Comparative effects of using pronunciation software on Georgian Bilingual and Persian Monolingual EFL learners' pronunciation achievement

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Abstract

Pronunciation has an important role in second/foreign (L2) language learning and communication. However, in some L2 classrooms, little attention is paid to teaching pronunciation. Moreover, software programs have been introduced to facilitate teaching L2 pronunciation to learners with different language backgrounds. Thus, this study investigated the effect of using two pronunciation software programs (*Tell Me More* and *Lose Your Accent in 28 Days*) on the Iranian learners' English pronunciation and compared their effect in monolingual (Persian) and bilingual (Georgian-Persian) learners of English. To these ends, 40 Iranian Junior High School students, who were selected through a placement test, participated in the study. They were divided into four groups: monolingual control, monolingual experimental, bilingual control, and bilingual experimental groups, each with 10 English as a foreign language (EFL) participants. Unlike the control groups, the monolingual and bilingual experimental groups received pronunciation instruction through the two software programs before taking a pronunciation test. Results from analysis of variance and post hoc tests revealed that the monolingual and bilingual experimental groups performed significantly better than the monolingual and bilingual control groups, but there was not any significant difference between monolingual and bilingual experimental groups. The findings call for applying computer-assisted pronunciation instruction for both monolingual and bilingual learners of English in L2 classrooms.

Keywords: pronunciation; bilingual; monolingual; L2 learners; computer-assisted pronunciation

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1. Introduction

Pronunciation is basis of communication and plays a prominent role in second/foreign language (L2) learners' perception and production of oral communication skills (Macdonald, 2002). In fact, "poor pronunciation degrades good language skills and condemns learners to less than their deserved social, academic and work advancement" (Varasarin, 2007, p. 45). According to Morley (1998), limited pronunciation skills threat learners' self-confidence, obstruct social communication and negatively affect estimations of a speaker's credibility and abilities. However, the role of pronunciation in English language programs is not considered as influential and the amount of time allocated to pronunciation teaching is not much (Hismanoglu, 2010). In current foreign language teaching, the emphasis is more on the four basic skills of listening, speaking, reading, and writing and pronunciation is considered as the '*Cinderella*' of language teaching family (Kelly, 1969). Most of the studies done by Brown (1992), Claire (1993), Fraser (2000), and Yates (2001) have also showed that curricula, methodology and the lack of appropriate materials, enhance inadequacies of the teaching/learning of L2 pronunciation.

Furthermore, in teaching/learning L2 pronunciation, the new directions have stemmed from other fields, such as drama, psychology, and speech pathology (Celce-Murcia, 1996). As Celce-Murcia (1996) emphasizes, the use of fluency-building activities as well as accuracy-oriented exercises, appeals to multisensory modes of learning, adaptation of authentic materials, and the use of instructional technology in the teaching of L2 pronunciation. In this light, by the growing speed of technology from the 1980s, computers have become an influential element of L2 learning pedagogy. Applying computer technology and Computer Assisted Language Learning (CALL) programs can create both independent and collaborative learning environments and provide L2 students with language experiences as they move through the various stages of L2 learning (Kung, 2002). CALL is an approach to language teaching and learning in which the computers are used as an aid to the presentation, reinforcement, and assessment of materials going to be learned (Rahimi & Yadollahi, 2011).

According to Lee (2000), CALL can (a) prove practices for students through the experiential learning, (b) offer students the learning motivation, (c) enhance student achievement, (d) increase authentic materials for study, (e) encourage greater interaction between teachers and students, and (f) emphasize the individual needs. One aspect of CALL is computer-assisted pronunciation training (CAPT) which provides an interactive learning context in a range of modes. CAPT refers to use of technology for learning and teaching the segmental and suprasegmental features of the sound system (Rostron & Kinsell, 1995). It provides minimal pairs, sound animations, tongue twisters, songs, phonetic descriptions, and video animations of segmental and suprasegmental features of English sounds (Hismanoglu, 2010).

However, the question that remains is that whether CAPT is more beneficial for all learners of English. Needless to say, learning English as an international language has promoted throughout the world not only as a second language, but also as a third language (Cenoz & Jessner, 2000). Some researchers (e.g., Cenoz, 2008, Mibler, 2000, Cenoz & Valencia, 1994), claim that acquisition of a third language is facilitated by the knowledge of a second language, especially when the two languages are typologically related. "When bilingual students acquire a third language (English), they obtain an advantage because they use their knowledge of two other linguistic systems … and compare them to the new code" (Cenoz & Valencia, 1994, p. 205). Some of these researchers (e.g., Thomas, 1988, Cenoz & Valencia, 1994; Schmidt, 1995, Herdina & Jessner, 2002) have proposed that the development in two or more language systems results in higher metalinguistic competence which facilitates the acquisition of additional languages. Melhorn (2007) also believes that increased metalinguistic knowledge facilitates the acquisition of a third phonological system. According to Melhorn (2007),

"this knowledge and meta-linguistic awareness helps them to focus on phonetic peculiarities of the target language and to better understand explanations concerning its articulation and prosody" (p. 1746). However, there have been only a handful of empirical studies comparing monolinguals and bilinguals' pronunciation achievements when learning a novel phonological system. This study was designed to compare the pronunciation achievements of a sample of Iranian bilinguals and monolinguals by using two pronunciation software programs.

