Social-Personalized versus Computer-Personalized Methods to Teaching English Learners' Reading Comprehension Ability

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Abstract

The present study was out to compare new approaches computer assisted language learning, personalized learning program versus traditional approach to teaching second language reading comprehension ability among Iranian English learners. The participants in this study were 90 students who studied at a university of Applied Sciences and Technology in Rasht, Iran. All the participants were randomly assigned into three groups, one control group and two experimental groups. The control group went through a traditional method of teaching reading skill in the classroom. The first experimental group received a personalized learning instruction. The second experimental group went through a personalized learning program supported by a computer assisted language learning system (CALL). At the end of the treatment, a posttest was administrated to three groups to find out the effects of the new instruction. The results of this study revealed that the second experimental group who received treatment through CALL- based personalized learning approach

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Método Social *versus* Método Personalizado por Computadora en Comprensión Lectora de Alumnos de Inglés

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Resumen

El presente estudio compara nuevos enfoques de aprendizaje de lenguaje asistido por computadora con el enfoque tradicional de la enseñanza de la comprensión de inglés como segunda lengua entre estudiantes iraníes. Participaron 90 estudiantes de una universidad de Ciencias Aplicadas y Tecnología en Rasht, Irán. Todos los participantes fueron asignados al azar en tres grupos - un grupo de control y dos grupos experimentales. El grupo de control pasó por un método tradicional de enseñanza de habilidad de lectura en el aula. El primer grupo experimental recibió una instrucción de aprendizaje personalizada. El segundo grupo pasó por un programa de aprendizaje personalizado apoyado por un sistema de aprendizaje de lenguaje asistido por computadora (CALL). Al final del tratamiento, un post-test fue administrado a los tres grupos. Los resultados revelaron que el segundo grupo experimental que recibió tratamiento a través del CALL tuvo un mejor desempeño que los otros grupos; se concluyó que el enfoque de aprendizaje personalizado basado en CALL tuvo un efecto marcado positivo en la capacidad de comprensión de lectura de los estudiantes iraníes de nivel intermedio de inglés.

Palabras clave: método personalizado por computadora; aprendizaje de inglés; comprensión lectora; método tradicional

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Nontraditional educational institutions have used personalized learning approach since 19th century. Parkhurst (1922) claimed that curriculum can be programmed by each student in order to meet his/her needs, interests and abilities. Parkhurst's plan tried to extend educational focus toward creative activities in order to develop students emotionally and socially and used a program that later became known as programmed instruction.

Keller (1974) created PSI (Personalized System of Instruction) and determined principles that are critical for effective instruction. He believed that students' instruction should be based on their needs. The results of Keller's research showed that the learners who were taught with PSI learned more than those who taught with traditional method. Moreover, most of the learners' favorite way of learning was PSI, not conventional method.

According to the findings of the study conducted by Bloom (1984) students had better achievement when they were taught through individual instructions than the common traditional instruction. Based on Gardener's (1989) theory of multiple intelligences, human beings can learn and process information in a variety of ways but these are independent of each other. The superiority of PSI over conventional methods was demonstrated by Kulik (1991). According to Kulik, students rated PSI and control classes differently. PSI classes are rated as more enjoyable by the students. Also, it has a higher quality than conventional classes and students contribute to the learning more than conventional classes.

In this relation, Reboy and Semb (1991) documented that in many courses such as critical thinking, PSI has been utilized. They also showed that the students who take PSI and similarly designed courses enhance their higher order cognitive abilities. Traditional views of childhood and education in 19th century have been challenged by Dewey (1938). He believed that active engagement of the learners in the learning process could help them to develop connection and personal meaning from the content. As stated by Sharples, Amedillo Sanchez, Milrad, and Vavoula (2009), a great progress can be achieved by the customization of education because it identifies that the ability level of students is different; because they have different background and interests.

More recently, researches who study Computer-Aided Personalized System of Instruction (CAPSI) developed procedures for recognizing higher-level of objectives and included them into PSI courses (Crone-Todd & Pear, 2011).

The current study presents personalized learning as a way for enhancing reading comprehension ability of students through using different strategies and techniques in a reading class and also attempts to make comparison between personalized learning and CALL- based personalized learning program.

