

THE CONTRIBUTIONS OF COGNITIVE INDIVIDUAL DIFFERENCES ON EFL PRODUCTIVE SKILLS THROUGH ONLINE INSTRUCTION

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Article Info	Abstract
Article History Received: September 2022 Revised: October 2022 Published: October 2022	<i>Although there is adequate research about learning style and motivation in face-to-face classes, there is still a scarceness of available studies exploring such individual differences in EFL online settings and to the best knowledge of the researcher, no previous studies even try to address their impacts on EFL learners' productive skill in online EFL classroom settings. To this end, this study which is one of the newest in this field aimed at increasing our understanding of the contribution of such cognitive individual differences on EFL productive skills through online instruction using concurrent triangulation design. The results demonstrated that out of the two cognitive individual differences, the strongest association was observed between the motivation variable and EFL productive skills. Nevertheless, unlike other studies the relation between learning style use and EFL productive skills proficiency was not significant. The implications of the study will instill new insights for EFL researchers and language learners to consider the recent pandemic as a blessing in disguise, acting as a foundation stone towards online EFL instruction advancement in the Iran. Also, since motivation impact language achievement significantly, building a learner-friendly and encouraging atmosphere in online settings is therefore vital.</i>
Keywords Cognitive differences; Productive skills; Online instruction;	

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INTRODUCTION

During the last four decades, rising recognition of the relationship between language learning and individual differences has led to notable cognizance that personal cognitive capabilities such as intelligence, aptitude as well as learning strategies, learning styles, emotion, and motivation, in many aspects play a part in second language achievement. For the purpose of an in-depth analysis of such differences, two of the cognitive individual differences were chosen in the current study, and a detailed review of the studies conducted concerning such individual differences follows:

Based on studies learning styles can contribute to EFL achievement. As stated by Naning and Hayati (2011), learning style simply shows how students determine suitable and effective methods for comprehending, identifying and storing what they are going to acquire. Learning styles refer to what learners regularly do and how they desire to distinguish, handle and recall new information (Rezaeinejad, Azizifar & Gowhary, 2015).

In fact, language learning styles imply cognitive variations in second language acquisition. It is about a person's desired method of processing, to be exact, of noticing, conceptualizing, organizing, and remembering information connected to learning a language. By knowing the different learning styles of learners, educators will be better able to help them improve their academic capability efficiently (Saadi, 2012). They offer a systematic vision of how learners perceive and get involved with their learning situation (Wulandari, Harahap & Hati, 2019). Even though extensive academic studies have investigated language learning

styles, yet, very little research has examined their role in specific language skills and there is also a gap in the literature on learning styles use among Iranian online EFL learners.

In addition, according to Gardner (2010), motivation is a complicated concept that does not have a simple definition. However, according to him, a motivated individual is somebody who sets a goal and persists to accomplish it. Without motivation, there can barely be a successful foreign language learning process and it plays a major role in the success and rate of second language acquisition, especially in classroom language learning (Malliki, 2017). Even though the motivation to learn a foreign language is a complicated process (Fandiño et al., 2019) it is widely accepted as a crucial component in L2 performance, and studies with regard to motivation have risen in number recently (Meşe & Sevilen, 2021; Ucar & Kumtepe, 2020; Boo et al., 2015). Moreover, among the four language skills, speaking is the most productive and the most problematic skill for most learners (Alaraj, 2017). Moreover, good writing skills may increase learners' likelihood of success (Alviana, 2019; Alexander, 2008).

Furthermore, Ahmadi (2017) stated that the method that instructors use in their classes to facilitate the language learning process is one of the vital elements for learning. According to researchers (Bećirović, et al. 2021), technology offers infinite resources to language learners and has become an essential issue in the language learning process. Similarly, Tomlison (2011) and Gençler (2015) say that online-based activities provide learners with rapid information, appropriate materials and motivation to learn more. At the same time, it is obvious that future of education is online. In fact, through teaching online, numerous authentic materials can be provided to learners which can motivate them in learning the language and online instruction has the huge potential to change the current language teaching methods (Bećirović, et al. 2021; Pourhosein, 2013; Solanki & Shyamleel, 2012). Besides, online learning features more equal participation than face-to-face discussion (Zhao, 2013).