2. Review of Literature

There have been a bulk of studies on the positive effects of bilingualism on a number of internal variables, including intelligence (Peal & Lambert, 1962), metalinguistic awareness (Ben-Zeev, 1977, Bialystok, 1991), cognitive flexibility and processing mechanisms (Nation & McLaughlin, 1986, Nayak, Hansen, Krueger, & McLaughlin, 1990). A number of studies have focused on the effect of bilingualism on general proficiency (oral, written or both) in the third language (Lasagabaster, 2001, Muñoz, 2000, Sanz, 2000, Gonzalez Ardeo, 2000, Brohy, 2001). Some other studies revealed that bilinguals learn a third language more easily than monolinguals (Albert & Obler, 1978, Jacobsen & Imhoof, 1974, Saif & Sheldon, 1969).

For instance, Tafarroji and Malekzadeh (2015) investigated the impact of bilingualism in learning English. The aim of this study was to find the effect of bilingualism on learners reading ability. To this end, 60 female students from a secondary school in Kouhdasht, Iran, were selected, and assigned to two homogeneous groups of bilingual (Laki-Persian) and monolingual (Persian). During 12 sixty-minute sessions within eight weeks, both group practiced reading through extensive and intensive reading and summarizing. Results revealed that reading skill was statistically significant in bilingual students, in comparison with monolingual counterparts.

There are several studies (e.g., Bialystok, 2001, Bialystok, 2002, Verhoeven, 2007) showing that the phonological processing of bilingual children is different from that of monolingual children and that bilingual children are assumed to develop higher levels of phonological awareness. For example, Ahmadian, Amini and Bahrami (2016), compared the phonological awareness of the preschool Turkish-Persian bilingual children and Persian monolingual children to see whether there would be any difference between bilingual and monolingual children. To this end, two groups of 30 Turkish-Persian bilingual and Persian monolingual pre-school children from different kindergartens in Iran were chosen. In doing so, Soleymani and Dastjerdi's Phonological Awareness Test (2002), a visual test assessing different areas of phonological awareness, such as syllable segmentation, alliteration recognition, rhyme recognition, and phoneme combination, was used. Results revealed that the advantage of pre-school Turkish-Persian over Persian monolingual children in some aspects of phonological awareness. Moreover, Mack (1989) conducted a study to do a comparative analysis of the English phonetic systems of 10 fluent adult English French bilinguals who were English-dominant, and of 10 adult English monolinguals. The objective of the study was to determine whether early English-dominant bilinguals would perceive and produce speech as English monolinguals would. Results showed that the bilinguals differed from the monolinguals only with respect to certain aspects of the phonetic system. Enomoto (1994) also compared the discrimination of mora sounds in Japanese by five bilingual and five monolingual subjects and observed that bilinguals had advantages over monolinguals.

The aforementioned studies conducted in different contexts tend to associate bilingualism with advantages in third language acquisition/learning. However, not all studies have reported positive effects of bilingualism on third language acquisition. For example, Indra Dewi (2007), conducted a study to know whether the monolingual or bilingual Japanese students were better in the English achievement. The achievement data were taken from the students' scores in Senior High School National Examination and were compared to the TOEFL scores. This research indicated that monolinguals were better learners in English. Also, Saffarian, Gorjian and Nejad Fazel (2013), who investigated the effects of bilingualism and monolingualism on EFL learners' performance on reading comprehension test among 26 bilingual (Arabic-Persian) and 35 monolingual (Persian) EFL students, reported no significant differences between the performance of bilinguals and monolinguals regarding their performances on reading comprehension. Likewise, Poorsoti (2016), who conducted a comparative study to

investigate the effect of bilingualism on dictation score of elementary EFL students in second grade in Iran, reported no significant relationship between bilingualism and dictation score.

In the area of phonetics, Davine, Tucker, and Lambert (1971) found that bilingual and monolingual learners did not perform differently from each other. They compared the phonetic discrimination abilities of bilinguals (French-English) and monolinguals (English) in an additional language and found no significant differences between the two groups. Similarly, Werker (1986) found no differences between multilinguals (English) and bilinguals (French- English, Mandarin-English, Greek-English, German-English, and Cantonese-English) in the skill to discriminate the sounds that did not exist in the languages they could speak.

There have been quite a few empirical studies investigating CALL in in the teaching of L2 pronunciation. For instance, Talebi and Teimoury (2013) investigated the impact of CALL on 60 Iranian female students' pronunciation skills. The students randomly selected from NemoonehVakili Junior High School were divided into control and experimental groups. While both groups had the same instructor during 8 sessions, only the experimental group received the materials by using computer. The performance of the experimental group on pronunciation test showed that the mean score of this group was significantly higher than the control group. Hence, CALL had an impact on the students' achievement of pronunciation. Also, Gilakjani and Sabouri (2013) examined the role of Iranian teachers in utilizing *Pronunciation Power software* in pronunciation instruction. The researchers used qualitative method consisted of semi-structured interview questions with a volunteer sample of four teachers from an open university in Lahijan, Iran. Results showed that *Pronunciation Power Software* changed the Iranian teachers' roles from a dispenser of information to a facilitator of information. This change of role gave them more autonomy and greater opportunities in teaching pronunciation.