Literature Review

Approaches to differentiation more formally were created in the 1960 and 1970, with the introduction of individualized instruction. Although the approach consisted of teaching strategies according to the individual students' needs, in practice students usually worked through prepackaged materials at their own rates. These programs were usually made around the development of basic skills in reading and math. Students were placed into lessons based on pretests and moved on to the next steps when post test scores showed their mastery. Without the direct supervision of a teacher, these lessons were often completed (Weber, 1977). Personalized learning is a 21 century model of differentiated instruction that indicates Tomlinson and Allan's (2000) vision of recognizing each student's readiness, interest, and learning profile through differentiation of content, process, and product. The concept of personalized learning is mainly based on the cognitive and constructivist theories of learning. Cognitive instructional principles emphasize the active involvement of the learners in the learning process and the structure and organization of knowledge, and linking new knowledge to learner's prior cognitive structures. According to Constructivist instructional theory, instructional designers determine which instructional methods and strategies will help learners to actively explore topics and enhance their thinking. Learners are encouraged to develop their own understanding of knowledge. This does not deny the role of practice and feedback, but rather allows learners to develop their knowledge structure.

As Schunk (1978) stated, the above theories are common in some part such as learners have been involved in learning and structuring solutions so that they can get the maximum amount of information. Constructivists such as Piaget and Vygostky suggest that through active participation and by engaging in social interaction more deeply, meaningful learning can be achieved (Palinscar, 1998).

This theory emerged as a result of an extensive study of cognitive development. In constructivist approach to learning, teacher acts as a facilitator or a guide for students. The teacher encourages and motivates students to make their own ideas and conclusions. A number of constructivist principles that have been associated with online learning environments were identified by Boyle (1997). Boyle found that learners can obtain experience with the knowledge construction process through these environments. Also these environments encourage learners to take ownership of their own learning process which results in students' self awareness. These environments provide realistic and relevant contexts for learning. In constructivist approach, students engage in collaborative, reflective, contextualized and intentional learning. These elements mean rich productive learning experiences (Jonassen, 1999). Tapscott (1998) utilized a constructivist view to explore how Net generation learns. He observed how online learning environments create new learning paradigms, which involve a change from:
- linear to hypermedia learning
- instruction to construction and discovery
- teacher-centered to learner-centered approach
- absorbing material to learning how to navigate and how to learn
- one size fits into the customized learning
- the teacher as transmitter to the teacher as facilitator

Day and Bamford (1998) and Siemens (2005) developed connectivism. Connectivism takes into account the complex and organic nature of learning, the need for rapid change of knowledge for the students and increasing the various sources of knowledge. According to connectivism, learning in today's web environment is complex, multifaceted and disorganized and is based on making connections. The unique elements of

connectivism were examined by Chatti, Jarke, and Froschwilke (2007) through looking at the relationship between knowledge and learning. They found that learning is an ongoing network formation process, facilitated by technology. Knowledge is made up of specialized nodes or information sources. A critical skill for today's learners is to see these networks, recognize patterns and make sense between disciplines, ideas and concepts. Personalized learning approach is arranged with interactionist, connectivist and constructivist learning theories. Learners are free in these approaches to freely choose and experience a series of activities and resources. Constructivist approaches generally involve creating opportunities for learners to make their own ideas explicit, share them with others, and subject them to careful examination. In constructivist approach the purpose is to achieve students' engagement and to develop the sense of ownership that is essential to building intellectual independence. When teachers are working alongside students in trying to answer each student's questions, they are cast in the role of learners and this element contributes to learners' self-esteem and intellectual independence.

Child centered approach can incorporate constructivism by influencing teachers towards encouraging learners to explore phenomena and events individually and to design and conduct their own learners to explore phenomena and events individually and to design and conduct their own learning with the minimum of teacher direction. So, personalized system of instruction (PSI) can be consistent with constructivist approach to education by including discovery learning experiences. PSI is consistent with constructivist approach and is a learner centered system that puts the main emphasis on the learner and places the learner in an active role (Buskist, Cush, & DeGrandpre, 1991). Social interactionist theory is an explanation of language development that emphasizes the role of social interaction between the growing child and linguistically knowledgeable adults. It is based largely on the socio-cultural theories of Vygotsky. According to Vygotsky, social interaction plays an important role in the learning process. Vygotsky proposed the zone of proximal development (ZPD) where learners construct the new language through socially mediated interaction. Vygotsky's learning theory is seen as a theoretical basis for providing individualized learning by many proponents of adaptive learning. They