Actually, due to the COVID-19 pandemic, most learning all over the world has been shifted online. All in-attendance classes are substituted with online classes and all face-to-face language course activities are turned into online activities (Martin et al., 2019; Cong-Lem, 2018). As such, the current research has particular significance because online education has become an inevitable part of the education systems around the world and the key to a successful implementation of online teaching and learning is taking student characteristics into account. In fact, although there is adequate research about learning style and motivation in face-to-face classes, there is still a scarceness of accessible and available written materials exploring the status of such individual differences in online settings and to the best knowledge of the researcher, no previous studies even try to address their impacts on EFL learners productive skill achievement in an online EFL classroom setting and this study is one of the newest. In fact, despite the large numbers registered in online language courses, especially after Covid 19 pandemic, very little is known about students' motivation and learning style used in these learning environments, and the way they may affect online learning outcomes. To this end, the current study used a concurrent triangulation mixed method design which can be described as a methodology for conducting research that consist of gathering, analyzing and mixing qualitative and quantitative research. The aim of this design is to get various but supplementary data on a topic to realize the research problem better and more deeply and to enhance the credibility and validity of research (Noble & Heale, 2019; Morse, 1991).

The findings are crucial for helping EFL teachers to become sensitive to the cognitive individual differences in online classrooms. Thus, aiming at addressing this problem, the present study examined the contributions of such cognitive individual differences on Iranian EFL students' productive skill achievement via online instruction. Specifically, the study sought to address the following issues: 1- Is there any statistically significant relationship

between learning style variable and EFL learners' productive skills achievement taught online? 2- Is there any statistically significant relationship between motivation variable and EFL learners' productive skills achievement taught online?

RESEARCH METHOD

Participants were selected based on the result of the OPT. After conducting pilot testing, they were given some instructions on how to fill the questionnaires and take the IELTS speaking and writing tests. In the beginning of the experiment pretests of IELTS speaking and writing test were administered to both groups. Later, the new lessons were taught online by their teacher and also by means of synchronous and also asynchronous tools including animations and videos. The materials of the study were American English File series which is for young adults and adults. Based on an evaluation and a comprehensive and detailed analysis, its instructional advantages and positive qualities far out-weighed its deficiencies (Haghverdi & Ghasemi, 2013). Since participants were at B1 level, American file 2 was taught to them and every session 2 pages of it were taught to students in both of the classes.

After 12 weeks of instruction and having three sessions every week, post-tests of IELTS speaking and writing were taken from the students again and the questionnaires were distributed among the participants. The aim of the post-tests was to realize if the learners show any change in their English speaking and writing skills. As the final step, the data were arranged, coded for more analysis and discussion. IELTS speaking and writing tests were scored by the researcher and two other PhD holders. Finally, the researcher rated the questionnaires. It should be mentioned that to make sure of the scoring procedure accuracy, a statistician was asked to help in scoring the questionnaires and analyzing the data.

Research Design

The current study used a concurrent triangulation mixed method design. Indeed, this study is quantitative since some data were collected from the attitude questionnaire and speaking and writing tests. It is qualitative since some data were collected from the semi-structured interviews. This allowed for a more in-depth investigation of the role of attitude in the development of EFL. With regard to a brief description of variables of the study, learning style and motivation are the independent variables and writing skills, speaking skills are dependent variables.

Population and Sample

A sample of 158 Iranian male and female EFL were randomly chosen from two language institutes in Isfahan, Iran. Then, the researcher held a placement test to ensure about the participants' proficiency level and only 60 pre intermediate level learners were allowed to proceed in the study. The participants' age range were 16–40 years and all the participants' national language was Persian and none of them had the experience of living abroad. They were all from middle class families. Female participants' number was 30, while 30 others were male.

Instruments

Oxford Placement Test (OPT)

By means of Oxford Placement Test, EFL students can be placed rapidly and efficiently into different English language levels (Allen, 1992). It contains 100 questions in the listening part consisting of 100 items uttered in English and 100 additional questions in the grammar part. It took about ten minutes for doing the listening part. Participants were supposed to choose the right word they heard in short sentences. The grammar part involved 100 items in multiple-choice format and the total time for its completion was fifty minutes. For the purpose of the study only pre-intermediate students scoring between 130 to 140 were

chosen. For the actual study, the measure of reliability of the OPT was examined and was quite high with Cronbach's alpha of 0.93.