In sum, the majority of the studies in the field of third language acquisition have been conducted on such aspects of bilingualism as language skills. A few studies have been done on the area of pronunciation. Also, there are few studies comparing bilinguals with monolinguals in relation to pronunciation teaching/learning through the use of CAPT which may reduce learning stress, build learners' self-instruction strategies and self-confidence, provide immediate feedback and increase access to information in learning English pronunciation. Thus, the present study was intended to compare the pronunciation performance of Georgian-Persian bilinguals with Persian monolinguals on English vowels and consonants. More specifically, it sought to investigate the comparative effect of using two pronunciation software programs on improving sound pronunciation (English vowels and consonants) of both Georgian-Persian bilingual and Persian monolingual EFL learners. In this light, the present study has addressed the following questions:

1. Does CAPT (using pronunciation software) have any impact on monolinguals' performance in acquiring English pronunciation?

2. Does CAPT (using pronunciation software) have any impact on bilinguals' performance in acquiring English pronunciation?

3. Is there any significant difference between the pronunciation achievement of monolingual (Persian) and bilingual (Georgian-Persian) learners of English through the use of CAPT?

3. Method

3.1 Participants

The participants of this study were 20 Persian monolingual and 20 Georgian-Persian bilingual EFL junior high school students from Foroogh School in Freydunshahr, Isfahan, Iran. All of the participants were females aged 13-15 years old with the same educational background i.e., third grades. They were at the lower intermediate level and were selected from 100 junior high school students based on their performance in a language placement test, *Quick Placement Test*. The monolinguals and bilinguals were assigned into two groups: control ($n = 10$) and

experimental (*n* = 10) groups. Thus, the participants included monolingual experimental (n = 10), monolingual control (*n* = 10), bilingual experimental (*n* = 10), and bilingual control (*n* = 10) groups.

3.2 Instruments and materials

This study used two instruments for data collection. In order to select the participants, a placement test, *Quick Placement Test*, was administered. This test consisted of 60 items developed by Oxford University Press and Cambridge ESOL to give teachers a reliable and time-saving method of finding a student's level of English.

Also, two parallel pronunciation tests, developed by the present researchers to measure the participants' pronunciation performance before and after applying instructions, were used as the pretest and the posttest. The total score for the pronunciation tests was 60, and the amount of time allocated for the test was about 60 minutes. Each test consisted of four parts which were designed based on the materials using during the course of instruction: Sound Recognition, Phonetic Symbols, Conversation, and Sound Combination. Except the first part, which included 30 items, the other three parts consisted of 10 items. Each test was piloted on EFL high school students to determine the desirability of the instruction, the level of difficulty, and the time for completing it. Validity of the tests have been confirmed by two experts. The reliability of the tests was about 0.71, which was considered an acceptable reliability for the pronunciation test.

Two types of pronunciation software programs were used as the materials: *Tell Me More* and *Lose Your Accent in 28 Days*. *Tell Me* program is a software program which can be used by individuals, language schools, universities, and corporations around the world. It was developed by a team of language experts following communicative approach and methodology used in many schools around the world. This software program provides EFL learners with ways to assess their English pronunciation and helps them improve their English pronunciation with interactive dialogues, graphs and 3D animated feedback features. Moreover, *Lose Your Accent in 28 Days* is another pronunciation program which is used to improve EFL learners' pronunciation through minimal pairs in different sentences.

3.3 Procedures

A pretest -posttest control group design was used in the present study to examine the effect of CAPT on the development of participants' pronunciation ability. In the first phase of the study, the language placement test was administered to 100 EFL learners from Foroogh High School in Freydunshahr, Isfahan. Forty EFL participants (monolinguals and bilinguals) whose scores fell within the 30-39 (the low intermediate level) were selected for the purpose of the study. The participants included 20 monolinguals and 20 bilinguals who were assigned into two groups: control and experimental groups. As a result, there were four groups of the participants in this study: monolingual control (*n* = 10), monolingual experimental (*n* = 10), bilingual control (*n* = 10), and bilingual experimental (*n* = 10) groups. In the second phase, a pronunciation test was administered as the pretest in the experimental and control groups in order to find out the participants' pronunciation performance before giving the instructions.

In the third phase, the participants in experimental groups received instructions i.e., CAPT. They were assigned to learn English vowels and consonants by two types of instructional software, *Tell Me More* and *Lose Your Accent in 28 Days*. The EFL participants in the control groups were assigned to learn the English sound (vowels and consonants) through traditional instructions such as reading aloud, minimal pairs, and repetition. Phonetic alphabet, transcription practice, description of the articulatory systems, drills (e.g., minimal pair drills), and reading short passages or dialogues were used in the control groups without using the two software programs. The teacher was considered as a model and repetition was used a lot (The teacher pronounced each word and they listened and repeated them after the teacher).

