

**Research Paper**

# Demystifying the Effect of Digital Literacy-Based Instruction on Iranian EFL Learners' Level of Self-Confidence

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## Abstract

This study was designed to determine the effect of digital literacy-based instruction on Iranian EFL learners' self-confidence. To achieve this aim, a number of 56 participants in two intact classes of a high school in Shiraz were selected as the experimental and control groups. The experimental class received treatment whereas the control class followed the conventional instruction. Students were pre-tested and post-tested on their self-confidence through the Academic Behavioral Confidence Scale. The results revealed that students who enjoyed treatment in the form of digital literacy-based instruction, received significantly higher scores on self-confidence post-test than did the students in the control group. The results of the current study suggest that using digital literacy-based instruction leads to higher scores in self-confidence of Iranian EFL learners. Based on the results, the students in the experimental group outperformed their counterparts in the control group with regard to their level of self-confidence. The findings of the study indicated that a more planned use of digital literacy-based instruction and nurturing digital literacy can reinforce learners' level of self-confidence.

### Keywords:

Digital Literacy, Self-Confidence, Digital literacy-based instruction, Iranian EFL Learners

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## Introduction

To construct civil communication in the digital era, digital literacy is considered an important and key factor. There are many explanations for digital literacy, but the concept can be interpreted as the capability required by people to live, have relationships, learn, and work in a digital society. Nowadays being digitally literate requires the knowledge and skills for using digital tools and the internet, comprehending media, and manipulating information (Ferrari, 2012). Today, amounts of information such as printed books, audio, video clips, images, educational posters, podcasts, and more can be accessible through the internet. Students are acquainted with digital technology and generally recognize how to access, create, and share digital information (Ting, 2015).

Maulina et al. (2023) state that “social media diverge from traditional or industrial media in many ways including usability, quality, frequency, performance, and immediacy” (p. 60). In fact, social media provides a medium for dialogic transmission of ideas, and information (Pavlik & McIntosh, 2015 as cited in Maulina et al., 2023). According to Kietzmann et al. (2011), one can consider a framework including seven basic elements for social media to refer to the related functions; these functional features are identity, presence, relationships, conversations, sharing, and reputation (as cited in Maulina et al.).

Learning brings about changes in the behavior of a person. The act of engaging the learners in various exercises and activities and providing them with an atmosphere to get new information and knowledge through sharing personal adventures and experiences or getting information from the teacher can be considered learning (Taylor & Mackenney, 2008).

On the other hand, self-confidence is one of the important factors that has a major impact on students' learning in the educational environment. Self-confidence can affect learners' participation, cooperation, and breakthroughs (Norman & Hyland, 2003). Self-confidence plays an important role for students to venture new things, engage, and participate in learning activities. Students with high levels of self-confidence are sure of their performances and capabilities and they set targets and goals for themselves in their learning process and try desperately to reach their goals while they are not concerned about the results (Kanza, 2016). Considering the importance of self-confidence as a leading factor in people's academic, professional, and personal lives, Prameswara and Hapsari (2023) believe that confidence can affect one's motivation. Similarly, Pajares (2003) states that “learners' confidence in their writing abilities has a significant impact on their writing motivation and performance” (as cited in Prameswara and Hapsari, p. 89).

Since the importance of being familiar with the concept of digital literacy in the current technological age aside from knowing how to use online or offline applications, websites, and tools in an academic context for EFL learners has generally been indicated, the interest of language teachers, learners, and material developers is steadily on the increase. Additionally, it can help the teachers and experts in the field of psychological education to employ some methods to promote the students' self-confidence to gain better scores in the English language. Therefore, the present study was designed to provide empirical support for the field by exploring the effect of digital literacy-based instruction on Iranian EFL learners' self-confidence. Although many studies have attempted to explain the effects of digital literacy on students' self-confidence

(Tridinanti, 2018; Puzziferro, 2008), these investigations are not enough to conclude the effect of digital literacy on learners' self-confidence. Additional research in this area is warranted to tackle some of the unsettled issues in the debates reviewed above.

The main research question that this study focused on was the following:

Does digital literacy-based instruction significantly affect Iranian EFL learners' self-confidence?

## Literature review

Elaborate systematically what is already known about the research topic. Evaluative and critical of the studies or ideas which are relevant to your work. Outline the key ideas and theories. Use the present perfect tense (have/has + verb participle) for general reference to the literature. Use the simple past tense for reference to specific studies carried out in the past.

