



## Virtual Languaculture Task Implementation as a Mediator between EFL Teachers' Digital Literacy and EFL Learners' Speaking Fluency and Accuracy

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### Abstract

This study set out to explore the efficacy of EFL teachers' digital literacy in improving language learners' speaking fluency and accuracy through the development of virtual languaculture tasks. To this end, 52 male and 68 female EFL teachers from different areas of Kurdistan province participated in the study by completing a digital literacy scale developed by Ng (2012). Moreover, three groups of teachers, 12 high and 12 low-digitally literate teachers who used virtual languaculture tasks and 10 teachers who used traditional teaching methods participated in semi-structured interviews, and their teachings were observed for 8 sessions. Besides, by conducting an IELTS speaking test, 121 male and 122 female EFL learners of the three groups of teachers were selected to participate in this study. After conducting 16-session treatments, a speaking test was used as the posttest. The qualitative and quantitative data were analyzed via MAXQDA and SPSS. The results of one-way between-groups multivariate analysis of variance indicated the efficacy of the implementation of languaculture tasks in developing students' speaking fluency and accuracy. On the other hand, the qualitative phase of the study showed that being digitally literate influenced the development, implementation, variety, and complexity of languaculture tasks. Moreover, the attained results supported the superiority of the languaculture task as a mediator between instructors' digital literacy and learners' verbal ability. Accordingly, enhancing teachers' digital literacy and learners' critical languaculture awareness are suggested as useful strategies to improve language learners' speaking fluency and accuracy.

\* Received: 12/02/2023

Accepted: 05/06/2023

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### How to cite this article:

Ghasedi, P., Yazdani, H., & Ahmadian, M. (2023). Virtual Languaculture Task Implementation as a Mediator between EFL Teachers' Digital Literacy and EFL Learners' Speaking Fluency and Accuracy. *Teaching English as a Second Language Quarterly (Formerly Journal of Teaching Language Skills)*, 42(2), 149-171. [HTTPS://DOI.ORG/10.22099/tesl.2023.46753.3171](https://doi.org/10.22099/tesl.2023.46753.3171)



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**Keywords:** Digital Literacy, Linguaculture, Speaking Fluency and Accuracy, Virtual Education

The rapid evolution of technological tools has changed the way of living, working, and communicating (Li et al., 2015). Similarly, the educational system has experienced fundamental changes to meet the learners' needs. Implementing digital means in language classes has been an undeniable fact. Such means have been used as valuable tools to use innovative teaching methods for increasing teaching and learning qualities (Wang et al., 2017).

Recently, the COVID-19 pandemic has affected the educational system around the world. It has been considered the main challenge that the teaching field has ever faced (Sutiah et al., 2020). Most educational institutes changed the typical teaching styles and used virtual education. The spread of the COVID-19 pandemic resulted in universities and schools lockdown in Iran. Therefore, the stakeholders were forced to pay more attention to the implementation of digital media as a means to continue the educational process. As a result, the knowledge of digital means and their applications has gained a significant role.

Technological changes necessitate a set of new literacies for stakeholders involved in teaching and assessing language learners. Gilster (1997) used the concept of digital literacy to refer to such sub-literacies. It was defined as the ability to use, incorporate, communicate, assess, and make data securely and properly through digital technologies (Global Alliance to Monitor Learning, 2018). Considering the significant role of digital technologies in today's educational field, being digitally literate should be one of the main priorities for language teachers and learners.

On the other hand, research has manifested a close link between language and culture. To accentuate the tie between language and culture, the languaculture concept was adopted from Friedrich's (1989) notion of linguaculture by Agar (1994). Agar (1994, p.28) noted that "culture is language, and language is loaded with culture". The concept of languaculture was divided into *lingua*, which refers to the words, sentences, and discourse, and *culture*, which refers to lexical, grammatical, and cultural meanings (Agar, 1994). Trying to integrate the notion of languaculture into language acquisition, Risager (2005) argued that it had to be sociolinguistic oriented. Diaz (2011) presented a new concept of languaculture to be implacable for language teachers. To implement the links between language and culture in pedagogy, she discussed the notion of critical languaculture awareness. Therefore, the implementation of languaculture tasks has gained a significant place in language classes.

Verbal ability is one of the means to convey cultural information and negotiate meanings in educational settings. It is regarded as the main medium of interaction among members of multicultural societies (Kazemi & Moradi, 2019), the primary way of sharing ideas, emotions, and intentions (Kusumawardani et al., 2020), and the main priority of language learners (Syafiq et al., 2021). Recently, the development of digital technologies has provided unique opportunities for teaching and learning speaking sub-skills.

Therefore, familiarity with new digital means and their applications enables educators to select or use appropriate means to improve language learners' speaking fluency and accuracy.

The spread of COVID-19 made the role of digital media as new mediators in pedagogy more prominent. The integration of such means in language pedagogical practices has become more prevalent after COVID-19 (Mulyadi et al., 2022). The main requirement of these changes is acquiring a set of sub-literacies to meet learners' needs. Teachers, as the main authority to select or use digital devices in educational contexts, seem to have more responsibility. However, the related literature review reveals a distance between teachers' regular use of digital means and their effective use (Sulamsi, 2022).

On the other hand, the pivotal role of the tasks in the language acquisition process is one of the agreed-upon claims among the researchers (Mohazabieh, et al., 2021). However, most of the studies on TBLT have widely addressed task complexity or planning. Furthermore, the efficacy of virtual languaculture tasks in developing language learners' speaking fluency and accuracy has not been thoroughly touched upon. Moreover, no study has elaborated on the mediational roles of such tasks. These issues motivated the researchers to conduct a conclusive study to fill the gaps and investigate the efficacy of the implementation of virtual languaculture tasks as a mediator between instructors' digital literacy and learners' speaking sub-skills. To fulfill the purpose of the study, the following research questions were proposed:

1. Does the development of virtual languaculture tasks have any significant effect on EFL learners' speaking fluency and accuracy?
2. Does the implementation of virtual languaculture tasks mediate between EFL teachers' digital literacy and EFL learners' speaking fluency and accuracy?