In the experimental groups, some of the activities in the control groups (e.g., description of the articulatory systems and minimal pair drills) were used through some features such as graphics, animations, video, and audio

provided by the software programs (see Figure 1). Also, fluency-building activities as well as accuracy-oriented exercises were employed. The software programs could enable them to practice English sounds individually and collaboratively (in pair and group work). The instructions for the experimental and control groups were conducted by the same teacher in four weeks, eight 40-minute sessions.
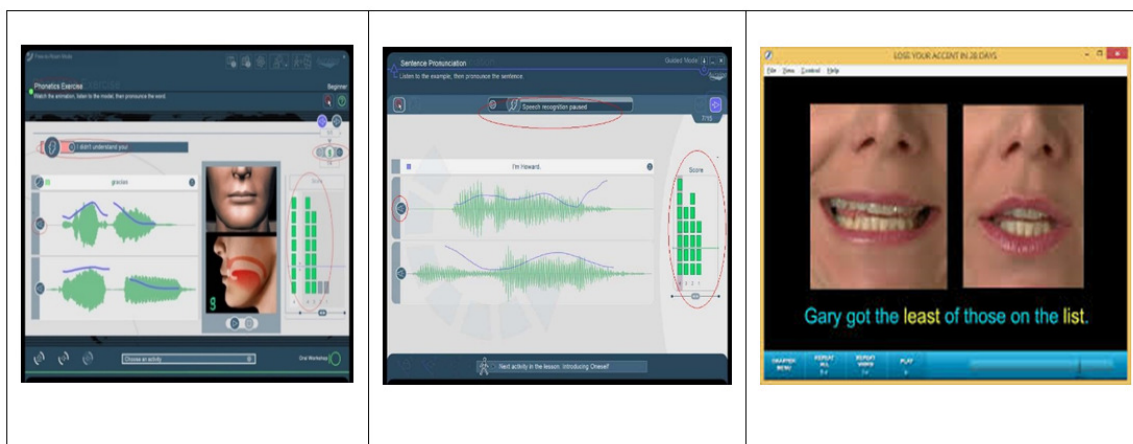

Figure 1. Shots taken from the instructional software programs

After 4 weeks of instruction, all the participants in the four groups were given the pronunciation test (the parallel form) as the posttest to find out whether their pronunciation performance improved. After collecting the data, SPSS software (version 21) was used to analyze the data.

4. Results

Table 1 displays descriptive statistics of the pretest pronunciation scores in the monolingual control, monolingual experimental, bilingual control, and bilingual experimental groups.

Table 1

Descriptive Statistics of the Pretest Pronunciation Scores in the Four Groups

Group	Variable	n	Min	Max	Mean	SD	Skewness	Kurtosis
MG	Control	10	23	31	27.10	3.14	-.19	-1.83
	Experimental	10	21	30	25.80	2.69	-.20	-.13
BG	Control	10	21	33	27.20	3.85	-.04	-.75
	Experimental	10	20	32	26.00	3.71	-.29	-.41

According to Table 1, the skewness and kurtosis values in all groups were not above 2, indicating little clustering of scores at the ends of the pronunciation score distribution of and a very small degree of flatness. As Table 1 demonstrates, the mean differences in the pretest scores were not great, supporting the homogeneity of scores at the pretest phase. The lowest and the highest pretest pronunciation mean scores were 25.80 and 27.20 in the monolingual experimental and bilingual control groups, respectively. The difference was 1.40, which was not very great.

To probe the purpose of the study, it was so important to check that the four groups were not significantly different in terms of their pronunciation performance at the pretest phase. That is why a one-way analysis of variance (ANOVA) was conducted. The results reported in Table 2.

Table 2

ANOVA on the Pretest Pronunciation Scores of the Four Groups

Total Scores	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.87	3	5.29	4.62	.710
Within Groups	412.10	36	11.46		
Total	427.97	39			

As Table 2 shows, there was not a statistically significant difference ($F = 4.62$, $p = .710$) among monolingual control, monolingual experimental, bilingual control, and bilingual experimental groups at the pretest stage, ensuring no preexisting differences before the instructions of the study were carried out.

Table 3 displays descriptive statistics of the posttest pronunciation scores in the monolingual control, monolingual experimental, bilingual control, and bilingual experimental groups.

Table 3

Descriptive Statistics of the Posttest Pronunciation Scores in the Four Groups

Group	Variable	n	Min	Max	Mean	SD	Skewness	Kurtosis
MG	Control	10	32	42	37.30	4.16	-.15	-2.00
	Experimental	10	34	49	41.90	4.72	-.16	-.34
BG	Control	10	30	45	38.00	4.89	-.23	-.76
	Experimental	10	34	52	42.80	5.78	-.27	-.67

As Table 3 demonstrates, the maximum posttest score (52) was obtained by the bilingual experimental group. Also, the lowest and the highest posttest pronunciation mean scores were 41.90 and 42.80 in the monolingual experimental and bilingual experimental groups respectively. The difference (5.50) was noticeable. This indicates that the mean scores in the posttests increased from the pretest to the posttest.

In order to see if the four groups were different in terms of their pronunciation performance at the posttest phase and examine if CAPT had any impact in teaching English pronunciation to Iranian monolingual learners of English (which was the focus of the first research question), one-way between-group ANOVA with planned test of comparison was run (The error was originally set at .05 when comparing groups on the dependent variable i.e., posttest pronunciation scores). The results of are reported in Tables 4 and 5.