### 2.1. Theoretical Background

Some studies either investigated the effect of digital literacy on self-confidence or explored the relationship between digital literacy and self-confidence. In the following part, some pieces of research will be presented.

An explanation by Eshet-Alkalai (2004), which is broadly admitted, considers digital literacy as the collection of strategies for cognitive thinking, that users of digital information take advantage of. Various skills such as cognitive, motoric, sociological, and emotional skills, help learners with the use of digital technology effectively to meet their needs. On the other hand, self-confidence is an important factor in inspiring people and can direct the person's behaviors. It should be contemplated as a feature of learners that makes them feel successful while they are accomplishing several activities in the class environment and outside the learning context respecting the learning objectives (Benabou & Tirole, 2002).

Information and communication technology (ICT) has to do with an integral component of a learning program for many teachers and students. Today, the use of ICT in education is accepted as a demand. As a result, learners in educational contexts are increasingly acquainted with ICT use in the classroom and out of it (Wilkinson, 2007). Moreover, globalization has directed this need to incorporate ICT management within educational procedures by introducing it as a beneficial and imperative competence for the social and economic development of countries.

Eshet-Alkalai (2012) designed a 'Digital Literacy Framework' comprising six categories: (a) photo-visual thinking; (b) real-time thinking; (c) information thinking; (d) branching thinking; (e) reproduction thinking; and (f) social-emotional thinking. Ng (2012) suggested that digital literacy has three dimensions: 1. Technical dimension, 2. Cognitive dimension, 3. Social-economic dimension. In the heart of the model, Ng summarizes digital literacy as the ability to perform basic computer-based actions for daily necessities such as using resources; searching, identifying, and assessing digital information adequately for several purposes.

Digital literacy is context-dependent and there is a model for it, which has seven elements: media literacy, information literacy, digital scholarship, learning skills, communications and collaboration, career and identity management, and ICT literacy (Jisc, 2014, as cited in Tang & Chaw, 2015).

According to Park (2016, as cited in Rahman et al., 2021), the Digital Intelligence Quotient (DQ), which allows persons to face challenges and accommodate digital life, is a set of social,

emotional, and cognitive abilities. DQ is grouped into eight areas: digital identity, digital use, digital safety, digital security, digital emotional intelligence, digital communication, digital literacy; and digital rights (Park, 2016). Based on DQ areas, digital literacy is one of its dimensions, which means the ability to find, read, evaluate, synthesize, create, adapt, and share information, media, and technology (DQ Institute, 2018). Digital literacy is the aptness to employ digital information for resolving and ruling to accomplish objectives and targets.

The entity of digital literacy is constructed of four indicators, including primary competencies in informational communication technology, informational skills, media awareness, and computational thinking (Siero, 2017). These four indicators are also mentioned as the basis of digital literacy by UNESCO (2016). UNESCO Global Education Monitoring Report (2016) persists in comprehending and inspecting the collection of necessary competencies to evaluate digital literacy applied to the latest technologies.

Some countries such as Turkey, Nigeria, Japan, and Spain; as cited in (Rusydiyah et al., 2020) added the word ICT to the concept of digital literacy. One of the explanations for digital literacy is the ability to use information and computer technology (ICT) to discover, assess, construct, and transmit information that needs cognitive and technical skills. This definition envelops various concepts such as technological, cognitive, and social competence (Eshet-Alkalai, 2012).

Timirli et al. (2013) asserted that self-confidence is considered as the self-esteem and self-assessment of an individual, which can help learners to be able to perform tasks. Wang and Wu (2020) claimed that students with no or low self-confidence, cannot think about their emotions, passions, and favorites with high confidence in the target language before the other learners. Considering the importance of self-confidence as a leading factor in people's academic, professional, and personal lives, Prameswara and Hapsari (2023) believe that confidence can affect one's motivation. Similarly, Pajares (2003) states that "learners' confidence in their writing abilities has a significant impact on their writing motivation and performance" (as cited in Prameswara & Hapsari, p. 89).

## 2.2. Empirical Studies

Many studies have been conducted in the language learning context with a focus on digital literacy (e.g., Eryansyah et al., 2019; Iskandar et al., 2022; Son et al. 2017). Experiencing a digital-oriented world encourage researchers to study the aspects of digital literacy in several domains and field (Yastika & Iswati, 2020; Jannah, 2000).