## Review of Literature

### Digital Literacy

Before COVID-19, technological tools were integrated into language classes. However, the new situation caused by the COVID-19 pandemic forced language teachers to adjust themselves to virtual education. The instructors were supposed to use new means for preparing and presenting the instructional content, assessing language learners' advancement, interacting with the students, and making the interaction among them possible. However, the availability of digital means does not guarantee students' progress, it is teachers' technical knowledge that makes the beneficial effects of digital tools on teaching and learning possible (König et al., 2020). Moreover, digital means have been developed daily and the accurate use of them requires having appropriate knowledge of them. Therefore, teachers' ability to use appropriate technological means to boost learners' major linguistics skills and cultural knowledge seems to play a vital role in virtual education.

Accordingly, digital literacy has become one of the main requirements of language teachers. Martin (2005) defined it as the individual ability to properly utilize technological

facilities to distinguish, coordinate, assess, and integrate digital means, create information, make media articulations, and interact with others in specific life situations to empower valuable social action. By adopting Eshet-Alkalai's (2004) framework and integrating it with the multi-literacy notion of the New London Group (1996), Ng (2012) developed a theoretical framework for digital literacy. Accordingly, digital literacy has three main sub-components: social-emotional, cognitive, and technical. These sub-literacies are presented in Figure 1.

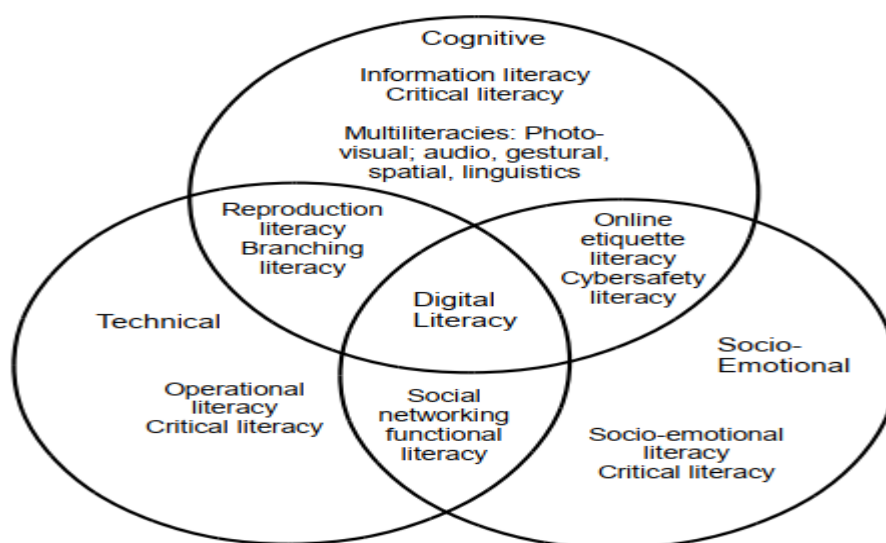


Figure 1. Ng's (2012, p.1067) Digital Literacy Model

Asserting that technical sub-literacy has two dimensions of operational and critical literacy, Ng (2012) notes that a technically literate person has technical and functional abilities to use social media, install applications, find data, manage data, create a new account, send and receive an email, and set up communicative means. The cognitive dimension has three sub-components of information literacy, critical literacy, and multiliteracies. It refers to the ability to assess and choose proper software programs to fulfill an objective. Ng (2012) puts Eshet-Alkalai's (2004) reproduction and branching literacy at the crossing point between the technical and cognitive dimensions and asserted that they refer to the ability to use hypermedia environments to explore wisely, integrate new understandings, and convey them through offline or online means. The socio-emotional aspect, including socio-emotional and critical literacy, and the crossing regions between cognitive and social-emotional aspects connote the abilities to utilize comparable principles as in eye-to-eye correspondence-like regard. Besides, this aspect involves the utilization of proper words to stay away from distortion and misconception, protecting personal security by keeping individual data as hidden as could be expected, and knowing how to manage the threats.

Ng (2012) considered critical literacy as the core of three sub-components and mentioned that critical literacy involves understanding that other users are aware of the underlying meaning, motivation, attitude, and belief behind shared multimedia posts.

### **Linguaculture**

Agar (1994) combined two words of language and culture to accentuate the semantic components that are different between various cultures. From his point of view, the main cause of miscommunication was semantic and pragmatic aspects. Proposing a sociolinguistic view of linguaculture, Risager (2005, p.191) considered "identity potential", "poetic", and "semantic and pragmatic" as its main components. From her perspective, linguaculture "is a bridge between the structure of language and the socially constituted personal idiolect" (Risager, 2005, p.191).

Diaz (2011) criticized Risager's (2005) conception of linguaculture and argued that her perceptions lack implications for language teaching and language teachers. She noted that Risager (2005) did not discuss the integration of the language-culture relationship in developing teaching programs for elementary, intermediate, or advanced levels. Diaz (2011) used Bloom's (1956) taxonomy of cognitive development and Mezirow's (2000) levels of reflectivity to discuss her understanding of critical linguaculture awareness. She considered four main levels of awareness for linguaculture. The first level was called the basic level, which involved noticing the differences between one's linguaculture and target linguaculture. The second level is a complex level and includes analysis, synthesis, and evaluation. In the second level of awareness, the differences are supposed to be compared, classified, illustrated, summarized, assessed, and justified. Meta-cognitive level, which is the third level, connotes critical analysis of linguaculture. It refers to the awareness level that enables learners to recognize stereotypes and question them. The fourth level is epistemological awareness which entails the negotiability of the linguaculture behaviors and the openness of the interpretations of intercultural interactions (Diaz, 2011). She argued that the basic and complex level of awareness could be developed through appropriate activities in educational contexts; however, meta-cognitive and epistemological awareness is developed during overtime interactions.