Table 4

ANOVA on the Posttest Pronunciation Scores of the Four Groups

Total Scores	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	227.40	3	75.80	3.12	.038
Within Groups	874.60	36	24.29		
Total	1102	39			

Table 5

Planned Comparisons of Mean Scores between Monolingual Control and Experimental Groups

	Value of Contrast	Std. Error	t	df	Sig.
Assume equal variances	-4.60	2.20	-2.09	36	.044
Not Assume equal variances	-4.60	1.99	-2.31	17.72	.033

Note. (2-tailed), *$p < .05$

As Table 4 demonstrates, the results of ANOVA on the posttest scores showed that there was a significant difference ($F = 3.12$, *$p < .05$) among the pronunciation scores of the four groups. Also, the planned comparison test showed that the difference between the two groups was statistically significant at .05, $t(36) = 2.09$ *$p < .05$. The monolingual experimental group ($M = 41.90$, $SD = 4.72$) performed significantly better than the monolingual control group ($M = 37.30$, $SD = 4.16$). That is, CAPT (using pronunciation software) was more effective than the

traditional method.

In order to address the second research question i.e., whether CAPT had any impact on teaching English pronunciation to Iranian bilingual learners of English, another planned comparison test was run on the scores of the bilingual control and experimental groups (The error was originally set at .05 when comparing groups). The results are reported in Table 6.

Table 6

Posttest Planned Comparisons of Mean Scores between Bilingual Control and Experimental Groups

	Value of Contrast	Std. Error	*t*	*df*	*Sig.*
Assume equal variances	-4.80	2.20	-2.18	36	.036
Not Assume equal variances	-4.80	2.39	-2.02	17.52	.060

Note. (2-tailed), *$p < .05$

According to Table 6, the posttest planned comparison test showed that the difference between the two groups was statistically significant at .05 when equal variance was assumed, *t* (36) = 2.18 *$p < .05$. The bilingual experimental group (*M* = 42.80, *SD* = 5.78) performed significantly better than the bilingual control group (*M* = 38.00, *SD* = 4.80). That is, using the pronunciation software was more effective than non-software method for bilinguals.

The third research question of the study was intended to investigate whether there was a significant difference between monolingual (Persian) and bilingual (Georgian-Persian) learners in terms of English pronunciation achievement after planned test of comparison was run. The posttest pronunciation scores of the monolingual and bilingual experimental groups were considered as dependent variable and groups were considered as independent variable with the error originally set at .05. The results are reported in Table 7.

Table 7

Planned Comparisons of Mean Scores between Monolingual and Bilingual Experimental Groups

	Value of Contrast	Std. Error	*t*	*df*	*Sig.*
Assume equal variances	-.900	2.20	-.408	36	.685
Not Assume equal variances	-.900	2.36	-.381	17.30	.708

Note. (2-tailed), *$p < .05$

According to Table 7, the results of posttest planned comparison test showed that the difference between the two monolingual and bilingual experimental groups was not statistically significant at .05 when equal variance was assumed, *t* (36) = .408 *p* = .685. The bilingual experimental group (*M* = 42.80, *SD* = 4.80) did not perform significantly better than the monolingual experimental group (*M* = 41.90, *SD*= 4.72). The mean difference was not large enough. Thus, no significant difference in the pronunciation achievement was found between the monolingual and bilingual participants who used the pronunciation software programs.

5. Discussion

The analysis of the high school learners' pretest and posttest pronunciation scores showed that after the four-week instructions, the scores in all four groups improved. However, there was a significant difference between the groups which received CAPI and those which had the traditional instruction in teaching/learning vowels and consonants. In other words, there was a statistically significant difference in the posttest scores between the control and the experimental groups through the use of CAPI. Both monolingual and bilingual learners who accessed *Tell Me More and Lose Your Accent in 28 Days* software programs performed significantly better than those who did not use them. There are several reasons why CAPI was more effective.

First, it provided a better context for the learning of phonetic symbols. According to Saito (2007), phonetic instruction would make students more aware of their pronunciation in EFL situations where students do not have access to real life communication with native speakers of English. The results showed that the pronunciation

software programs had a positive effect on teaching vowels and consonants to EFL learners and enhanced their pronunciation awareness. Second, it provided an active and enjoyable environment for learning pronunciation through some features such as the use of graphics, sounds, animation, video, and audio. Third, CAPI helped the learners in the experimental groups to discriminate English phonemes (vowels and consonants of English) from their L1 and L2. As Dalton (1997) argues, if the English language sounds are not received clearly, the learners' mind converts them into the closest sounds in their native language. Also, the two software programs allowed them to compare their voice to a model made by a native speaker with Standard English. They could compare their performance to that model, sound by sound, and track their progress over time. The pronunciation software programs provided immediate feedback and accurate records of their performance and progress. Finally, the two software programs helped the instructor be a facilitator rather than a person who would control the learning environment.

The above findings on the effectiveness of the two software programs are in consonance with several previous studies, such as Hardison (2005), Abuseileek (2007), Liu (2008), Tanner and Landon (2009), and Talebi and Teimoury (2013), reporting an advantage for the use of computer-assisted pronunciation instruction. The above results of the present study are also in line with the results obtained by Zaki Mohammad (2012) who investigated the effect of using computer-assisted programs on Jordanian students' performance in English language pronunciation. In her study, the students in the experimental groups did tasks making use of dynamic animated representations on computers. In contrast to the experimental group, the control group of her study was trained using the printed materials. Her findings showed that there were statistically significant differences between the control and the experimental groups.