The Learning Style Survey constructed by Cohen et al. (2001)

It evaluates eleven various aspects of the participant's learning style and the answers range on a scale from 0 (never) to 4 (always) (Cohen, Oxford, & Chi, 2001). Some of the most related areas addressed by this survey include reception and processing of new information; committing material to memory; dealing with language rules, various inputs and reply time. Such survey has been one of the most available and reliable tools for exploring various aspects of the participant's learning style. It is a self-report test with 110 items and 23 subscales.

Motivation Battery questionnaire by Gardner (2004)

It comprises of 104 items, coded on a 6-point Likert scale. The answer range from 1 (strongly disagree) to 6 (strongly agree). Test-retest reliability of the test and the internal consistency reliability were reported to be 0.79 and 0.91 respectively (Gardner, 2005). Research has demonstrated high reliability and validity for such instrument (Gardner, 1985). In addition, two PhD holders' professional judgment provided reassurance about the validity of the instrument in the present research setting. Also, the reliability of the test, as measured through Cronbach alpha in the present study, was very high (0.95). Mertens (1998) states that if the learners' mother tongue is different from the instrument language then a back translation is required. In this respect, both questionnaires were translated to Persian and checked by two other PhD holders in TESOL. The reliability of the test, as measured through Cronbach alpha in the present study, was found to be high (0.84) reliability.

Interviews with the students

The aim of the data attained from the interviews was to triangulate the result gained via attitude questionnaire. In the present study, semi-structured interviews comprising 5 questions was used, which was motivated by the fact that in such kinds of interviews not all the questions are formulated in advance and this in turn allows both the interviewer and the participants being interviewed the flexibility to investigate for more details or discuss unanticipated matters (Dörnyei, 2007). To ensure the validity of the interview items and to find out whether they are relevant and suitable for the study, two PhD holders in TESOL reviewed the interview items. Each participant was only interviewed once, immediately after the end of the course, with the aim of attaining information regarding their views and attitudes toward the type of teaching they received. The interviews were conducted in Persian and was piloted with 10 male and female EFL learners at the same level of proficiency.

IELTS Speaking

IELTS test is designed to cover the full range of capabilities from non-user to expert user. The IELTS speaking test was used to assess participants speaking ability. The IELTS speaking test involved a face-to-face interview by the researcher consisting of three parts and lasted up to 11-14 minutes. Participants were awarded a band score between 1- 9. The IELTS speaking test is generally reliable and valid (Li, 2019).

IELTS Writing Task 2 topic

The participants of the study were required to write an essay on a broad and general topic which were not cultured bound or discriminatory. IELTS test aims at covering the full range of abilities from non-user to expert user. Both speaking and writing tests were administered to the participants in two points in time, at the beginning and at the end of the course. The internal consistency between ratings was calculated by means of the statistical tool of Cronbach's α (0.89) that indicated a desirable inter-rater reliability.

Data Analysis

Data analysis of the study was done at descriptive and inferential levels using SPSS 21. Descriptive statistics were done in terms of means, standard deviations, and frequencies. Descriptive statistics were run for the attitude questionnaire data and the IELTS speaking and writing tests. Null hypotheses were tested by a series of parametric tests of inferential statistics including t-test and Pearson Product Moment Correlation. They were employed to examine the relationship between the variables and analyze the differences among group means and find out if they are significant or not. Regarding outlying values and missing data, they were replaced with the net mean of the data. Also, the interviews were analyzed qualitatively, which consisted in finding the frequent themes. Such thematic analysis was carried out based on Braun and Clarke (2006). The detailed analysis of learners' interview replies led to the discovery of the themes which were representative of the learners' ideas about EFL online instruction.

RESEARCH FINDINGS AND DISCUSSION

Research Findings

There is no statistically significant relationship between learning style variable and EFL learners' productive skills achievement taught online.

The results of the descriptive statistics for the Learning Style questionnaire are illustrated in Figure 1, where the 110 items of the LSS are divided into 11 main areas and composed of 23 learning style types.