Diaz (2011) concluded that "critical linguaculture awareness" is multidimensional, entailing language and cultural learning and use in communication. Specifically, this involves using language in interaction, interpreting and constructing its meaning, analyzing and reflecting upon this experience, and learning from the use of language in intercultural interactions.

### **Speaking Fluency and Accuracy**

Being able to use the target language words, phrases, structures, and cultural information during verbal interactions has gained a significant place in language classes. Considering verbal communication as the primary goal of learning a second or foreign language, Syakur et al. (2020) mentioned that fluent and accurate verbal ability is an

indicator of mastering it. Similarly, Utami (2021) noted that being able to interact verbally made learning the target language meaningful.

Duong (2014, p.86) considered "grammar, fluency, accuracy, vocabulary, and pronunciation" as the main dimensions of speaking. An in-depth review of the related literature indicates that fluency and accuracy are considered as two main dimensions of speaking by most of the experts like Skehan (1998) and Ellis and Barkhuizen, (2005).

Lopez et al. (2021) refer to fluency as the utilization of a language normally without numerous errors. Syakur et al. (2020) consider it the leading indicator of being able to speak. Speaking accuracy refers to the degree of correspondence between the second or foreign language norms and learners' verbal outputs. It is the capacity to use accurate verbal output during social interactions. Bezir and Ghania (2018) define accuracy as the production of lexically and grammatically correct utterances. Defining fluency as the ability to express meaning without hesitation or many implementations of filling words and accuracy as the production of error-free outputs, Skehan (1998) added that each dimension is based on various linguistic components.

Research indicates that the development of speaking sub-skills has always been a ubiquitous challenge for language teachers and learners (Ghasedi et al., 2018). Recently, various digital tools have been introduced to help teachers teach, and learners progress in speaking sub-skills. Using such tools affords learners the opportunity to take part in self-paced interactions (Anisimova, 2020) and safe contexts where appropriate feedback is given (Nova, 2020).

## **Theoretical perspective**

### ***Sociocultural Theory***

The current study follows the sociocultural conception of learning. Vygotsky (1978, p. 87) divided the developmental capacity into two levels "actual developmental level" and "the level of potential development" and argued that learners' progress from their current state to the intended level occurs in sociocultural settings. Vygotsky (1978, p.86) used the notion of Zone of Proximal Development (ZPD) to refer to the distance between these levels and noted that the former refers to "the functions that have already matured, it is the child's ability to solve a problem without any assistance" and the latter is "those functions that have not yet matured but are in the process of maturation, functions that will mature tomorrow but are currently in an embryonic state".

The development of digital means with various facilities and the implementation of these instruments in language classes enable language teachers to provide social settings where learners with different capacities can interact and help each other. In such settings, language learners can use various technological instruments to scaffold novices or receive support from more capable learners. Providing a social setting virtually to negotiate meanings is one of the leading opportunities provided by these means; however, language learners can use them as a means to mediate their mental or social activities. Moreover, digital means are the main physical tools to participate in the teaching-learning process



in virtual settings. Therefore, it can be claimed that digital technologies provide new forms of mediation to develop learners' cognitive and linguistic abilities (Sulamsi, 2022).

Research shows that teachers and learners are willing to use such devices in their classrooms (Sadaf & Gezer, 2020); however, selecting appropriate ones to teach or prepare languaculture teaching and assessment tasks seems to be complicated. Liaw and English (2017) accentuated that one of the significant challenges of language teachers is choosing the best technology to teach basic language skills. Besides, Aslan (2021) made us aware of the gaps between the ideal use of digital tools and students' regular use.

This study doesn't show any replicable research concerning its aims. It strives to recommend a brand-new approach considering the effects of virtual languaculture tasks, as a mediator between teachers' digital literacy and learners' speaking ability, on the verbal output of language learners. Furthermore, it attempts to propose the utilization of languaculture tasks as an effective strategy to raise learners' critical languaculture awareness.

## Method

### Research Design

This study implemented a mixed-method research design in data collection and analysis since mixed methods result in more reliable, comprehensive, and generalizable findings (Richards, 2003).

### Participants

#### *Questionnaire Participants*

A total of 120 (52 male and 68 female) EFL teachers was selected from 16 different areas of Kurdistan province through a convenience sampling method. They came from a range of ages, teaching experiences, and educational backgrounds. Table 1 shows the specifications of the teachers.

Table 1

#### *Teachers' Specification*

N	District	Gender		Education			Experience			Age		
		Male	Female	BA	MA	PhD	Low	Ex	High	Y	M	O
1	Baneh	3	3	3	2	1	2	3	1	3	2	1
2	Bijar	4	6	6	4	0	3	4	3	4	4	2
3	Dehgolan	1	5	3	3	0	2	2	2	2	3	1
4	Divandarreh	2	2	3	1	0	2	1	1	1	3	0
5	Kalatarzan	2	0	2	0	0	1	0	1	1	1	0
6	Kamyaran	1	3	3	1	0	2	1	1	1	2	1
7	Korani	1	1	0	1	1	1	0	1	1	0	1
8	Mariwan	2	4	3	2	1	3	1	2	2	3	1
9	Mochesh	0	2	2	0	0	1	0	1	0	1	1
10	Qorveh	5	5	6	4	0	2	6	2	4	5	1
11	Sanandaj 1	10	14	13	10	1	4	13	8	18	4	2