show ZPD and the role of the teacher as a more knowledgeable other (MKO) as key elements of individualized learning environments (Nyikos & Hashimoto, 1997). Social interaction between the learner and the teacher in a specific social context helps the learner to achieve his/her learning potential (Kearsley & Lynch, 1992). Vygostky believed that there is a gap between the learner's developmental level and the learner's potential level (Vygotsky & Cole, 1978). Active participation within the teaching environment and meaningful interaction with a teacher or other experts bridge this gap (Kearsley & Lynch, 1992). Vygostky believed that interaction from a MKO is not the only basis for learning. The learner should be actively involved in the learning process and utilize various tools for learning. Learning process is began by receiving instruction from the MKO, then learner becomes active participation in the learning (Attwell, 2010).

The learner takes responsibility to help in the learning process which is an important component of a personalized learning environment. The learner utilizes personalized learning environment as a tool to interact with MKO. The learner and the teacher interact in the environment that involves the physical space, meaningful instruction, student-teacher engagement methodology, student ability, and content. The teacher uses each of these areas to provide meaningful individualized learning environment for each learner (Subban, 2006). According to discovery theory by Bruner (1990), learners learn best when they discover knowledge for themselves. He believes that students keep knowledge best when it is something they have discovered on their own.

Computer Assisted Language Learning (CALL)

The use of computer as part of a language course is described by CALL (Hardisty & Windeat, 1989). CALL seeks the role of information and communication technologies in language learning and teaching. With the effective use of technology, many of the obstacles to implementing personalized instruction can be prevented and stopped. There is a gap between school resources and a personalized learning environment and TEPL (technology enhanced personalized learning) may bridge this gap.

What makes personalizing learning for each student difficult to a teacher is providing enough resources to do the task but the use of computers makes it easy to access a huge number of resources. Also the use of computer helps the instructor to collect and analyze a large amount of student data. The use of TEPL can provide opportunity for all learners to have an access to the same personalized learning techniques that were available to elite students (Tomlinson, Tropping, & Allen, 2008). By the help of technology, a wide range of content can be covered in a short length of time and it declines the need to take each step of curriculum by teaching slowest learners in a single, teacher directed way. CALL programs can promote the learning speed, individualized instruction and administration. The use of computers is one of the most efficient ways to make the lessons audio-visual, to support a fluent and effective education, to keep the students away from memorization, to achieve speed and permanence in perception.

The use of computer enables the teacher to track each student's accomplishments and achievement data. This student's data helps the teacher to provide personalized learning experience for each learner by matching the student's accomplishments, learning experience and achievement data to the learning objectives of the course. So in this way, the teacher fits learning to the individual's needs. Computers make abstract and complicated concepts concrete digitally because of their extensive multimedia properties. Computer technologies motivate the learner to learn, increase the learner's control over the content of the materials and make the learner to have an active role in the learning process (Becker, 2000). A variety of activities, pedagogical practices and research are included in CALL. CALL provides useful programs for supporting four language skills (listening, speaking, reading, and writing).

As Cuban (2001) claimed, CALL does not include only its canonical devices such as desktop and laptop. It includes everything that a sort of computer is embedded in it such as PDA (personal digital assistance) mp3 players, mobile phones, DVD players, and electronic whiteboards. Students can utilize different programs which guide them during their learning process by the use of computers. These programs determine learners' mistakes and problems and give them the result of their learning. These programs adapt their pace to the ability level of the students. If the student

answers all the exercises correctly then the learner can go to the next stage of the learning process. Otherwise, more exercises at the same level are presented by the computer to the learner. A large range of multimedia aids such as sound, animation, photograph, references to the dictionaries and glossary is presented by the computer. In the case of reading comprehension, all the mentioned applications function to promote reading comprehension ability of the learners. As Warschauer and Healey (1998) stated, for students that language is abstract, the application of computer makes the language alive. CALL provides student-centered materials for the learners and allows learners to work on their own way. Interactive learning and individualized learning are two important features of such materials. CALL promotes learner's autonomy.

A number of advantages have been identified for the CALL. CALL promotes learner's motivation, experiential learning and learner's achievement. Lots of authentic learning materials, information and resources can be provided by CALL. CALL enhances personalization and learner's autonomy. Greater interaction and global understanding can be achieved through using CALL. The most important advantage of CALL is that all language skills (listening, speaking, reading, and writing) can be integrated into a single activity (Davis, Christodoulou, Seider, and Gardner, 2011). It also enables the learner to take control over his learning process which personalized learning. Learners with lower level of ability can repeat the practices and do additional exercises at the same level and advanced learners can practice higher levels of skill. The work of each student is recorded by the computer and in this way the teacher identifies each student's problem.

