Effect of Using Smart Learning Pen (iPen) on Young Iranian Male and Female EFL Learners' Speaking Accuracy and Fluency

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Abstract

The present study aimed to examine the effects of an educational technology called smart learning pen (i.e., iPen) as an ICT tool on young Iranian male and female EFL learners' speaking accuracy and fluency. A group of 180 young (6-9 years old) male and female learners with no previous formal education in English were randomly assigned into three different conditions: those who used the iPen in class and at home (IPC), at home only (IPH), and those who did not use the iPen at all (NIP). As gender was an independent variable, each condition had male and female groups. To address the research questions, the participants' performance on the oral sub-test of the posttest was put into analysis. The two-way ANOVA run on the effect of the independent variables (iPen and gender) and their interaction on the participants' speaking accuracy, and fluency revealed that using iPen helped the IPC and IPH participants significantly outperform the NIP group in terms of both accuracy and fluency. However, such an analysis did not show any significant effect for gender, nor did it show any significant effect when the interaction of gender and other variables was taken into account. The study has practical implications for policymakers, language teachers as well as software, hardware, and mobile phone application developers.

Introduction

The controversy over the effectiveness and importance of educational technology in teaching young EFL/ESL learners has been around since the 1980s (Brady & Hill, 1984; Clements, 1987; Papert, 1980; Taylor, 1980). Whether children are cognitively and socially ready (Clements, 1987) and whether using technology is appropriate for them (Wang & Hoot, 2006) have been debatable.

Studies on the effects of Computer-Assisted Language Learning (CALL), Mobile-Assisted Language Learning (MALL), and other forms of educational technology on different aspects of young learners have attracted much attention among the enthusiastic researchers in the field (e.g., Carey, 2004; Chen, Smith, York, & Mayall, 2020; Clements, 1994; Lee, Cheung, Wong, & Lee, 2013; Manasreh, 2014; Rich, 2014; Sowa, 2014; Sun & Dong, 2004; Taghizadeh, & Hasani Yourdshahi, 2020; Teng, 2020; Turgut & Irgin, 2009). Rich (2014), for example, believed that technological innovations have created the flow of information and ideas. This phenomenon has resulted in improvements in teaching young learners. Similarly, Sowa (2014) pointed out that teachers of this young generation have become more perceptive and reflective in their profession. This personal and professional growth can result in young language learners' performance and achievement (Carey, 2004).

Mobile learning technologies have been ubiquitously used in various learning and educational settings (Sung, Chang, & Liu, 2016). As far as English language learning is concerned, there have been a plethora of studies using mobile technology (e.g., Franciosi, 2017; Hsu, 2017). Most of these studies have concluded that using cutting-edge, educational technology has positive effects on various aspects of English language learning (see Barcroft (2007); Chen, Tseng & Hsiao (2018) for vocabulary; Fu & Hwang (2018) for collaborative learning; Khenissi, Essalmi, Jemni, Graf, & Chen (2016) for learning styles; Turgut & Irgin (2009) for young learners' achievement; and Rachels & Rockinson-Szapkiw (2018) for language achievement and self-efficacy).

Closer scrutiny of these studies shows a significant gap in the literature regarding modern tools such as smart learning pens, which replace traditional CDs and MP3 players. They are produced and made available in the market with different shapes and brands. These pens are electronic devices as large as markers and can convert any printed material, including letters, words, and pictures into voice. This product is designed and programmed to read letters, words, texts, shapes, and pictures in any language such as English, Persian, and Arabic. These pens are popular because they are low-cost, accessible, user-friendly, safe, and enjoyable. The iPen lets users easily interact and communicate with the printed materials. In addition, audio files can be loaded on the iPen and played back easily in a high-quality voice, using headphones. The function card (FC) enables the user to turn the volume up or down, make the voice stream slow or fast, record the user's voice and play it back. To sum up, the iPen enables language learners, especially young learners, to study independently and satisfactorily.