N	District	Gender		Education			Experience			Age		
		Male	Female	BA	MA	PhD	Low	Ex	High	Y	M	O
12	Sanandaj 2	12	12	14	9	1	5	15	4	15	7	2
13	Saqez	6	6	8	3	1	3	7	2	7	4	1
14	Sarvabad	2	2	4	0	0	2	1	1	2	2	0
15	Serishabad	1	1	1	1	0	1	1	0	0	2	0
16	Zivieh	0	2	1	1	0	1	0	1	1	1	0
T	16	52	68	72	42	6	35	54	31	62	44	14

It is worth noting that educators from 25 to 35 years old were regarded as young, from 35 to 45 as middle age, and more than 45 years old were considered as old teachers. Concerning teaching experience, teachers with 5 years of teaching experience were considered as low, from more than 5 to 10 years as experienced, and more than ten years of teaching experience as highly experienced teachers. According to Table 1, 31, 54, and 35 language teachers were highly experienced, experienced, and low experienced respectively. Fourteen teachers were more than 45 years old, 44 teachers were middle-aged, and 62 teachers were young. Moreover, 6 teachers were Ph.D. candidates, 42 teachers had MA, and 72 teachers had BA in English.

**Observation and Interview Participants**

Based on the digital literacy scale results, the teachers were divided into low, moderate, and high-digitally literate instructors. It should be mentioned that the digital literacy scale was used with four choices and the neutral option was deleted. Therefore, the complete mean score for each item of digital literacy is four. Four divided by three (the number of teacher groups) equals 1.33. Table 2 shows the classification of the teachers.

Table 2  
*Digital literacy classification*

N	M	Categories
1	$0.0 \leq x \leq 1.33$	Low
2	$1.34 \leq x \leq 2.67$	Moderate
3	$2.68 \leq x \leq 4$	High

As Table 2 shows, the teachers with mean scores from 0 to 1.33, 1.34 to 2.67, and 2.68 to 4 were considered low, moderate, and high-digitally literate teachers respectively.

After recognizing the low and high-digitally literate teachers and receiving their permission, one of the researchers observed their virtual language classes. The performances of the 24 teachers who used languaculture tasks and 10 teachers who did not use languaculture tasks in their language classes were observed for 8 sessions. Moreover, they participated in 20-minute semi-structured interviews. These 34 teachers were the educators of language institutes who taught American English File 2 in their language classes.



### **Student Participants**

Based on the results of an IELTS speaking test 243 (121 males and 122 females) pre-intermediate EFL learners of the high and low-digitally literate and the control group teachers were selected to participate in this study. Their ages ranged from 15-20 years.

### **Instruments**

#### ***Digital Literacy Scale***

The digital literacy scale developed by Ng (2012) was used to measure teachers' digital literacy. It is a 17-item self-report scale with four components of social-emotional, cognitive, technical, and attitude toward learning. Ng (2012) reported a reliability coefficient of .89 for this scale. Cronbach's Alpha reliability estimation was run to measure the reliability of the digital literacy scale in this study. The findings showed an internal consistency index of .81. The validity of the scale was confirmed by factor analysis in the original study. Besides, two experts in ICT education confirmed its content validity. Moreover, Rajabi et al. (2022) and Esfandiari (2019) reported that the digital literacy questionnaire is a reliable and valid scale to measure Iranian instructors' digital literacy.

The results of factor analysis, indicating the suitability of data for factor analysis, the factorability of the correlation matrix, and the agreement of item intercorrelations with the theoretical framework confirmed the construct validity of the scale in this study. On the other hand, one assistant and two associate professors corroborated the validity of the scale to be used in the current study.

### **Observation**

To gain a comprehensive picture of teachers' language classes, qualitative observation was used. With the permission of schools' principals, one of the researchers gained the opportunity to observe the language classes of 24 teachers with high and low-digital literacy levels who implemented languaculture tasks and 10 teachers who used traditional language classes for 8 sessions. Field notes were used to record what the observer saw and heard during the observations.

### **Semi-structured Interview**

A semi-structured interview was conducted to triangulate the data and gain more insights into teachers' perspectives. The interview questions were designed based on a conclusive review of the related literature, the digital literacy scale's items, and the purposes of the study. Accordingly, 6 main questions were developed and other sub-questions were asked during the interview. Three experts in the field reviewed the questions and commented on their contents and wording. Besides, 5 EFL teachers reviewed the questions and their suggestions were taken into account. Finally, the revised questions were used in the pilot study. Based on the results of the pilot study, some of the questions' frameworks were changed.

To address the dependability of the semi-structured interview, the process of developing the questions, investigating their validity, conducting the interview, transcribing the answers, coding, and analyzing the data in this study are presented in detail.

### Speaking Pretest and Posttest

Three kinds of speaking tests were used in this study. The first one was used to homogenize the learners. The second was used as the pretest and the third was used as the posttest.

For the credibility of the finding, an IELTS speaking test was used to select the homogenous EFL learners. Since the participants in these tests were pre-intermediate EFL learners, two speaking tests based on the contents of American English File 2 were developed as a pretest and a posttest.

It is worth noting that the structures of the speaking tests were similar to those of the IELTS speaking test. They consisted of three parts and took 11-14 minutes. The first part measured learners' general knowledge. The second part examined their ability to speak about a specific topic, and the third part asked more in-depth questions about the second part. It should be noted that, based on the pilot study results some of the questions were rewritten or reworded. The validities of the instruments were confirmed by three experts in the field. They were Ph.D. candidates at Arak University, who had taught American English File 2 in various language institutes for more than 6 years. On the other hand, interrater reliability was used for measuring their reliability. Table 3 illustrates the inter-rater reliability of the raters in three speaking tests.