Full participation of the learner is needed for the computerized exercises such as a text with questions, a maze or a jumble. So, the learner is active all the time while working with the computer. Sometimes fun factor is provided by the computer in the exercises. The progress of each student is clarified for the teacher on his computer so students have to complete exercises.

There are some disadvantages of CALL. For students who have no prior experience in working with computer, it takes a lot of time to print their responses. They require to be taught how to work with computer. Also,

teachers should be trained how to use the computer. Considerable time and effort are needed to apply CALL program. Feedback is not given to open-ended questions by the computer. Computers are not a suitable means for all the activities that are carried out in the classroom. For example, it is not possible to develop an authentic communication between learners which is an important aim in education.

The aim of the current study is to compare personalized versus traditional approach to teaching L2 learners' reading comprehension ability across gender. Also the researcher focused in the use of computer as one of technologies used in used in personalized learning approach for promoting Iranian English learners' reading comprehension ability. Therefore this study aims to investigate answers to the following questions:

RQ1: Does general personalized learning affect Iranian English learners' reading comprehension ability?
RQ2: Is there any significant difference between the mean scores of Iranian male and female English learners' reading comprehension test as a result of exposure to general personalized learning approach?
RQ3: Does CALL-based personalized learning approach have any effect on Iranian English learners' reading comprehension ability at the intermediate level?

In this relation following hypotheses have been formulated:

H01: General personalized learning does not affect Iranian English learners' reading comprehension ability.
H02: There is no significant difference between the mean scores of Iranian male and female English learners' reading comprehension test as a result of exposure to general personalized learning approach.
H03: CALL-based personalized learning approach does not affect on Iranian English learners' reading comprehension ability at the intermediate level.

Method

Participants

The participants were Iranian male/ female students who studied at the University of Applied Science and Technology in Rasht. They were majoring in architecture and they were in their early twenties. The participant shared the same linguistic and cultural background and their first language was Persian. Oxford placement test (OPT) was administrated to 130 students to obtain a homogenous sample. Then 90 students were selected as intermediate for the purpose of the study. Selected students were divided randomly into three groups: one control and two experimental groups. The instructor was the same all the three groups.

Materials

Oxford placement test (OPT) was administrated to participants in order to determine their language proficiency level. The test was developed by Oxford University Press and has been proved to be highly effective as an initial placement instrument and a reliable means of placing students at all levels. It had two sections. The first section measured grammar, vocabulary and reading proficiency and the second section measured listening proficiency of the students. Regarding the purpose of the present study, first section was adopted. In the placement test, 60 items were presented to the participants. Every item was graded dichotomously: one point for correct answer and zero for an incorrect answer. The criterion for choosing the students on the OPT was one standard deviation above the mean and one standard deviation below the mean.

    Longman Introductory Course for the TOEFL Test was used as a pretest and posttest to measure the participants' reading comprehension ability before and after the treatment. The tests were administrated to all the three groups to clarify initial and final differences and similarities in their knowledge of English reading comprehension. The results of the posttest helped the researcher to find out whether general personalized approach and CALL-based personalized approach have a positive effect on L2 learners'

reading comprehension ability and whether there is a difference between males and females as a result of their exposure to the general personalizes approach.

Procedure

This research was done at the University of Applied Science and Technology in Rasht. It is a public university system administrated by Ministry of Science, Research and Technology with various branches all over the provinces of Iran. This university helps to increase skill level of employed personnel in various sectors of economic field and graduates of higher education and professional skills that are lacking in administrative. It is an educational system inspired and derived from 'Community College' in the USA, with more than 1500 education center in all corner of Iran. First, Oxford Placement Test (OPT) was administrated among 130 students in order to obtain a homogeneous sample. Then 90 students were selected as intermediate level for the purpose of the study. Participants were divided randomly into three groups, one control and two experimental groups, each group with 30 students. Longman Introductory Course for the TOFEL Test was administrated as a pretest to ensure that there is no significant difference between three groups in terms of their reading ability. The students in control group received instruction through traditional method and the texts were on the course book. The instructor read the text aloud and explained about the text and clarified synonyms and antonyms for new words during three months, while students in Experimental group 1 received instruction through personalized learning approach and students in Experimental group 2 received instruction through CALL-based personalized learning approach. The three groups followed the same aim and scope of the course and were taught by the same instructor. The level of the texts was the same for all three groups but for experimental groups, the instructor selected different topics according to students' interests, wants and attitudes. The researcher explained all the steps that were carried out in the two experimental groups and a control group as below. The experimental group 1 went through personalized learning program. The researcher made learner profile for each of the students in this group. Information about proficiency level of the