Review of the Literature

CALL studies have attracted many SLA researchers over the last few decades. Mobile technologies are rapidly attracting new users, providing increased capacity, and allowing more sophisticated uses. This influences cultural practices and enables new contexts for learning

(Pachler, Cook, & Bachmair, 2010). The integration of such technologies into teaching and learning has been more gradual, as educators need to understand how they can be effectively used to support various kinds of learning (Kukulska-Hulme & Shield, 2008). Numerous studies have been conducted to examine different skills: listening (Wei & Zheng, 2017; Yeldham, 2017), speaking (Henry, Carroll, Cunliffe & Kop, 2017; Wang, An & Wright, 2018; Xu & Peng, 2017), reading (Nourizadeh & Ameri-Golestan, 2018), writing (Li, 2018; Liu & Tsai, 2012), as well as other aspects of language, such as grammar (Bodnar, Cucchiarini, de Vries, Strik & van Hout, 2017; Turner, 2017), pronunciation (Evers & Chen, 2020; Gilakjani & Sabouri, 2014; Kruk & Pawlak, 2021; Neri, Mich, Gerosa, & Giuliani, 2008), vocabulary (Chiu, 2013; Ebadi, Weisi, Monkaresi & Bahramlou, 2018; Khansarian-Dehkordi & Ameri-Golestan, 2016; Kizil & Savran, 2018); for learners' perception of CALL/MALL (Hsu, 2012); and the efficacy of educational technology in the process of teaching and learning (Ahmadi, 2018; Shadiev, & Yang, 2020).

Hsu (2015) used voice blogging in an exploratory study to investigate the potential effects of speaking practice on EFL proficiency (complexity, accuracy, and fluency). The 30 Taiwanese EFL participants of the study were asked to post their voice blogs and comment on those of their classmates. This was done every week over a period of one semester. Results showed that although the participants' speaking complexity improved over time, no such improvement was made in their speaking accuracy and fluency.

Turner (2017) ascertained that the WebCAPE placement exam could be used to measure improvement in an upper-division grammar course. The WebCAPE online placement exam is a widely used instrument designed to help university language programs place students into the basic language course best corresponding to their proficiency level. His study indicated that the WebCAPE produces statistically significant results when correlated to final grade, test average, and the second administration of the placement exam at the end of the semester.

Ebadi et al. (2018) conducted a quasi-experimental study that used dynamic assessment and took measures to ensure noticing the new words. In their study, the 80 Iranian EFL learners read five texts, one each week, and were asked to infer the meaning of highlighted unfamiliar words. Results revealed that participants of the experimental group, Computerized Dynamic Assessment (CDA), showed significantly higher vocabulary gains than those in the control group. The findings suggested that noticing unfamiliar words and adopting the CDA approach could enhance vocabulary gains from lexical inferencing.

Further, Wang et al. (2018) studied the effects of a MOOC (massive online open course) on Chinese beginner EFL learners' oral proficiency. Results of the study indicated a significant improvement in the proficiency (complexity, accuracy, and fluency) level of the experimental group participants (those who used MOOC) compared with those in the baseline group. Besides, the participants of the MOOC group developed more positive attitudes and preferred to spend more out-of-class time in their language learning.

In another study, Castaneda (2019) examined the effects of educational technology on speaking. Participants who were English-speaking Spanish learners used VoiceThread technology to improve their conversational interactions. The 53 participants of the study were asked to record summaries and reflections on the input content with VoiceThread technology.

Then, to report their findings, they could use two types of contexts, namely face-to-face and online group conversations. The researchers reported that participants developed positive experiences with input, presentational output, and interpersonal output activities.

Hsu (2019) pointed out that previous research on collaborative EFL learning has shown that EFL learners who use wikis (a special form of the online environment) significantly improve their content quality and language accuracy in writing. He examined "the potential link between wiki collaboration and development in individual L2 writing" (Hsu, 2019, p. 1). Participants of the study worked collaboratively (in self-directed groups) and completed two drafts via wikis, including the comments, discussion, and history modules. They were later analyzed for the occurrence of content-organization and language-related episodes. Results of the study showed that this form of technology helped the language.

In line with previous research, this study examined the effects of using a smart learning pen (i.e., iPen), a particular form of modern educational technology, on two dimensions of young EFL learners' speaking proficiency (accuracy and fluency). Therefore, the study aimed to answer the following research questions.

1. Does using iPen have any statistically significant effect on young (6-9 years old) Iranian male and female EFL learners' speaking accuracy?

2. Does iPen have any statistically significant effects on young (6-9 years old) Iranian male and female EFL learners' speaking fluency?

Methodology
To answer the above-mentioned research questions, the following methodology was adopted.