Table 3  
*Inter-Rater Reliability of the Three Raters*

	Test	Raters	Rater 2		Rater 3		Total	
			Sig (2-tailed)	R	Sig (2-tailed)	R	Sig (2-tailed)	R
Speaking fluency	IELTS test	Rater 1	.00*	.78	.00*	.76	.00*	.77
		Rater 2	.00*	1	.00*	.79	.00*	.77
	Pretest	Rater 1	.00*	.79	.00*	.81	.00*	.79
		Rater 2	.00*	1	.00*	.77	.00*	.79
	Posttest	Rater 1	.00*	.78	.00*	.80	.00*	.78
		Rater 2	.00*	1	.00*	.76	.00*	.78
Speaking accuracy	IELTS test	Rater 1	.00*	.73	.00*	.78	.00*	.76
		Rater 2	.00*	1	.00*	.77	.00*	.76
	Pretest	Rater 1	.00*	.79	.00*	.78	.00*	.78
		Rater 2	.00*	1	.00*	.77	.00*	.78
	Posttest	Rater 1	.00*	.81	.00*	.79	.00*	.80
		Rater 2	.00*	1	.00*	.80	.00*	.80

Table 3 presents the reliability of the IELTS test for speaking fluency (.77) and accuracy (.76). These figures during the pretest were .79 and .78 respectively. Likewise, the reliability indices for the posttest were .78 and .80. So, speaking tests were considered reliable with the sample of the study.

### Materials

American English File 2, designed and developed by Latham-Koenig et al. (2013), was considered the main material in the current study. This book has been used in pre-intermediate-level language classes. It has 12 chapters, each chapter has three sections. The teachers were supposed to teach 6 chapters of the book during 16 sessions.

### Languaculture task

Languaculture tasks refer to the tasks that their implantation raise learners' critical awareness of how to implement linguistic, discourse, and cultural knowledge in verbal interactions. Some of the languaculture tasks that were used in this line of research are illustrated below.

1. Celebration of holidays or cultural days: in intraclass groups, students were supposed to gather information about various festivals, cultural days, or holidays around the world and present them to the class. The groups were asked to provide interesting facts about that day, such as the name of the festival, when and how people celebrate it, the foods that are served, and the cultural music that is played. Some of these celebrated days were Thanksgiving, Christmas, Diwali, Easter, Halloween, and Valentine's Day.
2. Simulation: a specific historical day or holiday was selected and students were assigned to various roles. Learners were free to select what to say and how to say their intentions in the context of the simulation.
3. Storytelling response task: the teacher or one of the students told a short story to the class. Learners were supposed to listen carefully and answer the three questions after hearing the story. The most frequent questions in this study were describing one of the moments or characters in the story, summarizing the key events, explaining personal feelings or thinking, and changing the end of the stories.

### Data Collection Procedure

Taking the vital role of piloting in research into account, the researcher designed a pilot study to allocate the time limit and identify unforeseeable problems with the implemented instruments. Accordingly, a representative sample of the EFL teachers, 25 teachers, participated in the pilot study. Moreover, 50 EFL learners took part in the pilot study. Before starting the study, the researcher explained the main aims of the study and clarified the procedures of administrating the questionnaires, answering the semi-structured interview questions, administering the speaking test, and participating in the online or offline language classes of predetermined teachers. The teachers and learners were assured that their identities would be kept confidential. It should be noted that before starting the study the permissions of the heads of the language institutes were gained.

The first step of collecting data in this line of research was collecting teachers' answers to the digital literacy scale. To avoid the problems of the prevalence of COVID-19, different methods were used to that. First, since most teachers were familiar with the Shad application, a PDF version of the scale was prepared and sent to them through this application or other social media like WhatsApp, Telegram, Nava, Eitta, and Soroush. Second, the questionnaire was administered online through Google Forms. Hence, after designing the scale in the Google form, the link to the scale was forwarded to the teachers through Shad Application or other social media. They were asked to use the link and answer the questions. The participants were given enough information about the scale and how to answer it.

In the next step, the performances of 34 teachers were observed and field notes were used to record the characteristics of their language classes. Each field note had two sections. The contexts of teaching, materials and instruments, students, teachers, and their reactions and relationships were entirely described in the first part. In the second part, the main features of each class were summarized after its observation and the researchers' understandings, comments, and impressions were recorded. Overall, each teacher's teaching was observed for eight sessions and eight field notes were filled in for each teacher.

In the next step of the study, a face-to-face meeting was arranged with the teachers whose performances were observed. Before conducting the interviews, the topic and main aims of the study were explained to the participants. They were assured that their identities would be kept confidential. The time and settings of the interviews were arranged. In the face-to-face interviews, the teachers were supposed to talk about the opportunities provided by digital devices and the challenges of implementing such tools in virtual environments. They were instructed to explain which technological tools were used for preparing languaculture tasks. Meanwhile, they were suggested to number and explain the tasks used to improve learners' basic linguistic skills and cultural knowledge. More specifically, they were supposed to clarify the digital devices used for improving learners' speaking fluency and accuracy. Teachers' native languages were used whenever it was necessary. After transcribing the interviews, they were coded twice. The coding stages in grounded theory, 'open coding', 'axial coding', and 'selective coding', were utilized.

Based on the IELTS speaking test results, a homogeneous sample of students was selected as the participant of the study. Then the learners participated in a 10-12 minute speaking test. Their answers were audio recorded. Then the researcher transcribed the recorded audio or video files. Finally, the transcriptions were coded for further analysis. It is worth noting that based on the results of the IELTS speaking test, the students whose scores were more than two standard deviations below or above the cut score were omitted from the study. Moreover, the pretest was held at the beginning of the study and the posttest was held two months later. During this time, all of the teachers taught 6 chapters of American English File 2. The students participated in the language classes twice a week, approximately one hour per session.