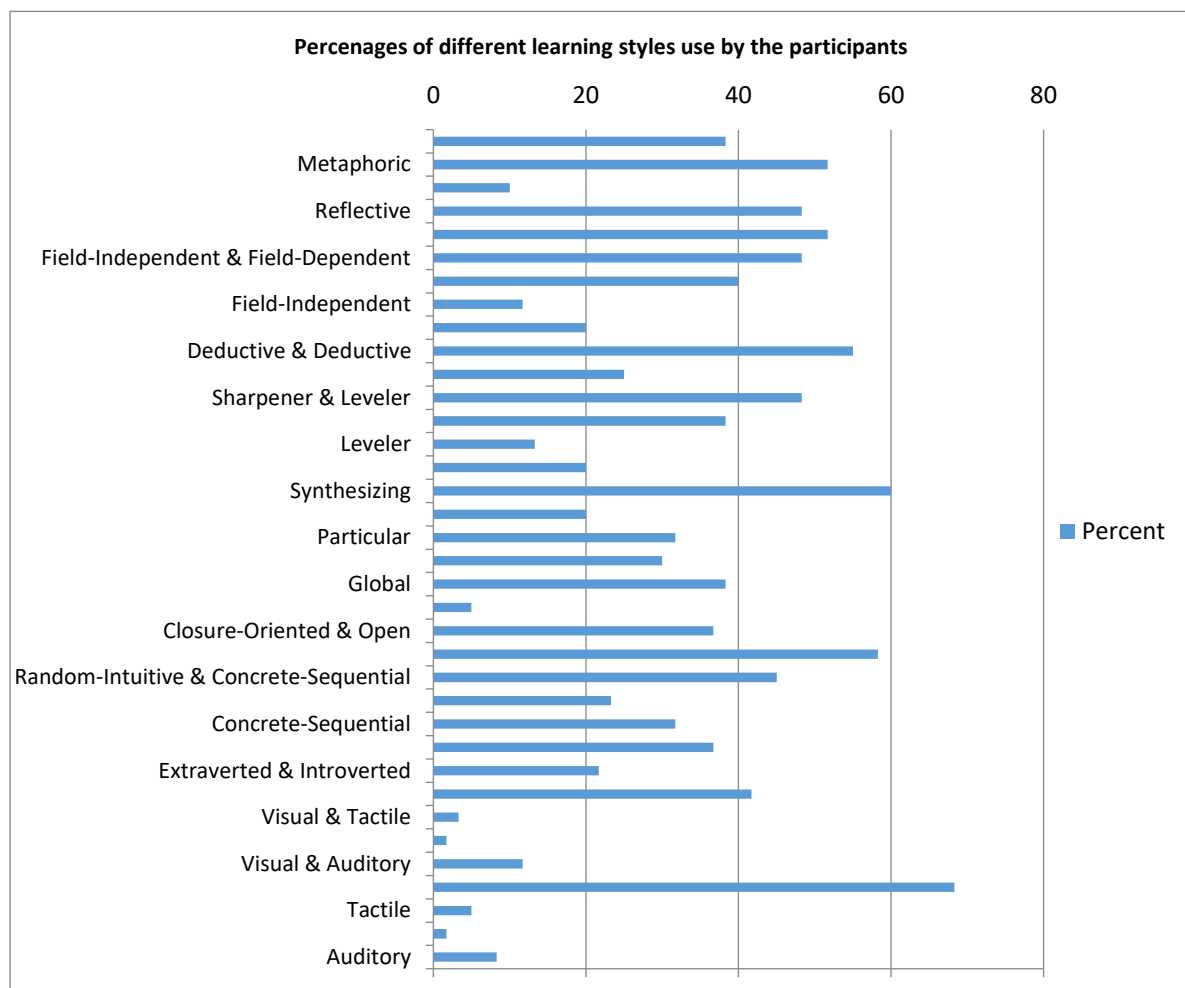


Figure 1. Descriptive Statistics for the Learning Style Questionnaire

The result of Figure 1, shows that online EFL students have multiple learning styles or a combination of different learning styles. The dominant learning styles are Visual style with percentage of 68.3% meaning that they mostly depend on on the sense of sight and they learn best via visual means for instance books, video, charts and pictures. The next commonly used learning style by the participants is Closure-Oriented with Percentage of 58.3% which may refer to the fact that they perhaps concentrate carefully on most or all learning tasks, attempt to do tasks within the time limit, plan in advance for home works, and need clear instructions. Sharpener & Leveler and Reflective style with the same percentage of 48.3% are among the next most commonly used styles used by the participants suggesting that they may have a tendency to pay attention to differences as they memorize material. Meanwhile, the least commonly used learning styles are combination of Auditory & Tactile and Visual & Auditory & Tactile and very few students engage with such learning style meaning that they may favor speaking and listening tasks and may be projects oriented and benefit from working with objects and moving around. The correlation can be seen in Table 1.