In a study, Puzziferro (2008) investigated the performances of the students as a function of students' self-efficacy with online technologies. The participants of the study were 815 college students. The findings showed that online technologies' self-confidence has no relationship with the students' performance. Another study by Prianto et al. (2012) was conducted on vocational high school students. The population in this study was a total of 2450 students. This study detected the level of digital literacy, future time perspective, and self-confidence of the participants for entrance to the job market. The study indicated that digital literacy had no direct effect on the self-confidence of participants, also it demonstrated that digital literacy had an indirect effect on the self-confidence of the school graduates to enter the job market.

In another study, Dev and Qiqeh (2016) examined the relationship between English Language proficiency, self-esteem, and academic achievement of the students. Two hundred undergraduate students of Abu Dhabi University participated in the study and their age group varied between 18-22. The findings of the study delineated that language proficiency and self-esteem had a negative correlation and no association between language proficiency, academic achievement, and self-esteem was observed.

Hasyim (2021) summed up that digital literacy has not significantly affected the self-regulated language learning of students. One hundred and forty-seven students participated in his study. Based on the results of the study, digital literacy cannot be considered a significant factor in effective language learning.

Munawaroh et al. (2022) investigated the factors affecting students' learning achievement by incorporating self-confidence and learning motivation through the mediating role of digital literacy. The participants in the study were 188 school students in Indonesia. This study was done in a vocational school in Jakarta Indonesia, involving 188 vocational school students as respondents. The result of this study showed that more confident students have a tendency to reinforce their digital literacy, and self-confidence and digital literacy are connected among Indonesian vocational school students.

Several studies have been conducted investigating self-confidence in language learning. Some of the most related pieces of research are mentioned here. For instance, considering the important role that digital tools can play in language learners' success in learning a language, Mualina et al. (2023) conducted a study to investigate students' perceptions of the use of WhatsApp-based speaking instructional materials. The findings of their study revealed that half of the participants agreed that such technology-based instruction could boost their self-confidence in speaking English and motivate them to be more active in learning.

A study by Sart (2023) explored the influence of the improvement of technology on the self-confidence of university students. The study was conducted in a mixed-method design using qualitative and quantitative methods. This study aimed to examine the effects of the effective usage and the development of technology as 21st Century skills on university students' self-confidence. Both quantitative and qualitative approaches were used to gather and analyze the data. This study demonstrated significant awareness about the present educational achievements and defects as the effective employment and improvement of technology for the self-confidence of university students. This study illuminated the crucial necessity for educational amendment aimed at reinforcing technological fluency and inventive problem-solving to develop the self-confidence of the participants.

In this view, some recent studies were checked. Each sheds light on digital literacy, self-confidence, learning in general, and language learning in particular. Nevertheless, it sounds like there is an insufficiency of research on the effect digital literacy-based instruction can have on self-confidence. Therefore, in light of these points highlighted by previous literature, this study investigated the impact of digital literacy-based instruction on the learners' self-confidence. In other words, this study was an attempt to fill the gap by exploring the effect of digital literacy-based instruction on the level of learners' self-confidence and allowed us to draw stronger conclusions.

## Method

This research conducted a quantitative research method. Since two intact classes were used as the experimental and control groups, the design of this study is considered a quasi-experimental design.

### 3.1. Participants

To accomplish the objectives of the current paper, two intact classes of female Iranian EFL learners ( $N = 56$ ) were selected using convenience sampling. The two intact groups were randomly assigned into an experimental group ( $N = 29$ ) and a control group ( $N = 27$ ). All participants were eighth-grade high school students (with an average age of 14) and English was their foreign language.

### 3.2. Instrumentation

To answer the research questions of this study, the following instruments were used

#### 3.2.1. Oxford Quick Placement Test

To guarantee the homogeneity of the experimental and the control groups in terms of general English proficiency level "Oxford Quick Placement Test" (OQPT) was given to the students of both groups. The OQPT test indicated scores between 1 and 60 on the scale. To have homogeneous groups, the learners of the pre-intermediate level have been chosen. Those learners whose scores were between 24 and 30 were considered lower-intermediate ones.

#### 3.2.2. Academic Behavioral Confidence Scale

The Academic Behavioral Confidence scale (ABC), was given to the learners to measure their self-confidence in the learning process. The questionnaire comprised of a total 24 items of five-point Likert scales: 1. Not Confident at all to Very Confident. Sander & Sanders (2003, 2006) introduced and located the Academic Behavioral Confidence scale in the psychological literature.