During this time, the teachers were free to choose any technological instruments to prepare their teaching contents, present them, and assess learners' progress. The researchers did not participate in teaching or assessing learners during this time. The low and high-digitally literate teachers used various technological means to develop and implement different languaculture tasks, and the control group used the conventional ways of teaching. The instructors used various digital educational means to conduct their language classes. However, Skyroom, Shad, Adobe Connect, and Google Classroom were examples of software that was used more.

The final step was administrating the speaking test. After 16 sessions, the students took part in the speaking posttest. The structures of the posttest were similar to the pretest. The students' voices were audio recorded, transcribed, and coded. The coding procedure was repeated two times by two Ph.D. candidates at Arak University and one Ph.D. student at Ilam University. The speaking test raters had more than 7 years of teaching experience.

### Results

After collecting and coding the data, they were entered into SPSS and MAXQDA for further analysis. It is worth noting that, Foster and Skehan's (1996) methods of assessing speaking fluency and accuracy were used as the basic methods in this study because they are the most reliable ones (Ellis, 2005). Accordingly, the fluency of the speaking was estimated by dividing the number of articulated words in a minute by verbalization time. Moreover, in another method, 100 was given to a fluent speech, and the number of disfluency measures was subtracted from it. Based on the previous studies on speaking fluency, four main criteria were considered as the disfluency measures (Tavakoli & Foster, 2008). They were:

1. Replacements: identifying a substitute for a lexical item
2. False starts: utterances that are cut short before being completed
3. Reformulations: substitutions, insertions, and deletions
4. Repetitions: repeating lexical items, phrases, or T-units

On the other hand, accuracy was measured by the extent of error-free T-units to the created T-units. Therefore, Ferris' (2002) written error type model was utilized to identify the errors in the transcriptions of the students' utterances. Besides, the ratio of the correctly produced verbs (in terms of subject-verb agreement, aspect, tense, and modality) to all verbs was calculated as another method of measuring accuracy.

After coding the data and entering them into SPSS, Kolmogorov-Smirnov Test was used to test the normality of the distribution of the scores in the pretest. The results are depicted in Table 4.

Table 4

*One-Sample Kolmogorov-Smirnov Test*

	Groups	Kolmogorov-Smirnov <sup>a</sup>		
		Statistic	df	Sig.
Pretest fluency	control	.097	63	.200 <sup>c*</sup>
	Low-digitally literate	.086	90	.094 <sup>c</sup>
	High-digitally literate	.091	90	.063 <sup>c</sup>
Pretest accuracy	control	.094	63	.200 <sup>c*</sup>
	Low-digitally literate	.091	90	.064 <sup>c</sup>
	High-digitally literate	.090	90	.069 <sup>c</sup>

a. Test distribution is Normal.

b. Lilliefors Significance Correction

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

Table 4 indicates that the assumption of homogeneity of variances in the pretest is not violated ( $p > .05$ ). Therefore, the implementation of parametric tests is safe. Moreover, one way between-groups multivariate analysis of variance was run to compare the students' pretest scores in three groups. Table 5 presents the Multivariate test for the pretests.

Table 5

*Multivariate Tests*

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial		Observed Power <sup>b</sup>
						Eta Squared	Noncent. Parameter	
groups Pillai's Trace	.00	.02	4	480	.99	.00	.08	.05
Wilks' Lambda	1	.02 <sup>a</sup>	4	478	.99	.00	.08	.05
Hotelling's Trace	.00	.02	4	476	.99	.00	.08	.05
Roy's Largest Root	.00	.04 <sup>c</sup>	2	240	.96	.00	.07	.05

a. Exact statistic

b. Computed using alpha = .05

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Table 5 illustrates that there was no significant difference among groups at the pretest concerning speaking fluency and accuracy ( $F = .02$ ,  $df = 4$ ,  $p = .99$ , partial eta squared = .00, Noncent. Parameter = .08, Observed Power = .05).

To answer the first research question, a one-way between-groups multivariate analysis of variance was used. Table 6 shows the descriptive statistics of the post-test.



Table 6  
*Descriptive statistics of the posttests*

	groups	N	Mean	Std. Deviation
Posttest fluency	control	63	65.84	2.88
	low digitally literate	90	66.03	3.53
	High-digitally literate	90	67.95	3.72
	Total	243	66.69	3.57
Posttest accuracy	control	63	45.85	2.96
	Low-digitally literate	90	46.44	3.11
	High-digitally literate	90	46.93	3.30
	Total	243	46.47	3.16

Table 6 indicates that the mean scores of the control group for fluency was 65.84 and for accuracy was 45.85. These amounts for the low-digitally literate group were 66.03 and 46.44 and for the high-digitally literate group were 67.95 and 46.93 respectively. The result of the equality of covariance matrix tests is depicted in Table 7.

Table 7  
*Box's test of equality of covariance matrices*

Box's M	F	df1	df2	Sig.
7.48	1.23	6	7.63	.28 <sup>a</sup>

Note. <sup>a</sup> =  $p > .05$ .

Table 7 illustrates that the assumption of the homogeneity of variance-covariance matrices was not violated ( $F = 1.23$ ,  $df_1 = 6$ ,  $df_2 = 7.63$ ,  $p = .28$ ). The results of Multivariate test are depicted in Table 8.

Table 8  
*Multivariate Tests*

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>b</sup>	
groups	Pillai's Trace	.09	6.04	4	480	.00	.04	24.18	.98
	Wilks' Lambda	.90	6.15 <sup>a</sup>	4	478	.00	.04	24.63	.98
	Hotelling's Trace	.10	6.27	4	476	.00	.05	25.08	.98
	Roy's Largest Root	.10	12.25 <sup>c</sup>	2	240	.00	.09	24.51	.99

- Exact statistic
- Computed using  $\alpha = .05$
- The statistic is an upper bound on F that yields a lower bound on the significance level.