Design
A pre-experimental posttest-only comparison group design was to address the research questions. Furthermore, cluster randomization was used for selecting the participants, who were then divided into three conditions with six experimental and control groups.

Participants
The population of the study was young male and female Iranian language learners who were 6-9 years old and were learning English for the first time. Participants of the present research attended language courses at different language schools in Isfahan, Iran. To collect the data, cluster sampling was used. The participants were selected in a cluster way form from 15 branches of Gooyesh language institute all over the city.

The participants of the study were 180 young Iranian EFL learners in six groups of 30 who were randomly assigned to four experimental and two control groups. The participants were chosen from a larger population of more than 500 language learners who had signed up for language courses in the 15 branches of Gooyesh language institute.

Since the study had gender as one of its independent variables, attempts were made to have both male and female groups in all conditions of the study. The participants of the experimental groups were four groups of 30 male and female participants. Two of the experimental groups used the smart learning pen (i.e., iPen) "both in class and at home" (IPC), and the other two used the iPen "at home only" (IPH). Finally, the participants of the control groups were two groups of

30 (male and female) who did not possess the iPen (NIP). Table 1 summarizes the above information:

Table 1. *Participants of the Study*

Groups	Number	Gender	Age
ICP	30 + 30	Male/Female	6-9
IHP	30 + 30	Male/Female	6-9
NIP	30 + 30	Male/Female	6-9
Total	180	Male/Female	6-9

Instruments

The final exam of the course was used as the posttest, which was an oral interview. This interview contained nine parts. The interview started with a greeting. For the first and second parts, the teacher asked simple Yes/No and Wh-questions. Part III included "Who's this?" questions, and the next section was about colors. The fifth and sixth parts of the posttest focused on numbers and the alphabet, respectively. Part VII checked imperatives using Total Physical Response. Finally, the teacher asked the participants to sing two songs by heart out of the textbooks for the eighth and ninth parts.

Table 2. *Oral Test Specifications*

No.	Question Type	Example	No. of Questions	*Scale*
1	Yes/No Questions	Is it a(n) ……?	7	7
2	Wh. Questions	What is it?	7	7
3	Wh. Questions	Who's this?	3	3
4	Wh. Questions	What color is it?	3	3
5	Wh. Questions	What number is it?	3	3
6	Wh. Questions	What letter is it?	4	4
7	TPR	Open your book	3	6
8	Song	First Friends 1A	2	4
9	Song	Alphabet and Song1A	2	4
10	Total		33	40

The researcher used expert judgments to check the instrument's content validity. First, experienced instructors wrote the question items. Then, three other experienced teachers were asked to review the test for content and appropriateness. Finally, based on the feedback from these experienced teachers, specific revisions were made. To check the reliability, the researchers used Cronbach's Alpha, the results of which showed a high-reliability coefficient ($r = .87$). In addition, all the interviews were voice- and video-recorded and were scored by three experienced raters with high interrater reliability ($r = .92$).

Materials

In addition to the data collection instruments, students of all groups received the same instruction and materials for seventeen (90-minute) sessions. For both the experimental and

control groups, Iannuzzi's (2011) *First Friends 1A*, and Yeganeh's (2013) *First Friends: Alphabet and Songs 1A* were used as the instructional materials.

First Friends is a three-level course for beginners. The five-unit textbook covers the fundamental requirements of young language learners (e.g., vocabulary, structure, everyday English, song, story, values, project, phonics, and alphabets). Besides, language learners receive special treatment to learn the letters in terms of recognition and formation. Students also learn about everyday English and social values, such as learning to share.

First Friends: Alphabet and Songs is a three-level supplementary series for *First Friends. First Friends: Alphabet and Songs 1A* covers the numbers (1-10), alphabet letters, and ten songs to practice five topics in *First Friends 1A* _two songs for each unit.

Procedures

First, to make sure that the 180 (6-9 years old) participants were homogeneous in terms of their level of proficiency, they were asked if they had any previous experience with learning English, and those with no prior experience with the English language took part in the study. Six groups of 30 male and female individuals were selected. For all groups, the same teaching procedures based on a standard operational procedure (SOP) and the same materials were used. In other words, all the participants of all the experimental and control groups received the same content and materials except for the independent variable (i.e., the use of the iPen). In the experimental groups, the participants used the iPen as a part of their treatment, and in the control groups, no iPen was used. Because the study examined gender differences, there were male and female groups for each of the conditions. There were four experimental groups, namely the iPen in class (IPC) and the iPen at home (IPH), as well as two control groups with no iPen (NIP).