student, the kind of the text that the students was interested in, how the learner learns, learning style of the students, emotional status and health status of the student, family background and finally interest and attitudes of the student were provided in it, which helped the instructor in providing different kinds of the texts that were at the students' level of proficiency and according to their interest and attitudes. Also the researcher gave the students a personal learning goal chart and asked them to complete it. Information provided in this chart was beneficial for both the instructor and the learner; because students understood that their needs and wants were important for the instructor. Also this information helped the instructor to know expectations of the students of the reading class. The researcher employed various strategies and techniques for teaching reading comprehension to the students including:
1) Jigsaw reading
2) Pairs read and paraphrase
3) Predicting from words and pictures
4) Summarizing
5) Scrambled sentences
6) Poster brainstorm

In the second experimental group, the researcher made a learner profile for each of the learners similar to the experimental group one. In this group, each student had a computer and was connected to the internet. The instructor introduced a number of websites for reading comprehension practices to the students.

The name of four websites that were utilized in the classroom are as follows:
1) www.comeniues.com/fables
2 http://web2.uvcs.uvic.ca/elc/studyzone/570/pulp/
3) http://www.cdlponline.org/
4) www.eduweb.com/adventur.html

After the treatment, the experimental group 2 took a posttest on the computer while the control group and the experimental group 1 took the

paper based version. All of posttests were of the same question and answer format.

The control group received the conventional instruction for reading. The class began by a brief explanation about the topic, and then the instructor read the text aloud or asked one of the students to read the text aloud. The meaning of unknown vocabularies, the synonyms and antonyms of them were explained by the instructor. Then the instructor asked the students to say what they understood from the text. After a brief discussion in the class about the content of the text it was translated by the instructor. Finally the instructor asked the students to complete the practices in the book.

Methods of Collecting and Analyzing Data

To analyze the data, the researcher used SPSS using two paired sample t-tests to compare the mean scores and the significant level of the control group and the general experimental group (experimental group 1 + experimental group2) in the pretest and posttest. Also the researcher used independent sample t-test to compare the performances of males and females on post-test as a result of exposure to general personalized learning approach. The researcher used paired sample t-test to compare the performances of the second experimental group in their pre/posttest as a result of exposure to CALL-based personalized program.

Data Analysis and Findings

The first question of the study was "Does general personalized learning affect Iranian English learners' reading comprehension ability?" To answer this question, after scoring and tabulating the scores for each subject, the data of the study were analyzed through SPSS via paired sample t-test. The result showed that general personalized learning had a positive effect on reading ability of EFL learners.

To answer the second question of the study (Is there any significant difference between the mean scores of Iranian male and female English learners' reading comprehension tests as a result of exposure to general personalized approach?), the data were analyzed through SPSS via

independent sample t-test. The results indicated that the mean score of men was higher than the mean score of women.

To answer the third question of the study (Does CALL-based personalized learning have any effect on Iranian EFL learners' reading comprehension ability at the intermediate level?), the data were analyzed through SPSS via independent sample t-test. The results illustrated that CALL-based personalized program had a significantly positive effect on reading comprehension ability of students.

Analysis of the first question of the study

As table 1 indicates, paired-samples t-test was run between the pretest and posttest of the first experimental group. Table 1 provides descriptive statistics such as mean, number, standard deviation and standard error mean. As the table illustrates the number of students in each test was 60. The mean score of the pretest is 4.5000 and the mean score of the posttest is 8.0000. Thus the mean scores of the experimental group were raised from the pretest to the posttest (after the application of the treatment of the study).