The ABC scale differentiates students by their level of confidence. Trying to know the level of students' confidence is significant for teachers to create a more efficient learning context for learners (Sander, 2005). It is proved that the Academic Behavioral Confidence scale is practical and valid to evaluate the learners' confidence. The reported Cronbach's Alpha was .88, which is a high level of reliability.

The English version of the questionnaire was administered to students, and the translated version of the questionnaire, which has been checked and revised by two experts (the manager of the English language department and the educational assistant) in TEFL, was read in the class. In addition, the content of the translated version of the questionnaire was assessed by the experts to ensure its validity. The questionnaire items were read and translated one by one for the students while enough time was assigned to the students to answer them. For the present study, the internal consistency of 24 items was determined by the researcher using Cronbach's alpha through data collected from the participants and the obtained indexes are as follows: the control group's pretest and posttest ( $\alpha = 0.91$  and  $0.93$ ) and the experimental group's pretest and posttest ( $\alpha = 0.95$  and  $0.88$ ), which are high and acceptable.

**Table 3.2. Digital Literacy-Based Activities**

DLBI	Digital tools	DL Framework	Activities
<b>Social network sites</b>	YouTube Pinterest Instagram	Research and Information Literacy  Digital Citizenship  Communication and Collaboration	1. Create a better English communicative environment for students 2. Share and subscribe the related video clips for classmates 3. Write some comments 4. Learning cultures through pictures and content.
<b>Microsoft Office</b>  <b>Microsoft Office</b>	PowerPoint  Word	Creativity and Innovation  Technology Operations and Concepts	5. Brainstorm with PowerPoint notes 6. Create a presentation 7. Make a vocabulary album 8. Make screencast videos 9. Write paragraphs 10. Create a genogram 11. Create flashcards
<b>Wikipedia</b>  <b>Search engines</b>	Google Mozilla Firefox Bing.com	Research and Information Literacy  Critical Thinking, Problem-Solving, and Decision Making	12. Searching to know a place, book 13. Searching for videos, pictures, information, and news about topics, words, traditions, and popular places and discuss them 14. Use <a href="#">Google Maps Street View</a> to view <u>one of these fantastic locations virtually</u> (or anywhere else)
<b>Computer-based dictionaries</b>	<a href="#">The Oxford Dictionary</a> <a href="#">Word Web Free Dictionary</a> <a href="#">Word Book</a>	Technology Operations and Concepts  Research and Information Literacy	15. Collect new words 16. Practice the pronunciation 17. Find other definitions of a word
<b>Online dictionaries</b>	<a href="#">Merriam-Webster Dictionary</a> <a href="#">Oxford English Dictionary</a> <a href="#">Cambridge Online Dictionary</a>	Technology Operations and Concepts  Research and Information Literacy	18. Checking for expressions and idioms 19. Checking for collocations 20. Finding words by telling them, not to write 21. Checking the pronunciation by repeating the word in the app and getting a score
<b>Mobile-based dictionaries</b>	Longman Dictionary Oxford Dictionary of English <a href="#">English Dictionary</a>	Technology Operations and Concepts	22. Dictionary time to memorize the words' spelling, meaning, and pronunciation 23. Guessing the meaning of words before checking

		Research and Information Literacy	
<b>Computer games</b>	“Civilization VI” “Deponia” “21 Days”	Technology Operations and Concepts  Research and Information Literacy  Creativity and Innovation	24. Making cards to suit any level or target vocabulary. 25. Matching vocabulary words with definitions. 26. Playing games to make some other environments for learners to experience listening to native speakers.
<b>Online games</b>	<a href="http://www.gamestolearnenglish.com">www.gamestolearnenglish.com</a> <a href="http://www.eslgamesworld.com">www.eslgamesworld.com</a> <a href="http://www.englishclub.com">www.englishclub.com</a>	Technology Operations and Concepts  Research and Information Literacy  Creativity and Innovation	27. Playing games and learning the language without having to worry about making mistakes in public
<b>English videos</b>	YouTube British Council Speech yard	Communication and Collaboration  Critical Thinking, Problem-Solving, and Decision Making  Research and Information Literacy	28. Practicing adjectives through video clips 29. Role-play through a memory test 30. Practice critical thinking by highlighting the problems and coming up with a solution 31. Selecting news with appropriate length videos as homework to be summarized. 32. Finding videos related to the topic and using transcripts to understand better. 33. Increasing learners' engagement by grouping them to find new expressions and words while watching videos
<b>English websites</b>	Duolingo FluentU British Council	Communication and Collaboration  Research and Information Literacy	34. Retelling the story 35. Correcting grammar errors. 36. Creating flashcards 37. Improving students' grammar based on their level by exemplification 38. Exercising to test grammar 39. Choosing a vocabulary lesson related to the topics of the book to learn extra words 40. Speak to other members from other countries about a subject