IPC participants used the iPen in class and at home. At the beginning of the treatment, the teacher briefed the parents and the students on how to use the iPen. Participants were required to use the iPen individually at home and in pair work, group work as well as individual activities in class. The teacher was expected to play an active role and check all the learners to ensure that they all used the iPen correctly, appropriately, and effectively.

Similar to IPC, IPH participants learned how to use the iPen at home. In addition, their parents were informed about the procedure of using the iPen and were asked to check their children's use of it at home, especially when they were preparing for class or doing their homework.

For the NIP participants, no iPen was available in class or at home. These participants were instructed and had access to all the materials but the iPen.

Furthermore, accuracy and fluency were operationalized based on Wigglesworth and Storch (2009), who defined accuracy as the percentage of error-free T-units or the percentage of error-free clauses and fluency as the average number of words per text (written or oral) in a specified period of time. A T-unit is one independent clause with any number of dependent clauses attached to it.

Data Analysis and Results

To examine whether using the iPen had any statistically significant effects on male and female young Iranian EFL learners' speaking accuracy, a two-way ANOVA was conducted. The same

statistical procedure was used again to examine the effects of iPen on male and female young Iranian EFL learners' speaking fluency.

Effects of using the iPen on male and female learners' speaking accuracy

The first research question of the study was to see whether using the iPen had any significant effects on young Iranian EFL learners' speaking accuracy and if iPen and gender (and their interaction) had any significant effects on the participants' speaking accuracy. The two-way ANOVA run revealed what follows:

Table 3. *Descriptive Statistics for Accuracy Scores of Male and Female Learners in Different Groups*

Groups	Gender	Mean	Std. Deviation	*N*
IPC	Male	.89	.12	30
	Female	.86	.14	30
	Total	.88	.13	60
IPH	Male	.83	.14	30
	Female	.78	.20	30
	Total	.80	.17	60
NIP	Male	.65	.29	30
	Female	.76	.23	30
	Total	.70	.27	60
Total	Male	.79	.22	90
	Female	.80	.20	90
	Total	.79	.21	180

As for the IPC learners, the speaking accuracy mean scores of males and females were .89 and .86, respectively. In the IPH condition, the mean scores of the male and female learners turned out to be .83 and .78. For the control groupers, males obtained a mean score of .65, while their female peers received a mean score of .76. In addition, the total accuracy mean score of IPC (*M* = .88) was larger than that of IPH (*M* = .80), which was in turn larger than the accuracy mean score of the NIP (*M* = .70). Regarding learners of different genders, the total accuracy mean score for males (*M* = .79) was only slightly different from that of females (*M* = .80).

To figure out whether the differences among the three groups and between the two genders were of statistical significance or not, the researcher had to check the *p* values in front of Groups and Gender under the Sig. column in Table 4:

Table 4. *Two-way ANOVA for Accuracy Scores of the Male and Female Learners in Different Groups*

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared
Corrected Model	1.16	5	.23	5.71	.00	.14
Intercept	114.84	1	114.84	2819.36	.00	.94
Groups	.91	2	.45	11.27	.00	.11

|						
Gender	.003	1	.003	.07	.79	.00
Groups * Gender	.24	2	.12	2.96	.054	.03
Error	7.08	174	.04			
Total	123.10	180				
Corrected Total	8.25	179				

Table 4 shows that there was a statistically significant difference in the speaking accuracy of the learners who used iPen in class and at home (IPC), those who used iPen at home only (IPH), and the learners who did not use iPen (NIP) (i.e., .00 < .05); the exact location of the difference(s) among these groups is presented in the Scheffe post hoc test table (Table 5).

On the other hand, the p value for Gender was greater than the significance level (.79 > .05), which means that there was no significant difference between male and female learners in the IPC, IPH, and NIP in terms of their speaking accuracy. Similarly, the interaction between the type of instruction and gender did not reach statistical significance as the p value for Groups*Gender was greater than the significance level (.054 > .05).