Table 1
The Pearson Correlation between EFL Learners' Learning Styles and Achievement of Productive Skills

		Part1	Part2	Part3	Part4	Part5	Part6	Part7	Part8	Part9	Part10	Part11
Pro	Pearson	0.01	0.08	0.1	0.05	0.03	-0.02	0.2	-0.01	0.22	0.19	0.137
duct	Correlati											
ive	on											
Skil	Sig. (2-	0.93	0.53	0.46	0.68	0.83	0.87	0.12	0.95	0.09	0.145	0.296
ls	tailed)											
scor	N											
es		60	60	60	60	60	60	60	60	60	60	60

** . Correlation is significant at the 0.01 level (2-tailed).

The results showed that considering p-value (Sig. (2-tailed)) in all subsections of the learning style questionnaire which are bigger than 0.05, there is no significant correlation between EFL learners' learning styles and their EFL achievement of productive skills. Therefore, we can claim that the two variables are not related to each other. Thus, the research null hypothesis that there is no significant relationship between online EFL participants' learning styles and their EFL achievement of productive skills is not rejected.

There is no statistically significant relationship between motivation variable and EFL learners' productive skills achievement taught online.

Table 2
Descriptive Analysis of Motivation Questionnaire

	N	Minimum	Maximum	Mean	Std. Deviation
Motivation Scores	60	380	609	492.68	53.75824
Valid N (listwise)	60				

According to Table 2, the descriptive results have demonstrated that the student received a relatively high mean score on the motivational attributes (492). Meanwhile, the highest score of motivation questionnaire was 609 while the lowest score was 380.

Table 3
Correlation between EFL Online Learners' Motivation and EFL Achievement of Productive Skills

		Productive Skills	Motivation Scores
Productive Skills	Pearson Correlation	1	.853**
	Sig. (2-tailed)		.000
	N	60	60
Motivation Scores	Pearson Correlation	.853**	1
	Sig. (2-tailed)	.000	
	N	60	60

** Correlation is significant at the 0.01 level (2-tailed).

The results showed that there was a significant correlation between EFL learners' motivation and their EFL achievement of productive skills ($r=0.853$) ($p < .05$). Therefore, we can claim that the two variables are strongly related to each other. Thus, the research null hypothesis that there is no significant relationship between EFL learners' motivation and their EFL achievement of productive skills is rejected.

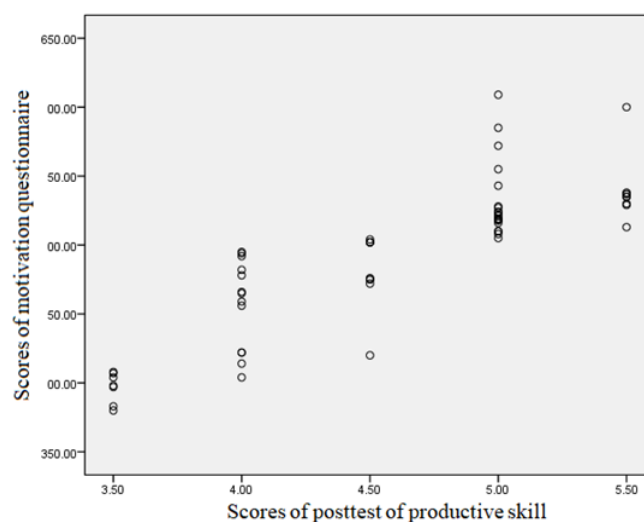


Figure 2. Correlation between EFL online learners' motivation and their EFL achievement of productive skills.

According to Figure 2, as the scores of the motivation questionnaire increases, the scores of productive skills also increase.