Table 1
Matched t-test between pre-posttest of the first experimental group
Paired samples statistics

		Mean	**N**	**Std. Deviation**	**Std. Error Mean**
Pair 1	Post Experimental	8.0000	60	1.02598	.22942
	Pre Experimental	4.5000	60	.51299	.11471

According to table 2, the mean difference between the pretest and posttest of the first experimental group is 3.50000. Also, df (degree of freedom) is 19. Sig (2-tailed) is .000 which is less than 5. These tables confirm that treatment of the study has been significant after being exposed to the treatment of the study.

Table 2

Paired samples t-test of the first experimental group

Paired samples statistics

		Paired Differences					T	df	Sig.(2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Post Exp.	3.50000	.51299	.11471	3.25991	3.74009	30.512	19	.000

As table 3 reveals, paired-samples t-test was run between the pretest and posttest of the control group.

Table 3

Descriptive statistics of the control group

Paired samples statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post Control	6.7500	30	1.06992	.23924
	Pre Control	5.0500	30	082558	.18460

According to table 4 the mean difference between the pretest and posttest of the control group is 1.70000. Also, df (degree of freedom) is 19. Sig (2-tailed) is .000 which is less than 5. Also the mean score of the control group raised from 5.05 to 6.75, in fact mean difference of the control group is 1.7 but the mean score of the first experimental group raised from 4.5 to 8. So it reveals a significant effect of the treatment on the first experimental group. Although mean score of the first experimental group in their pretest was less than the mean score of the control group in their pretest but ultimately greater achievement is obtained by the first experimental group than the control group.

Table 4
Paired samples statistics of the control group
Paired samples test

		Paired Differences					**T**	**df**	**Sig.(2-tailed)**
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Post Cont	1.70000	.47016	.10513	1.47996	1.92004	16.170	19	.000
	Per Cont								

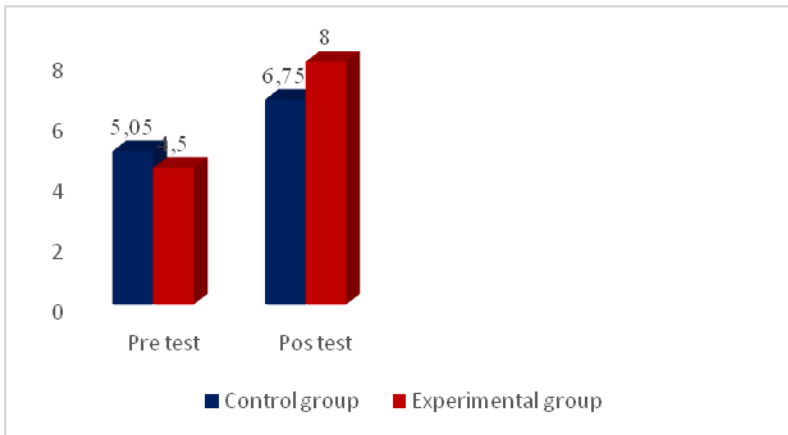Figure 1 shows the progress of the first experimental group.

Figure 1: The progress of the first experimental group

Analysis of the second question of the study

Table 5 provides descriptive statistics of the first experimental group according to which the first experimental group was divided into two groups i.e. females and males. Each group consisted of 15 participants. As table 5 reveals, the mean scores of the male group is higher than the mean score of the female group.

Table 5

Descriptive statistics of the males and females of the study on the posttest in the first experimental group

	Treat Type	N	Mean	Std. Deviation	Std. Error Mean
			Group statistics		
Reading	Male	15	6.8000	1.93581	.43286
	Female	15	5.7500	1.01955	.22798

According to table 6, there were two groups each containing 15 students. One of the questions that the present study intended to answer was whether there was any significant difference between the performances of the males and the females i.e. whether there was any difference across gender. Sig (2-tailed) is .040 which is less than 5 so the null hypothesis is rejected. Also, the mean scores of the first experimental male group (mean = 6.800) is higher than the mean scores of the female group who received (mean = 5.7500).