Table 8 reveals a significant difference among the mean scores of the three groups ( $F = 6.15$ ,  $df = 4$ ,  $p = .00$ , partial eta squared = .04, Noncent. Parameter = 24.63, Observed

Power= .98). Accordingly, it can be claimed that the implementation of languaculture tasks had significant effects on the development of learners' speaking fluency and accuracy.

Moreover, the results of the observation indicated that the control group teachers put much emphasis on listening to the audio files of the book (pronunciations and sentence stress), reading the conversations of each chapter and translating them into students' native language, and question answering activities. The high and low-digitally literate teachers used various audio or video files to make learners familiar with the correct pronunciation, intonation, and word and sentence stress. They played the songs of the book. It had six songs, ugly, blue as your eyes, this is the life, if you love somebody set them free, nobody does it better, and reach out I'll be there. Besides, the highly digitally literate teachers asked their students to bring more songs to the classes. They used Google Earth to show the learners important cultural sites of English-speaking countries. Likewise, digital means were used to make students familiar with the art, food, music, literature, money, and traditional cultural dress of the target language culture during the pre-task phases. Moreover, they used small-group discussion, shadowing, picture narration, role-playing, interview, storytelling, presentation, and news reporter tasks in their language classes.

The MAXQDA version 2018 was run to analyze the qualitative data to answer the second research question. The results are presented in Figure 2.

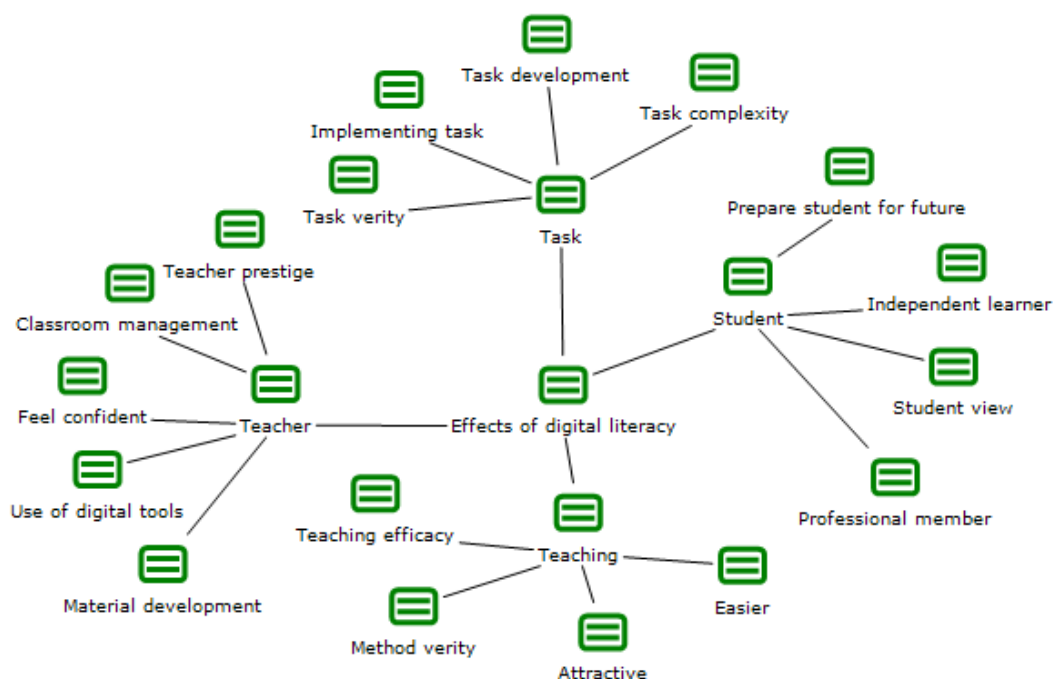


Figure 2. *Effects of digital literacy*

Figure 2 shows that digital literacy significantly affects the development and implementation of languaculture tasks, task varieties, and complexity. Besides, it influenced students' independence, views, professionalism, and preparedness. Also, it affects teachers' prestige, class management, confidence, material development, and use of digital tools. Finally, it makes teachings easier, more attractive, and more effective and increases its method varieties.

The results of the qualitative phase of the study revealed that high-digitally literate instructors used PowerPoint, Word, Photoshop, Excel, Notepad, Pdf Acrobat Reader, Screen recorder, Du recorder, X recorder, Video editor, Video recorder, Laptop, and Smartphone to prepare the contents. They also used Prezi, Camtasia, Google Docs, Shad, Adobe Connect, Google Classroom, Skyroom, Google Meet, and Skype for conducting their classrooms. In addition, the teachers used Shad, Skype, Facebook, Google Classroom, Google document, WhatsApp, and Telegram to facilitate the interactions among the learners and used Google, Google translates, Dictionary, and Encyclopedia to support them. On the other hand, the low-digitally literate teachers used fewer number of these tools to prepare the content, design languaculture tasks, present them, support the students, and facilitate the interactions among them.

Moreover, the obtained data from the observations indicated that high-digitally literate teachers were more confident and used various methods to present the teaching contents. Besides, such teachers used various languaculture tasks with different levels of language complexity. The development of simple tasks or complex tasks was easier for them. They also used the available technological tools to make their language classes attractive for the learners.

Both groups of teachers used languaculture tasks; however; tasks such as the celebration of holidays or cultural days, dinner parties, finding the differences, celebrity speech, speech for important occasions, department of tourism, story completion, and gamification were just observed in high-digitally literate teachers' language classes. Besides, they tried to help students combat the stereotypes about the target language culture through post-task activities.