Interview results

Based on the results of thematic analysis of interviews it was revealed that 78.33% of the interviewees agreed that because of the present era demand, for most of the countries English is a common language and they acknowledged that they were motivated to learn English predominantly for increasing their skills so as to make themselves ready for future. Besides, 71.67% of the learners expressed their positive attitudes toward learning English. It is based on the results of interview activities. It can be seen in Table 4.

Table 4

The Percentages and Frequencies of the Responses Given to the Interview Questions on Motivation

Proficiency	Theme	F	%
Pre- intermediate	English is an international language and therefore its essential to learn it	47	78.33
	Positive attitudes toward learning English	43	71.67
	Interested to learn English language as well as the cultures of English native countries	35	58.33
	Learn English to get better job	35	58.33
	Learning English helps them to get more profits in occupations internationally	38	63.33
	Encouraged by parents	28	46.67
	Look forward to spend time in online English class	35	58.33

The data from the interviews also indicated that in the learners' EFL learning process both instrumental and integrative motivation play important role. This is in line with Tahaineh & Daana's (2013) belief that in language learning both instrumental and integrative kinds of motivation has their crucial place. Interestingly, nearly all of the students acknowledged that learning English was essential and prerequisite to pass the exam. Besides, 58.33% of the students also reasoned that they were eager to learn English as they assumed that it would empower them for having better occupations in the future. They also indicated that learning English is vital since majority of the businesses demand their staffs to be professional English users. In addition, 63.33% of the learners also reasoned that by developing English proficiency they can get more profits in international careers.

Discussion

Concerning the first research question that is there any significant correlation between online EFL learners' learning styles use and their achievement of EFL productive skills, the results are not in harmony with another study (Salma, 2020) that determined that there is a significant relationship between the EFL student learning style and their EFL achievement Level. Furthermore, the findings are not consistent with other studies which agree that multiple learning styles can significantly enhance academic achievement. In addition, the finding doesn't support the idea that the learning styles variable, contribute to language success (Oxford, 2003; Littlemore, 2001; Carrell et al, 1996; Ehrman & Oxford, 1990).

In addition, the findings are not in agreement with Abidin, Rezaee, Abdullah, & Singh (2011) who revealed that, in general, there is a significant relationship between learning styles use and language achievement. Nevertheless, the findings didn't confirm Chermahini, Ghanbari, & Talab (2013) who indicated that there was a significant relationship between learning styles and students' performance in studying English. With regard to the second research question that is there any significant correlation between EFL learners' motivation and their EFL achievement of productive skills, the results are in line with another study which suggests that most of the motivational factors had a significant impact in the language achievement of EFL learners (Wang et al.,2021). The findings also support another study that found motivation in language learning is the single most prominent factor in learning a new language. (Gardner, 1985). Likewise, the findings are consistent with Al-Otaibi (2004) study according to which motivated EFL learners can learn language more effectively than unmotivated ones. In fact, in second language learning, individuals' motivation is one of the factors that influence their success in acquiring the second language (Tuan, 2012). The current finding is supported by Zafar & Meenakshi (2012), who claimed that the biggest single factor impacting second language achievement is motivation. Also, based on Al-Hazemi (2000),

students with strong aspiration to learn a language can attain high levels of competence in the target language.

This finding is also consistent with other studies such as Vaezi (2008) which claimed that Iranian students had very high motivation and positive attitudes towards learning English. Actually, students' motivational factors will become more important if we accept that motivation is of considerable importance in EFL contexts where close contact with native speakers of the target language does not often exist. The above results are significant in the context of Iran where very few native English speakers can teach EFL courses due to social and political constraints. Yet, despite limited opportunities to benefit from close contact with native speakers of English, the Iranian online EFL learners attending private language institutes, showed a high level of motivation towards learning English and it had a significant impact on their EFL achievements.

Concerning the interviews data, the findings comply with the previous study carried out by Yu (2010) and Al-Tamimi & Shuib (2009) based on which for the learners an encouraging reason to learn English is for the purpose of getting a good job in the future. Besides, the findings are also similar to Ametova's research (2020) according to which students usually learn English with the intention of meeting academic requirements and instrumental motivation is found to have a greater effect on learners' ultimate language achievements. Since the participants of the current study were at pre-intermediate level, such findings are also in harmony with Bagheri Nevisi & Farhani (2022) study according to which it was concluded that English language learners at elementary and intermediate had a tendency to learn English more based on instrumental motivation while advanced learners were inclined to learn English more based on integrative motivation.