<b>Sending and receiving e-mails</b>	Gmail	Technology Operations and Concepts  Communication and Collaboration	41. Sending homework to classmates 42. Sending some activities for the instructor
<b>English learning applications</b>	Cake Audible Busuu	Research and Information Literacy  Technology Operations and Concepts	43. Practicing the figure of speech through short related videos 44. Practice and get new words with correct English pronunciation 45. making new sentences 46. Reading extra readings about a topic 47. Finding some specific words while listening to the stories
<b>English podcasts</b>	Easy English expressions All ears English British Council	Research and Information Literacy  Technology Operations and Concepts  Digital Citizenship	48. Listening to native people talking about the topic students searched for. 49. Reading the transcript of the podcast 50. Recording voices of students reading the text

### 3.3. Data Collection Procedure

In order to achieve the purpose of the current study, the following procedures were carried out. This study was an experimental study with a pretest-posttest design, involving one experimental group and one control group. Notwithstanding the placement of the learners by the institute, the OQPT was administrated to be assured about students' level of proficiency and homogeneity of the participants in both experimental and control groups as a double check. In the second stage, the Academic Behavioral Confidence scale was given to all the participants. The participants were given as much time as they wanted since performance under the pressure of time was not the aim.

The experimental group was instructed through digital literacy-based learning resources and activities and received the treatment required to develop their digital literacy skills, and the control group had conventional classroom instruction with no treatment. The treatment in this study was digital literacy-based instruction, which consisted of a pamphlet about digital literacy concepts for the conceptualization of digital literacy for learners. It introduced the exact meaning of digital literacy, its dimensions, its necessity in the current digital age, and how to use digital literacy strategies in the classroom context, such as managing online identity, emphasizing the importance of critical thinking, and managing digital distraction.

In addition, for the augmentation of learners' English language through digital literacy in the current study, the treatment embraced the subcomponents presented in Table 3.2. However, some digital literacy-based activities were selected to be accomplished outside the class as the learners' homework or activity, regarding the limitation of time and lack of digital tools in the school.

Table 3.2. shows the selected digital tools and applications used for each part of digital literacy-based instruction (DLBI). Also, 50 activities that have been designed by the researcher

for this study are mentioned. They have been designed concerning the specific items of digital literacy-based instruction.

Moreover, based on the digital literacy framework, the subsections of the framework that these activities encompassed, are indicated separately to see what aspects of the digital literacy framework were employed through the selected digital tools.

Specific subjects of the coursebook (Connect 3) were taught through technological tools according to the digital literacy framework. At the end, the students were asked to fulfill the above-mentioned questionnaire for the second time after the treatment, the control group also were asked to answer the questionnaire again.

### Data Analysis Procedure

The collected data was analyzed with IBM SPSS Statistics 26<sup>th</sup> version, frequency and Percentage were presented in tables and figures. Also, to check the normality of distribution, Kolmogorov-Smirnov Tests were calculated. Additionally, to elucidate the significant differences existing in the experimental and control groups, independent sample t-tests were performed. In addition, a paired sample t-test was run to examine whether there were any significant differences in the means of self-confidence. Moreover, Cronbach alpha was analyzed to estimate the reliability of the questionnaire.

## Results

The results of descriptive statistics presenting the details of the data collected are provided in this section. Paired samples t-tests comparing pre-tests and post-tests of the learners in each group to find differences within groups, and independent samples t-tests comparing the groups with each other to find differences across groups are interpreted in this section.

### 4.1.1. Results of Oxford Quick Placement Test

The following tables indicate the results of the Oxford Quick Placement Test (OQPT) scores administered to double-check the proficiency level of the participants.

**Table 4.1. Test of Normality of OQPT**

Tests of Normality						
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
OQPT	.103	56	.200*	.981	56	.514
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

Table 4.1. shows that the significance value of the Kolmogorov-Smirnov Test for Oxford Quick Placement Test score was to be more than 0.05, indicating the normal distribution of students' scores on OQPT.

**Table 4.2. Group Statistics of OQPT**

Group Statistics					
	participants	N	Mean	Std. Deviation	Std. Error Mean
OQPT	experimental	29	26.3103	2.59262	.48144
	control	27	26.7778	2.48586	.47840

Table 4.2. shows that the mean score of OQPT (N=29, SD=2.59) for the experimental group is 26.31, and the control group's mean score of OQPT (N=27, SD=.48) is 26.77, respectively.

