *Intrinsic and Extrinsic Motivation: The Search for Optimal Motivation and Performance*. New York: Academic.

Scarcella, R., & Oxford, R. (1992). *The Tapestry of Language Learning: The Individual in the Communicative Classroom.* Boston: Heinle

Schwienhorst, K. (2003). Learner autonomy and tandem learning: Putting principles into practice in synchronous and asynchronous telecommunications environments. *Computer Assisted Language Learning, 16*, 427–443.

Shirani Bidabadi, F. (2012). Motivational Learning Strategies through Computers among EFL Learners. *Research paper, 1*(8), 91-100.

Thanasolus, D. (2000). Autonomy and Learning*:* An Epistemological Approach. *Applied Semiotics, 10*, 115-131.

Wach, A. (2012). Computer-mediated communication as an autonomy-enhancement tool for advanced learners of English. *Studies in Second Language Learning and Teaching*, *2*(3), 367-389.

Wang, S. and Reeves, T. (2006). The effects of a web-based learning environment on student motivation in a high school earth science course. *Educational Technology, Research and Development, 54* (6), 597-621. Retrieved April 5, 2009.

WU, S. (2009). A study of network-based multimedia college English autonomous teaching and learning model. *US-China Foreign Language, 7*(7), 38-56.

Yazdanpanah, M., Sahragard, R., & Rahimi, A. (2010). The interplay of locus of control and academic achievement among Iranian English foreign language learners. *Cypriot Journal of Educational Sciences, 5(*3). 181-202.