Table 5. *Results of Scheffe Post Hoc Test for Accuracy Scores of the Learners in Different Groups*

(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
IPC	IPH	.073	.03	.13	-.01	.16
	NIP	.174*	.03	.00	.08	.26
IPH	IPC	-.073	.03	.13	-.16	.01
	NIP	.100*	.03	.02	.00	.19
NIP	IPC	-.174*	.03	.00	-.26	-.08
	IPH	-.100*	.03	.02	-.19	-.00

The difference between IPC learners and IPH learners on speaking accuracy was not statistically significant because the relevant p value (.13 > .05) is larger than the significance level. However, there was a significant difference between the IPC and NIP learners (.00 > .05). Similarly, the difference between IPH and NIP learners also reached statistical significance since the p value was less than the alpha level (i.e., .02 < .05). These obtained results are graphically represented in Figure 1:
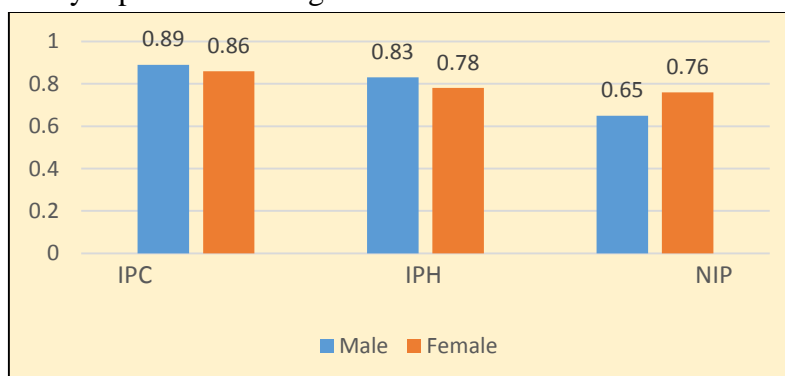
Figure 1. Speaking Accuracy Mean Scores of the Male and Female Learners in Different Groups

Figure 1 shows that male and female learners in each of the three groups were not substantially different. Still, among the three groups, the mean scores for IPC and IPH were considerably larger than the mean score for NIP, while the difference between IPC and IPH was negligible.

Effects of using the iPen on male and female learners' speaking fluency

The other objective of the study was to investigate whether using iPen had any significant effects on young Iranian male and female EFL learners' speaking fluency or not. Since the type of instruction (i.e., with or without iPen) was an independent variable and gender was supposed to be a moderator variable (which is a type of independent variable), two-way ANOVA was conducted once again for the speaking fluency scores of male and female EFL learners in the IPC, IPH, and NIP. The results of these analyses are presented below:

Table 6. *Descriptive Statistics for Fluency Scores of the Male and Female Learners in Different Groups*

Groups	Gender	Mean	Std. Deviation	*N*
IPC	Male	.62	.20	30
	Female	.69	.31	30
	Total	.65	.26	60
IPH	Male	.64	.23	30
	Female	.68	.28	30
	Total	.66	.25	60
NIP	Male	.85	.48	30
	Female	.71	.19	30
	Total	.78	.37	60
Total	Male	.71	.34	90
	Female	.69	.26	90
	Total	.70	.30	180

Before casting a look at the results of the descriptive statistics in Table 6, making a mention of an important point seems in order: as the duration of time when the learners answered the questions posed by the teacher was used as a measure of their fluency, one should notice that the smaller the value, the more fluent were the learners (since it took them a shorter time to answer the questions). Now it could be seen in Table 6 that the speaking fluency mean scores of the male learners in the IPC, IPH, and NIP were .62, .64, and .85, respectively. Additionally, the fluency mean scores of the female learners in the IPC, IPH, and NIP were .69, .68, and .71, respectively. Whether the differences among the three groups, and between the two genders in each group were statistically significant or not could be determined by examining the *p* values in front of Groups and Gender under the Sig. column in the two-way ANOVA table (Table 7).