**Table 4.3. Independent Sample Test of OQPT**

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
OQP T	Equal variances assumed	.012	.914	-.688	54	.495	-.46743	.67975	-1.83025	.89539
	Equal variances not assumed			-.689	53.9	.494	-.46743	.67871	-1.82820	.89333

Based on the results indicated in Table 4.3., the Sig. (2-tailed) is 0.49 which means that there is not a significant difference between the two groups before the experiment.

#### 4.1.3. The Result of the Academic Behavioral Confidence Questionnaire

To spot any potential development in the performance of the control group, paired samples t-tests were run for self-confidence to compare pre-and post-test results. This t-test was employed to seek differences in the performances of the participants in the control group regarding self-confidence. To this end, the results of the pre-and post-tests were compared. The following table shows the details of the analysis of data.

**Table 4.4. Descriptive Statistic of Paired Sample T-test**

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Control pretest s_c	89.8889	27	13.38579	2.57610
	Control posttest s_c	95.8519	27	13.80831	2.65741
Pair 2	Experimental pretest s_c	89.4138	29	16.87669	3.13392
	Experimental posttest s_c	107.4138	29	8.51267	1.58076

According to Table 4.4., the mean score of the pre-test of self-confidence (N=27, SD=13.38), of the control group is 89.88. Also, the mean score of post-tests of self-confidence (N=27, SD=13.80) of the control group is 95.85. The table shows that the control group had more or less similar performances on the pre-test and post-test of self-confidence.

As Table 4.4. shows the mean score of the pre-tests of self-confidence (N=29, SD=16.87) for the experimental group is 89.41. The group’s mean score of post-tests of self-confidence (N=29, SD=8.51) is 107.41.

Table 4.5. demonstrates no statistically significant difference in the score of the control group participants from their pre-test to their post-test of self-confidence ( $p > .05$ ,  $SD=16.78$ ,  $df=26$ ,  $t=1.84$ ). In other words, the control group did not progress in terms of their self-confidence ( $p = .07$ ) significantly. In other words, the table indicates that there was no statistically significant difference between the participants’ performance on self-confidence before and after the study.

As illustrated in Table 4.5., the experimental group participants’ self-confidence increased remarkably between the pre-and post-tests ( $p < .05$ ,  $SD=17.96$ ,  $df=28$ ,  $t=5.39$ ). In other words, the results indicate that the participants who experienced the digital literacy-based instruction improved their level of self-confidence.

**Table 4.5. Paired Samples T-test for Self-confidence Pre- and Post-Tests**

Paired Samples Test									
Tests	Group	Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Control pretest– control posttest	- 5.96296	16.78938	3.23112	- 12.60462	.67869	- 1.845	26	.076
Pair 2	Experimental pretest– experimental posttest	- 18.0000	17.96226	3.33551	- 24.83248	- 11.16752	- 5.396	28	.000

The pretest and posttest results of the self-confidence questionnaire of the experimental group demonstrated that the participants who enjoyed the digital literacy-based instruction considerably improved in terms of self-confidence. According to Table

4.5., a statistically significant difference existed between the participants' performance on the self-confidence pre- and post-tests ( $p = .000$ ).

#### 4.1.3.1. Comparison of the Experimental and Control Groups' Self-Confidence

In order to assess and compare the results of the pre-tests of the experimental group and the control group, independent samples t-tests were run to detect any potential differences in the participants' level of self-confidence at the beginning of the study. The following tables depict the results.

**Table 4.6. Descriptive Statistics of the Experimental and Control Group pretest**

Group Statistics					
	students	N	Mean	Std. Deviation	Std. Error Mean
Pretest self-confidence	Exp.	29	89.4138	16.87669	3.13392
	Cont.	27	89.8889	13.38579	2.57610

As the Table 4.6. displays, the means of students' pretest scores for self-confidence in the experimental and control groups signal almost the same levels of self-confidence. According to the Table 4.6., the mean score of the pre-test of self-confidence of the control group ( $N=27$ ,  $SD=13.38$ ), is 89.88, and the mean score of the pretest of self-confidence of the experimental group ( $N=29$ ,  $SD=16.87$ ), is 89.41 respectively.