Table 6

Inferential statistics: Independents samples t-test: Independents samples t-test

	Levene's Test for Equality of Variances		t-test For Equality Of Means						
	F	Sig.	T	Df	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	9.957	.003	2.146	38	.038	1.05000	.48923	.05961	2.04039
Equal variances not assumed			2.146	28.788	.040	1.05000	.48923	.04910	2.05090

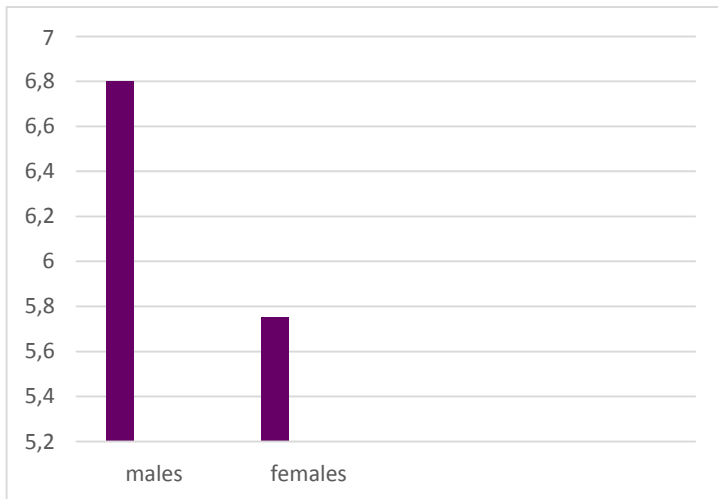Figure 2 shows the performances of male/female subjects on the posttest.

Figure 2: The performances of male/female subjects on the posttest

Analysis of the third question of the study

As table 7 reveals, paired-samples t-test was run between the pretest and posttest of the CALL-based group.

Table 7
Descriptive statistics: Paired samples t-test between the pre-posttest of the CALL-based group

		Mean	N	Std. Deviation	Std. Error Mean
		Paired samples statistics			
Pair 1	Post Ex	7.6000	30	.50262	.11239
	Pre Exp	5.2000	30	.76777	.17168

According to table 8 the mean difference between the pretest and posttest of the CALL-based group is 2.40000. Also, df (degree of freedom) is 19. Sig (2-tailed) is .000 which is less than 5.

Table 8
Inferential statistics: Paired samples t-test of the CALL-based group:Paired samples test

		Paired differences					T	df	Sig.(2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Mean				
					Lower	Upper			
Pair 1	Post Exp. Per p.	2.40000	.94032	.21026	1.95991	2.84009	11.414	19	.000

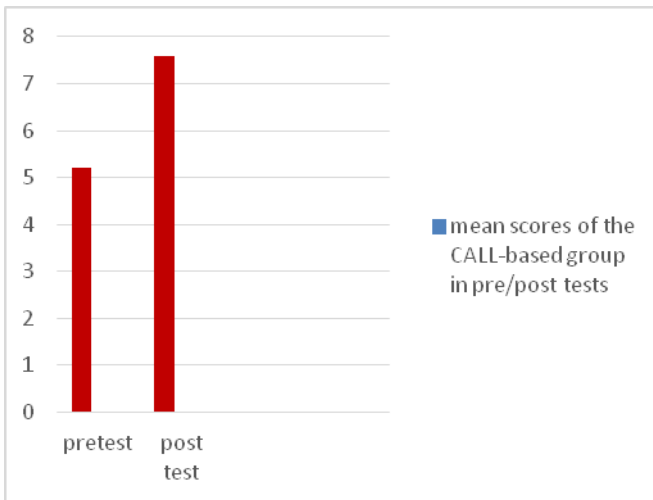The progress of the CALL-based group is shown in the figure 3.

Figure 3: The progress of the CALL-based group

Discussion

The first null hypothesis of this research indicated that general personalized learning does not affect Iranian EFL learners' reading comprehension ability. But this study rejected this null hypothesis. While some instructional barriers did exist, the findings of this study showed that students who received instruction through general personalized learning program performed better on the post test and showed more achievement than students who were taught traditional method. The second null hypothesis of this research stated that there is no significant difference between the mean scores of Iranian male/female English learners' reading comprehension tests as a result of exposure to general personalized learning approach. But the findings of this study demonstrated that there was a significant difference between the mean scores of men and women as a result of exposure to general personalized learning approach. The findings

of this study present considerable achievement for men than for women. The same result has been achieved regarding the second experimental group. In contrast, in control group, females performed better than males (Tables 9, 10).

Table 9
Descriptive statistics of the males and females of the study in the control group

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Reading	Male	15	4.3000	.65696	.14690
	Female	15	6.8500	1.22582	.27410

It may be concluded that traditional method is more effective for female learners than males. However, this result is out of scope of this study and still needs more researches to be proved.