Furthermore, the results obtained in the present study showed that the pronunciation achievements of the monolinguals and bilinguals in the experimental groups was not significantly different. That is to say, bilingualism did not bring them an advantage on the acquisition of phonological aspects of third language (English) through CAPI. As Cenoz (2003) claims, the effect of bilingualism on general aspects of proficiency like speaking and reading can be more noticeable and consistent than very specific aspects of proficiency like pronunciation. Also, according to Bialystok (2001), bilinguals do not demonstrate advantages on all aspects of metalinguistic awareness. The related literature also demonstrates inconsistent findings. The above finding about the lack of a significant difference between monolinguals and bilinguals is not in accordance with the finding of Cohen, Tucker, and Lambert's (1967) study in which adult bilinguals outperformed monolinguals to reproduce sound sequences that did not occur in their first language. However, when a similar task was administered to children, bilingual French/English learners did not outperform monolinguals. Rubin and Turner (1989) also reported that primary school children in French immersion programs were better at phonemic segmentation than monolinguals. However, the study by Ardeo (2001), who analyzed the pronunciation in English by 12 monolingual (Spanish) and 36 bilingual (Basque/Spanish) learners, showed that there were no statistical differences between monolinguals and bilinguals' pronunciation when they read an English text.

Cummins (1991) states that the outcomes of bilingualism are related to the level of proficiency acquired in the two languages (threshold hypothesis) and the potential transfer of academic proficiency between the languages. That is to say, high levels of proficiency in two languages (upper threshold) are associated with positive cognitive outcomes while low levels of proficiency (lower threshold) with neutral or even occasional negative cognitive effects. The bilinguals' level of English proficiency in the present study was low. That could be one reason why bilingualism did not have a positive effect. Moreover, Cenoz (2003) also claims that the negative and positive outcomes of bilingualism depend on the conditions in which bilingualism takes place. Where the first language is valued (additive bilingualism) and acquisition of a second language does not replace the first language, bilingualism is associated with positive cognitive consequences. In this situation, bilingual learners show more advantages in dealing with general aspects of third language proficiency than in coping with very specific aspects of language competence like pronunciation. The bilingual EFL learners in this study, Georgian students, were in a minority and used their first language at home. Persian was their preferred language for communication and learning in the school. In fact, acquisition of third language (English) by these students

take place in a condition where the first language is not valued very much and the learning of the second language replaces the first one (subtractive bilingualism). In this situation, Georgian learners showed no advantages in dealing with very specific aspects of language compared with the monolingual students. In sum, as Cenoz (2003) states, bilingualism does not always result in more efficient third language learning because other variables such as socioeconomic and socio-educational factors, can play an important role.

6. Conclusion and Implications

The results of the present study revealed that the Persian monolingual and Georgian-Persian bilingual high school learners of English benefited from CAPT through using *Tell Me More* and *Lose Your Accent in 28 Days* software programs and enhanced their English pronunciation. Unlike the traditional method of teaching English pronunciation, which used a small range of activities with the printed materials (e.g., transcription practice, minimal pair drills, and reading aloud), CAPT dealt with a wider range of activities including fluency-building and accuracy-oriented activities appealing to multisensory modes of learning. CAPT, unlike the traditional method of teaching English pronunciation, did not just focus on listening, imitating, and vowel or consonant shifts. The greater improvement of English pronunciation scores can also be due to the fact that the software programs provided the learners with private, stress-free practice with individualized instruction, and immediate feedback on pronunciation. The above findings imply that pronunciation software programs and bilingual EFL learners' abilities and self-paced learning. With some features such as graphics, animations, video, and audio, these software programs can provide motivation for the better learning of English pronunciation and enhance pronunciation achievement.

Also, the results showed that the mean difference of the pronunciation scores between the monolingual and bilingual EFL learners in the experimental groups was not significant at the posttest phase. Using the pronunciation software programs were equally effective for both monolingual and bilingual experimental groups going through CAPT. Thus, bilingualism was not taken to be an advantage for the learning of English pronunciation by Georgian students, who were in a minority and were learning their third language in a condition where Persian (second language) was valued more than the first language. This finding implies that bilingualism does not demonstrate advantages on all aspects of L2 learning. The current investigation is a just step on the pronunciation software programs and further research is indeed required with a larger sample size, L2 learners with different age ranges and different proficiency levels, different types of pronunciation software programs, and other measurement instruments to make stronger generalizations. Likewise, future research can investigate the effects of CAPT on suprasegmental aspects of English pronunciation like stress and intonation.

7. References

Abuseileek, A. F. (2007). Computer-assisted pronunciation instruction as an effective means for teaching stress. *The JALT CALL Journal*, *3*(3), 3-14.

Ahmadian, M., Amini, S.-M., & Bahrami, L. (2016). A comparative study of the phonological awareness of pre-school Persian monolingual and Turkish-Persian bilingual children. *Theory and Practice in Language Studies*, *6*(3), 501-509. https://doi.org/10.17507/tpls.0603.07

Albert, M. L., & Obler, L. (1978). *The bilingual brain*. New York: Academic Press.

Ben-Zeev, S. (1977). Mechanisms by which childhood bilingualism affects understanding of language and cognitive structures. In P. A. Hornby (Ed.), *Bilingualism: Psychological, Social, and Educational Implications* (pp. 29-55). New York: Academic.