**Table 4.7. Test of Normality for Pretest of Self-Confidence**

Tests of Normality						
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Control pretest	.167	27	.051	.918	27	.034
Experimental pretest	.135	29	.192	.926	29	.045

a. Lilliefors Significance Correction

According to Table 4.7. the results of the Kolmogorov-Smirnov Test ( $n>50$ ) indicate that the p-values for both groups are bigger than 0.05. Thus, the data is normally distributed in both groups. Therefore, an independent samples t-test as a parametric test was conducted to detect differences in the participants' self-confidence at the beginning of the study. As Table 4.8. shows the results of Levene's test, the sig. index is .054 and greater than 0.05, so equal variances are assumed ( $p>.05$ ,  $p=.054$   $df=54$ ,  $t=.116$ ). Based on the findings, the Sig. (2-tailed) is 0.908 which means that there is not a significant difference between the two groups before the experiment.

**Table 4.8. Independent Samples T-tests Comparing Experimental and Control Group’s Self-Confidence pretest**

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
Pretest	Equal variances assumed	3.890	.054	-.116	54	.908	-.47510	4.09055	-8.67615	7.72596
	Equal variances not assumed			-.117	52.707	.907	-.47510	4.05682	-8.61309	7.66290

Another independent samples t-test was run to detect differences in the participants’ self-confidence and to see if any differences existed between the two groups at the end of the experiment.

**Table 4.9. Descriptive Statistics of the Experimental and Control Group Posttest**

Group Statistics					
	students	N	Mean	Std. Deviation	Std. Error Mean
Posttest self-confidence	1.00	29	107.4138	8.51267	1.58076
	2.00	27	95.8519	13.80831	2.65741

According to Table 4.9, the mean score of the post-test of self-confidence of the control group (N=27, SD=13.80), is 95.85, and the mean score of the post-test of self-confidence of the experimental group (N=29, SD=8.51), is 107.41 respectively.

**Table 4.10. Test of Normality for Posttest of Self-Confidence**

Tests of Normality						
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Control posttest	.114	27	.200*	.934	27	.086
Experimental posttest	.160	29	.055	.929	29	.052

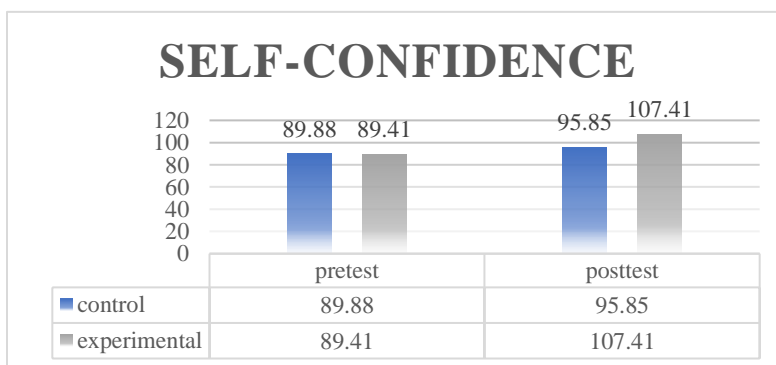
\*. This is a lower bound of the true significance.  
 a. Lilliefors Significance Correction

As Table 4.10. revealed the results of the Kolmogorov-Smirnov Test, the p-values for both groups are bigger than 0.05. Thus, the distribution did not show a significant deviation from normality. Therefore, an independent samples T-test, as a parametric test, was run to find out probable differences between groups. As displayed in the following table, there is a statistically significant difference, between the experimental and control groups’ post-test scores for self-confidence.

**Table 4.11. Independent Samples T-tests Comparing Experimental and Control Group’s Self-Confidence posttest**

		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
posttest	Equal variances assumed	5.029	.029	3.801	54	.000	11.56194	3.04190	5.46331	17.66057	
	Equal variances not assumed			3.739	42.692	.001	11.56194	3.09203	5.32497	17.79891	

The T-test presented in Table 4.11, compares the two groups’ self-confidence post-tests. Based on the result of Levene’s test for equality of the variances, the sig. index is 0.029 and it is not higher than 0.05, so equal variances are not assumed. The results showed an appreciable difference between the participants’ performance in experimental and control groups ( $p < .05$ ,  $p = .001$ ,  $df = 54$ ,  $t = 3.80$ ). These results recommended that the experimental group had an advancement after the treatment while the control group did not show any development in self-confidence at the end of the study. The results are presented in Figure 4.1. That is to say, the digital literacy-based instruction influenced the self-confidence of the participants in the experimental group.