Moreover, this finding is supported by Al-Munawwarah (2018) study based on which EFL students demonstrated instrumental motivation as their major goal of learning English. In addition, 59% of students admitted that they were interested to learn English language as well as the cultures of English countries. In other words, the students acknowledged that they were enthusiastic to know about the cultures to some extent. This is in accordance with the statement proposed by Reid (2010) that acquiring a second language to some degree involves learning its culture, even though you never visit the country where the language is spoken. Regarding the limitations of the study, bearing in mind that the study is limited, future studies utilizing a larger population and longer time span, as well as a wider scope of instructional focus and taking into consideration more individual differences are required to compliment these findings that covered a limited area of individual differences in EFL learning context.

In addition, as regards to the implications of the study, based on the findings, a number of implications are put forward for pertinent stakeholders. The implications of the study will instill new insights for researchers and language learners to consider the recent pandemic as a blessing in disguise, acting as a foundation stone towards online EFL instruction advancement in the Iran. Another implication of the study is that since motivation impact language achievement significantly, building a learner-friendly and encouraging atmosphere in online settings is therefore vital. Also, investigating the role of cognitive individual differences in the productive skills performance of online EFL learners is an under-researched area and consequently the present study can provide some valuable insights about this issue.

CONCLUSION

Since online instruction has become an inevitable part of the education systems around the world and there is still a scarceness of available studies exploring cognitive variables including learning style and motivation in EFL online settings, this study aimed at increasing our understanding of the effect of such cognitive variables on EFL productive skills through online instruction. It was found that there was a significant relationship between EFL online

learners' level of motivation and foreign language productive skills achievement in a way that having high levels of motivation aided learners to have successful foreign language productive skills achievement. The findings supported those of many other studies as Zafar & Meenakshi (2012) stated the biggest single factor impacting second language achievement is motivation. In fact, as findings revealed it is an important factor in online foreign language learning and online EFL teachers and materials should promote learners' motivation. Based on the interviews results it was discovered that both instrumental and integrative motivation played a crucial role in the students' EFL learning achievement within online context. Nevertheless, it was revealed that the instrumental motivation had a predominant role in online EFL learning.

Yet, concerning learning style use the findings differ from those of many previous studies and no significant relationship was found between EFL online learners' learning styles use and foreign language productive skills. Based on the study's findings and discussion, it can be concluded that visual and closure-oriented learning styles are very promising for online EFL learners. Nonetheless, the fact that learning style use didn't have a significant impact on participants' productive skills attainment is in agreement with Briggs (2022) who stated that despite the popularity of the learning styles theory over the past few decades, the scientific community has criticized it and the general consensus is that it is not founded on concrete evidence. Put it differently, there are no indication that individuals' declared learning style enhance their ultimate achievement and as a result we must proceed cautiously.

Actually, over the past few years, teachers have been recommended to match their teaching to the hypothetical 'learning styles' of learners but according to recent analysis ineffective 'learning styles' theory continues in education around the world. For instance, a learner who is regarded as as an 'auditory learner' might come to the conclusion that it is useless to pursue studies or an occupation in visual or written subjects and as a result would become discouraged. According to scholars like Daniel, (as cited in Patti, 2011) learning styles theories are unsupported and we might just be thinking about learning styles in the wrong way. In his opinion, the approach to learning must rely on the task the learner is doing, not the learner him/herself. Put it differently, learners might not have innate learning styles, but instead the task the learner is doing might be best fit to an auditory, visual or kinesthetic approach. Such scholars severely criticized theories of learning styles and called them task-dependent learning styles.

Moreover, unlike the traditional face to face EFL classes, in online EFL classes students will become responsible for their own learning and educators can give learners the chance to learn at their own speed. Besides, as Iranian EFL learners do not have any interaction outside of the classes, online instruction can provide them with plenty of chances for using and communicating through the second language. The current research can pave the way for paying more attention to online EFL instruction and consequently help shy and introverted learners who are intolerably influenced by embarrassment in face-to-face EFL classes. Furthermore, the findings of this study can encourage Iranian online material developers to seriously consider cognitive individual differences during planning and adopting EFL syllabus as still only mainly traditional instructions and materials are used.

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