Bialystok, E. (1991). *Language processing in bilingual children*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511620652

Bialystok, E. (2001). *Bilingualism in development.* Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511605963

Bialystok, E. (2002). Acquisition of literacy in bilingual children: A framework for research. *Language Learning, 52*(1)*,* 159-199. https://doi.org/10.1111/1467-9922.00180

Brohy, C. (2001). Generic and/ or specific advantages of bilingualism in a dynamic plurilingual situation: The case of French as official L3 in the school of Samedan (Switzerland). *International Journal of Bilingual Education and Bilingualism, 4*(1), 38-49. https://doi.org/10.1080/13670050108667717

Brown, A. (1992). *A survey of attitudes and teaching practices related to pronunciation teaching*. Perth: AMES WA.

Celce-Murcia, M., Brinton, D. M., & Goodwin, J. M. (1996). *Teaching pronunciation: A reference for teachers of English to speakers of other languages*. Cambridge: Cambridge University Press.

Cenoz, J. (2003). The additive effect of bilingualism on third language acquisition: A review. *The International Journal of Bilingualism, 7*(1), 71-89. https://doi.org/10.1177/13670069030070010501

Cenoz, J., & Jessner, U. (Eds.). (2000). *English in Europe: The acquisition of a third language*. Clevedon: Multilingual Matters.

Cenoz, J., & Valencia, J. (1994). Additive trilingualism: Evidence from Basque country. *Applied Psycholinguistic, 15*(2), 195-207. https://doi.org/10.1017/S0142716400005324

Claire, S. (1993). *Pronunciation in the NSW Adult Migrant English Service: Current practice, future directions*. Unpublished master's thesis, University of Technology, Sydney.

Cohen, S. P., Tucker, R. G., & Lambert, W. E. (1967). The comparative skills of monolinguals and bilinguals in perceiving phoneme sequences. *Language and Speech, 10*(3), 159-168. https://doi.org/10.1177/002383096701000302

Cummins, J. (1991). Independence of first- and second language proficiency in bilingual children. In n E. Bialystock (Ed.), *Language processing in bilingual children* (pp. 70-89). Cambridge: Cambridge University Press.

Davine, M., Richard. G., & Lambert, W. E. (1971). The perception of phoneme sequences by monolingual and bilingual elementary school children. *Canadian Journal of Behavioral Science, 3*(1), 27-76. https://doi.org/10.1037/h0082251

Enomoto, K. (1994). L2 perceptual acquisition: The effect of multilingual linguistic experience on the perception of a "less novel" contrast. *Edinburgh Working Papers in Applied Linguistics, 5*, 15-29.

Fotovatnia, Z. (2013). The effect of exposure to the visual medium on learning pronunciation and word stress of L2 learners. *Theory and Practice in Language Studies, 3*(5), 769-775. https://doi.org/10.4304/tpls.3.5.769-775

Fraser, H. (2000). *Coordinating improvements in pronunciation teaching for adult learners of English as a second language*. Canberra: Department of Education, Training and Youth Affairs.

Gilakjani, A. P., & Sabouri, N. B. (2013). Role of Iranian EFL teachers about using pronunciation power software in the instruction of English pronunciation. *English Language Teaching, 7*(1), 130-148.

Gonzalez -Ardeo, J. M. (2001). Engineering students and ESP in the Basque country: SLA versus TLA. In J. Cenoz, B. Hufeisen, & U. Jessner (Eds.), *Looking beyond second language acquisition: Studies in tri- and multilingualism* (pp. 75 – 95). Tübingen: Stauffenburg, Verlg.

Hardison, D. M. (2005). Contextualized computer-based L2 prosody training: Evaluating the effects of discourse context and video input. *CALICO Journal, 22*(2), 175-190. https://doi.org/10.1558/cj.v22i2.175-190

Herdina, P., & Jessner, U. (2000). The dynamics of third language acquisition. In J. Cenoz & U. Jessner (Eds.) *English in Europe* (pp. 84-98). Clevedon: Multilingual Matters.

Indra Dewi, I. (2007). The comparison of the monolingual and bilingual Japanese students in the English achievement. *Journal Lingua Culture, 1*(2), 142-150. https://doi.org/10.21512/lc.v1i2.320

Jacobsen, M., & Imhoof, M. (1974). Predicting the success in learning a second language. *Modern Language Journal, 58*(7), 329-336. https://doi.org/10.1111/j.1540-4781.1974.tb05120.x

Kelly, L. G. (1969). *25 centuries of language teaching*. Rowley, MA: Newbury House.

Lasagabaster, D. (2001). The effect of knowledge about the L1 on foreign language skills and grammar. *International Journal of Bilingual Education and Bilingualism, 4*(5), 310-331. https://doi.org/10.1080/13670050108667735

Lee, K.-W. (2000). English teachers' barriers to the use of computer-assisted language learning. *Internet TESOL Journal, 6*(12), 1-8.

Liu, Y. (2008). *The effectiveness of integrating commercial pronunciation software into an ESL pronunciation class*. Unpublished master's thesis, Iowa State University, Iowa.

Macdonald, S. (2002). Pronunciation–views and practices of reluctant teachers. *Prospect, 17*(3), 3-18.