**Figure 4.1. Self-confidence Pretest and Posttest****4.2. Discussion**

The interpretations of the study demonstrated that at the beginning of the experiment, both groups had rather resembling accomplishments since there was no significant difference between them. However, after the study, the experimental group had increased its self-confidence considerably while the control group did not denote much progress.

The analysis of data gained during the study indicated that the experimental group obtained higher scores of self-confidence at the end of the treatment. The results confirmed a statistically significant difference between the experimental and the control group's performance. However, the control group had small development in their post-test questionnaire results, but it did not confirm a statistically significant difference between the control group's performance in the pre and post-test. This can mean that although using the digital literacy-based instruction augmented the experimental group members' self-confidence, the control group who did not experience the treatment also increased their self-confidence on a small scale.

The findings of this part of the study are in agreement with studies done by Hamidah (2021) and Menggo et al. (2021) who asserted that digital literacy affects and modifies many factors such as learners' study habits, reading and writing skills, learners' independence, self-sufficiency, and self-regulation (subcomponents of self-confidence). Therefore, it can be suggested that having digital literacy and employing its aspects while using ICT tools can help learners improve their level of self-confidence in accordance with the needs of the current age and the obligation of being dominated by technological tools in the educational, and professional environments. The results also support Abbas et al. (2019) ideas that digital literacy impacts learners' communication, research skills, and confidence.

On the other hand, the effectiveness of digital literacy on self-confidence is in contrast with Puziffero's (2008) findings, which showed that online technologies' self-confidence has no relationship with the students' performance. This contrast is because of the different instruments used in that study and the way the questionnaires were fulfilled, is probably the reason for this contrast. Two questionnaires of that study were self-report instruments, where students reported what they believed to be true about them.

The result was, however, incongruent with the study by Prianto et al. (2021) who claimed that digital literacy does not have an effect on shaping prospective vocational school graduates' self-confidence. In other words, digital literacy has no significant direct effect on prospective vocational school graduates' self-confidence to enter the job market. The contradiction of the results may arise because of the contradiction of the objectives of the studies. In the current study, the learners' success in getting high scores on the language achievement test was the goal but in the study by Prianto et al. (2021), self-confidence is considered to be the grades booster for entering the job market. It is mentioned that there are many factors, which can strengthen self-confidence since the existence of the self-confidence pathway is the cause of success in scores to enter the job market. While the variables are the same, the studies differ in their objectives.

In conducting the present study, several shortcomings were revealed. The main limitation was probably about the participants and context. That is, the number of students who participated in the study was not enough for the study, and the data was collected from just one high school in Shiraz. Therefore, generalizing the findings of this study to other contexts and situations should



be exercised with caution. Next, the sampling procedure used in this study was convenient and the participants were only female. Another important limitation was accessing the internet and digital tools during school hours. Lastly, despite the efforts of checking the learners' merely self-confidence, some learners may be influenced by other factors which can be the reason for their high or low self-confidence.

Based on the findings and the limitations of the study, some areas for future research are suggested. Because only eighth-grade high school EFL learners participated in the present study, there could be other studies with EFL learners of other grades and levels. Also, it would be fruitful to further investigate the effect of digital literacy-based instruction on EFL learners' self-confidence by employing larger samples. Due to the lack of technological and ICT tools, future studies can be done in computer laboratories that provide learners with computers, ICT and digital tools, and internet connections. Lastly, the study only included female participants, similar studies can be done that include only male participants or even both.

## Conclusion

Digital literacy has a significant impact on communicating, teaching, and learning. Thus, learners should have the chance of digital tools accessibility, experience, and grasp their concepts and functions in educational life. Based on the findings, researchers can anticipate that the implication of digital literacy-based instruction affects learners' self-confidence in an academic context due to the expansion of digital technologies in most of life's aspects such as study, work, relationships, etc.

Also, the findings indicated a significant difference between the performance of the two groups at the end of the study. The experimental group seems to have progressed considerably in terms of self-confidence while the control group did not. Thus, the research issue has to spotlight a great variety of digital tools, applications, websites, and online and offline software used in language learning such as attitudes of learners toward digital literacy, learners' dissimilarity in operating the gadgets, effective ways to take advantage of them, the aptness of educational and instructive objectives and the impacts on learning. Employing digital technologies for language learning is the most modern way that requires internet access and gadgets besides having digital literacy. As a final point, it is possible to say that digital literacy is not a purpose but a tool for all humanistic necessities including learning.

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