Table 7. *Two-way ANOVA for Fluency Scores of the Male and Female Learners in Different Groups*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.96	5	.19	2.12	.06	.05
Intercept	89.46	1	89.46	983.94	.00	.85
Groups	.60	2	.30	3.34	.03	.03
Gender	.00	1	.00	.05	.80	.00
Groups * Gender	.35	2	.17	1.93	.14	.02
Error	15.82	174	.09			
Total	106.25	180				
Corrected Total	16.78	179				

Table 7 shows a statistically significant difference in the speaking fluency scores of the learners in the three different groups because of the *p* value under the Sig. column across the row labeled Groups was lower than the specified level of significance (i.e., .03 < .05). However, the *p* value corresponding to Gender was greater than the significance level (.80 > .05). Moreover, the interaction between these two independent variables (Groups and Gender) failed to exert a statistically significant impact on the speaking fluency of the learners owing to the fact that the *p* value in front of Groups*Gender appeared to be greater than the significance level (.14 > .05). Table 8 had to be consulted to find out where exactly the differences among the three groups lay:

Table 8. *Results of LSD Post Hoc Test for Fluency Scores of the Learners in Different Groups*

(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
IPC	IPH	-.008	.05	.87	-.11	.10
	NIP	-.12*	.05	.02	-.23	-.01
IPH	IPC	.008	.05	.87	-.10	.11
	NIP	-.11*	.05	.03	-.22	-.01
NIP	IPC	.12*	.05	.02	.01	.23
	IPH	.11*	.05	.03	.01	.22

It could be observed in Table 8 that the difference between IPC and IPH learners on speaking fluency was not statistically significant (*p* = .87 > .05). Nonetheless, there was a statistically significant difference between the IPC and NIP learners since the corresponding *p* value was .02. In the same vein, the difference between IPH and NIP learners also reached statistical significance (*p* = .03 < .05). The results obtained here are also graphically shown in the bar chart below.
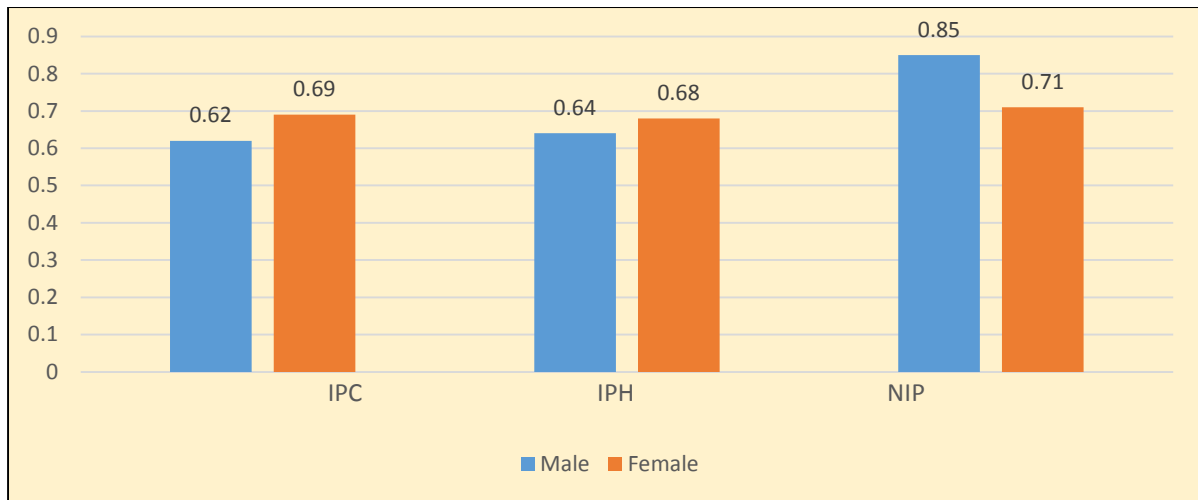
Figure 2. Speaking Fluency Mean Scores of the Male and Female Learners in Different Groups

As it was mentioned above, the higher the mean score, the longer it took the learners to respond to the questions, and thus the less their speaking fluency. Thus, the bar graph in Figure 4.5 reveals that IPC and IPH learners were more or less the same regarding their speaking fluency, though the NIP learners were far less fluent than their counterparts in IPC and IPH. Moreover, it is evident that female learners in the three groups were not noticeably different, yet the male learners in the NIP group were conspicuously less fluent than those in the IPC and IPH groups.

Discussion

The research questions were intended to examine whether using the iPen had any significant effects on young Iranian male and female EFL learners' speaking accuracy and fluency.