Mack, M. (1989) Consonant and vowel perception and production: Early English-French bilinguals and English monolinguals. *Perception & Psychophysics, 46*(2), 187-200. https://doi.org/10.3758/BF03204982

Melhorn, G. (2007). From Russian to Polish: Positive transfer in third language acquisition. *International Congress of Phonetic Sciences, 6*(10), 1745-1748.

Mibler, B. (2000). Previous experience of foreign language learning and its contribution to the development of learning strategies. Retrieved from http://www.icphs2007.de/conference/Papers/1709/1709.pdf

Morley, J. (1998 January/February). Trippingly on the tongue: Putting serious speech/pronunciation instruction back in the TESOL equation. *ESL Magazine, 1*(1), 20-23.

Muñoz, C. (2000). Bilingualism and trilingualism in school students in Catalonia. In J. Cenoz & U. Jessner (Eds.), *English in Europe: The acquisition of a third language* (pp. 157- 178). Clevedon: Multilingual Matters.

Nation, R., & McLaughlin, B. (1986). Novices and experts: An information processing approach to the good language learner problem. *Applied Psycholinguistics, 7*(1), 41-56. https://doi.org/10.1017/S0142716400007177

Nayak, N., Hansen, N., Krueger, N., & McLaughlin, B. (1990). Language-learning strategies in monolingual and multilingual adults. *Language Learning, 40*(2), 221-244. https://doi.org/10.1111/j.1467-1770.1990.tb01334.x

Peal, E., & Lambert, W. E. (1962). The relation of bilingualism to intelligence. *Psychological Monographs: General and Applied, 76*(27), 1-23. https://doi.org/10.1037/h0093840

Poorsoti, S. (2016). Effect of bilingualism on English dictation performance of male and female primary level students. *Journal of Applied Linguistics and Language Research, 3*(2), 39-50.

Rahimi, M., & Yadollahi, S. (2011). Foreign language learning attitude as a predictor of attitudes towards computer-assisted language learning. *Procedia Computer Science*, *3*, 167-174. https://doi.org/10.1016/j.procs.2010.12.029

Rostron, A., & Kinsell, P. (1995). Learning pronunciation using CALL: Some experimental evidence. *Re CALL Newsletter, 5*(1). Retrieved from http://www.fredriley.org.uk/call/pubs/newsletter/content95.htm

Rubin, H., & Turner, A. (1989). Linguistic awareness skills in grade one children in a French immersion setting. *Reading and Writing: An Interdisciplinary Journal, 1*(1), 73-86. https://doi.org/10.1007/BF00178839

Saffarian, R., Gorjian, B., & Nejad Fazel, A. (2013). Effects of bilingualism and monolingualism on EFL learners' performance on reading comprehension test. *Advances in Asian Social Science*, *4*(2), 820-823.

Saif, P. S., & Sheldon, M. E. (1969*). An investigation of the experimental French program at Bedford Park and Allenby public schools*. Toronto: Toronto Board of Education.

Saito, K. (2007). The influence of explicit phonetic instruction on pronunciation teaching in EFL settings: the case of English vowels and Japanese learners of English. *Linguistic Journal, 3*(3), 16-40.

Sanz, C. (2000). Bilingual education enhances third language acquisition: Evidence from Catalonia. *Applied Psycholinguistics, 21,* 23-44. https://doi.org/10.1017/S0142716400001028

Schmidt, R. (1995). *Attention and awareness in foreign language learning*. Honolulu: University of Hawaii at Manoa.

Tafarroji, M., & Malekzadeh, P. (2015). The Effect of bilingualism on the developing of English reading skill. *Social and Behavioral Sciences, 192*, 803-810.

Talebi, F., & Teimoury, N. (2013). The effect of computer- assisted language learning on improving EFL learners' pronunciation ability. *World Journal of English Language, 3*(2), 52-56. https://doi.org/10.5430/wjel.v3n2p52

Tanner, M. W., & Landon, M. M. (2009). The effects of computer-assisted pronunciation readings on ESL learners' use of pausing, stress, intonation, and overall comprehensibility. *Language Learning & Technology*, *13*(3), 51-65.

Thomas, J. (1988). The role played by metalinguistic awareness in second and third language learning. *Journal*

of *Multilingual and Multicultural Development 9*, 235-246.
https://doi.org/10.1080/01434632.1988.9994334

Varasarin, P. (2007). *An action research study of pronunciation training, language learning strategies and speaking confidence* [Unpublished doctoral dissertation]. Victoria University, Thailand.

Verhoeven, L. (2007). Early bilingualism, language transfer, and phonological awareness, *Applied Psycholinguistics, 28*(3)*, 425-439. https://doi.org/10.1017/S0142716407070233

Werker , J. F. (1986). The effect of multilingualism on phonetic perceptual flexibility. *Applied Psycholinguistics, 7*, 141-156. https://doi.org/10.1017/S0142716400007360

Yates, L. (2001). Teaching pronunciation in the AMEP: Current practice and professional development. AMEP Research Centre. Retrieved from http://www.nceltr.mq.edu.au/conference2001/index.html

Zaki Mohammad, F. (2012). Improving English pronunciation through computer-assisted programs in Jordanian universities. *Journal of College Teaching & Learning, 9*(3), 201-208.
https://doi.org/10.19030/tlc.v9i3.7085