Table 10
Inferential statistics: Independents samples t-test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test For Equality Of Means							
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
R E A D I N G	Equal variances assumed	5.258	.027	8.200	29.082	.000	2.55000	.31098	1.92045	3.18595
	Equal variances **not** assumed			8.200	38	.000	2.55000	.31098	1.92045	

The third null hypothesis of this research pointed out that CALL-based personalized learning approach has no effect on Iranian English learners' reading comprehension ability. But the results of this study indicated that CALL-based personalized learning approach had a marked effect on reading comprehension ability of Iranian students.

Participants in this study who were homogeneous in terms of reading comprehension ability before the treatment showed a significant difference after the treatment. Experimental group 1 who received instruction through personalized learning approach could overcome reading failure, obtained more comprehension of the texts and became more proficient readers. The improvement made by Experimental group 1 suggests that personalized learning program has a positive effect on reading comprehension ability of students in comparison to the control group.

However, the findings of this study reflected an outstanding achievement for the second experimental group who went through personalized learning program supported by CALL. They could overcome reading failure. Also more comprehension of the subject matter was achieved by the students in this group. Students were provided with immediate feedback and different types of reinforcement by computer based instruction. The teacher worked as a guide, by providing the tasks according to the individual students' level of proficiency and their interest.

The findings of this study are in line with Andersen (2013) who conducted a study on teaching reading through computer-assisted language learning. Andersen investigated how reading ability of secondary school students may be enhanced through using computer. Andersen managed a year-long study in order to examine the role of two methods of teaching reading skills, an instructor led class versus computer-assisted language learning in increasing the literal, inferential and evaluative levels of reading skills. The results of that study indicated that CALL was 35% more effective than the traditional instructor-led class. Also that study suggests that more effective learning environments for teaching reading can be provided by applying CALL.

Discussion and Conclusion

The result of this study seem to be compatible with Rezvani and Ketabi (2011) who conducted a research to explore the differences between two types of instruction materials-websites and textbooks and their effect on the learner's knowledge of certain grammatical rules. The finding of that study came to conclusion that web-based materials can increase learners' mastery of grammar. Also learners' motivation can be improved by using websites as a new medium for instruction.

This study seem to be in line with Marzban (2011) who investigated the improvement of reading comprehension through computer assisted learning in Iranian intermediate English students. The results of that study showed that CALL instructional techniques can contribute to the improvement of the students' reading ability more than traditional method of teaching reading.

Talebi and Teimoury (2013) investigated the effect of CALL on improving learners' pronunciation skills. The result of that study reflected that it is possible to increase learners' motivation and interest for learning through using CALL. Also, there was a significant improvement ($p < 0.05$) in the students' pronunciation through applying CALL; so they came to the similar conclusions with the current study.

Similarly, Al-Mansour and Al-Shomra (2012) examined the effect of computer assisted-instruction on Saudi university students' learning of English. That study came to conclusion that the students who were taught through CALL program outperformed those who received instruction through traditional method. The results of this study are also in line with the results gained by Barani (2011) who conducted a research on the effect of CALL on students' listening skills. Data from that study indicated that users of computer had better achievement ($p < 0.05$) than non-users. Ghasemi; Hashemi and Haghighi Bardine (2011) also believed that learning via technology has many benefits.

It became evident in this study that general personalized learning approach had a marked effect on reading comprehension ability of the

students especially when it is supported by a computer assisted language learning system. So, it is recommended that the curriculum developers in Iran and other countries, who don't utilize personalized learning approach, incorporate it into their educational system. Especially, they should consider the use of computer as an effective way to improve reading comprehension ability of the students.

The results of this study showed that there is a serious need for a great change towards more innovative ways of teaching. So, the findings of this study can be beneficial for educational system in Iran. Curriculum developers should consider that a part of the course book should be devoted to the CALL activities and materials. Teaching of basic computer skills should also be included in the curriculum. The findings of this study also can be useful for material developers. They should pay attention to the interests, attitudes, needs, intelligence of the learners in material developing.

The findings of this study also can be beneficial for foreign language teachers in Iran. Teachers can move from teacher-centered approach toward learner-centered approach. They can consider personalized language learning as an effective way for teaching reading. Although most of instructional contexts in Iran do use computers for reading, teachers should not neglect the computer as the most effective technology for promoting reading comprehension of the students in today's modern world. Teachers also should be taught how to overcome possible problems while using CALL programs. Reliable and useful network environment should be introduced to the teachers. Instructional context should utilize modern equipment.

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