As far as speaking accuracy and fluency were concerned, the two experimental groups significantly outperformed the control groups, indicating that using the iPen (either in class or at home) exerted significant effects on participants' speaking accuracy and fluency. For the effects of iPen and gender on speaking accuracy, results showed a statistically significant difference in the speaking accuracy scores of the learners in the IPC, IPH, and NIP groups; however, no significant difference between male and female learners in the IPC, IPH, and NIP in terms of their speaking accuracy was considered, which means that there was no significant difference between male and female learners in the IPC, IPH, and NIP in terms of their speaking accuracy. IPC and IPH learners were significantly more accurate than NIP learners, while the two experimental groups did not differ significantly from one another.

As for the fluency, results indicated a statistically significant difference in the speaking fluency of the learners in the three groups. The difference between IPC and IPH learners on speaking fluency was not statistically significant, but there was a statistically significant difference between the IPC and NIP learners and between IPH and NIP learners. As the effects of iPen and gender on speaking fluency were considered, no statistically significant difference between male and female learners in the IPC, IPH, and NIP was considered, which means that there was no significant difference between male and female learners in the IPC, IPH, and NIP in terms of their speaking fluency.

Previous research on the topic has come to mixed conclusions. While there are studies that support the findings of this research project, there are others that have come to different conclusions. In what follows, there are some examples of each group of studies. It is essential to pinpoint that while there are numerous CALL and MALL studies on EFL/ESL writing proficiency (e.g., Chung & Ahn, 2021; Sarré, Grosbois, & Brudermann, 2019), there are not as many on EFL/ESL speaking proficiency (complexity, accuracy, and fluency). Nevertheless, the results of the study can be supported and contradicted by several studies in the field which have evaluated the effects CALL/MALL and other forms of educational technology on different aspects of EFL/ESL learners' oral proficiency, including accuracy and fluency (e.g., Ebadi & Ebadijalal, 2020; Hsu, 2015; Mahfouz & Ihmeideh, 2009; Wang et al., 2018; Xie, Chen, & Ryder, 2021).

The results of the study are in line with Wang et al. (2018), who examined the effects of a MOOC (massive online open course) on Chinese elementary EFL learners' oral proficiency. Results of the study showed that experimental group participants' proficiency (complexity, accuracy, and fluency) significantly improved. Nevertheless, Hsu's (2015) study with Taiwanese EFL learners came to quite different conclusions about the effects of technology on oral accuracy and fluency. The researcher used voice blogging in an exploratory study to investigate the potential effects of speaking practice on EFL proficiency (complexity, accuracy, and fluency). Results showed that although the participants' speaking complexity improved over time, "no such improvement was made in their speaking accuracy and fluency" (Hsu, 2015, p. 968).

One of the main reasons these studies did not make a significant difference in learners' proficiency is related to the nature of this construct (Housen et al., 2012). It is believed that proficiency takes a long time to develop and improve, and the effects of short-term intervention cannot be long-lasting. In other words, it takes a long time for learners to develop the different dimensions of EFL/ESL proficiency.

Conclusions and Implications

Despite the differences between teaching young and adult learners, it has been proved that modern technological developments can benefit young language learners, too, provided that it is implemented appropriately (Clements, 1994; Haugland & Wright, 1997). As Hew and Brush (2007) pointed out, technology is an indispensable part of every community, and it is essential that learners be exposed to educational technology from early school years. The findings of this study also supported this view and proved such implementation to be beneficial.

As mentioned before, this study scrutinized the potential effects of the iPen, as an ICT tool, on young Iranian male and female EFL learners' speaking accuracy and fluency. The findings showed that both male and female, young EFL learners who participated in the study could improve their skills at the end of the treatment, whether they used the iPen at home or in class. This is in line with James's (1996) remark on the efficacy of educational technology in improving learners' skills and teachers' performance: "Educational technology is often presented as a potential means for making the student's learning experiences richer and the teacher's job easier. The idea of a computer cleverly extending students' competence through

meaningful and absorbing activities is one that permeates much of the literature on CALL" (James, 1996, p. 20).

The findings of the study have important implications for policymakers, materials designers, and language teachers. The fact that technology can provide a more enjoyable experience for the learners and, at the same time, play a positive and constructive role in fostering young EFL learners' language skills requires these authorities to be prepared for a challenging future. Experts in educational and technical settings must join forces to develop suitable materials and equipment for the younger learners, who seem to be much ahead of their previous generations. This is particularly important in communities where officials and parents are concerned about the content their children receive from the virtual world, especially as many parents believe that it is quite impossible to monitor everything their children receive through the Internet.

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