Finally, Independent Samples t-tests were used to compare the mean scores of the students in the low and high-digitally literate groups concerning speaking fluency and accuracy. The findings are depicted in Table 9.

Table 9  
*Results of Independent Samples t-test for speaking fluency and accuracy*

	F	t	df	Sig. (2-tailed)	M Difference	Std. Error Difference
Fluency	.83	-3.55	178	.00*	-1.92	.54
Accuracy	.27	-1.02	178	.30 <sup>a</sup>	-.48	.47

Note. \* = p < .05, <sup>a</sup> = p > .05.

Table 9 indicates a significant difference between the scores of the two groups concerning speaking fluency ( $F= .83, t= -3.55, p=.00$ ). However, no significant difference can be observed between learners' speaking accuracy ( $F= .27, t= -1.02, p=.30$ ). However, the mean score of the students of high-digitally literate teachers (46.93) was higher than the mean score of low-digitally literate teachers' students (46.44) concerning speaking accuracy. Therefore, the oral outputs of the students of high-digitally literate teachers were more fluent and accurate. In sum, attained results proved that the implementation of languaculture tasks mediated between instructors' digital literacy and language learners' speaking fluency and accuracy.

### Discussion

The findings of the first research question made sure that the verbal outputs of the students of high and low-digitally literate teachers who used languaculture tasks were more fluent and accurate. These findings are indeed in agreement with the results of Nair and Yunus (2021), who argued that the implementation of storytelling tasks develops students' communicative abilities. Similarly, Mulyadi et al. (2021) concluded that implementing tasks in language classes improved students' listening and speaking abilities. In the same vein, Anjum et al. (2019) found that the task phases provide an anxiety-free atmosphere for students to interact with each other and participate in the learning process.

One justification for the efficacy of the implementation of languaculture tasks in developing learners' speaking fluency and accuracy can be due to the fact that during completing a languaculture task, learners used their lexical, grammatical, and cultural knowledge to produce accurate and fluent English sentences to express their ideas, convey their intentions, and negotiate with their group members. Therefore, they gained the chance to produce verbal outputs in anxiety-free situations. It motivated them and empowered them to take risks. The repetition of such activities improved students speaking fluency and accuracy. In line with the current findings, Mohazabieh et al. (2021) argued that the utilization of more complex tasks leads to the production of more complex utterances.

The results of the qualitative data indicated that the control group believed more in physical classrooms. They talked more about the barriers to the effective implementation of technological devices to design tasks. They argued that learners did not consider the virtual class a real class and controlling them was hard. Some of them claimed that virtual education was a waste of time and energy. Some others noted that preparing the teaching content took lots of time and money. However, the Ministry of Education, school, and language institute principals did not support them economically.

On the other hand, the low and high-digitally literate teachers supported the implementation of virtual languaculture tasks to make their teaching tangible, creative, fantastic, and touchable. One of the high-digitally literate teachers mentioned the efficacy of the variety of real outputs that students were exposed to during the pre-task phases and noted that it helped them to articulate the pronunciations correctly and participate in

discussions more effectively. Besides, teachers should make students aware of their cultural knowledge and the way of using it in various social contexts (Diaz, 2011). Therefore, making the students aware of their languaculture, supporting them to compare it with the target language languaculture, and raising their languaculture awareness to illustrate and justify the differences enable them to produce accurate and fluent utterances during pair, group, or whole class negotiations. This justification is in agreement with Ellis' (2019) recommendation, which insisted on the fruitfulness of real language use in TBLT.

The findings relating to the second research question indicated the efficacy of the implementation of the virtual languaculture tasks as a mediator between teachers' digital literacy and students' speaking fluency and accuracy. The results showed that being digitally literate influenced the development, implementation, variety, and complexity of languaculture tasks. The findings accord with the results of Li and Yu (2022) who announced that teachers' digital literacy affected the quality of the teaching and learning process. Similarly, Aslam et al. (2021) argued that highly digitally literate teachers had more effective classes.

The qualitative data were used to compare the techniques used by low and high-digitally literate teachers to develop language learners' speaking fluency and accuracy. The high-digitally literate teachers paid more attention to group work. They believed that learners with different strength points formed groups and scaffold each other. They mentioned that the learners who spoke fluently and accurately guided the less fluent and accurate students in their in-group interactions. The high and low-digitally literate teachers used different languaculture tasks. However, the tasks used by high-digitally literate educators were various, complex, and similar to real-life activities. During completing such tasks, learners gained lots of opportunities to practice producing verbal outputs and testing their accuracy. Concerning individually performed activities, high-digitally literate teachers used varieties of fruitful tasks such as picture narration, storytelling, summarizing the news, and finding the differences. Besides, high-digitally literate teachers used online and offline activities to improve students' verbal outputs, whereas low-digitally literate teachers just used online activities. Moreover, they tried to raise learners' languaculture awareness by making them familiar with the target language cultural days, cultural sites, music, money, cultural beliefs, and foods. This is supported by Arslan (2022) that being digitally literate influences using a variety of teaching activities.

Being digitally literate increases teachers' chance to use various digital means for designing different languaculture tasks. Furthermore, based on the central tenets of sociocultural theory, learning, and progress occur first in social settings. Therefore, setting a social setting through technological means to implement languaculture tasks seems to be an active strategy to engage learners in tasks that yield in the production of accurate and fluent utterances.

### Conclusions

Considering the vital roles of digital means in mediating language learners' mental activities and their rapid development in the 21st century, one could claim that being digitally literate should be regarded as one of the main priorities for EFL teachers. Teachers, as learning facilitators, need to be prepared to support their language learners to benefit from digital technologies in digital environments. Moreover, the major findings of this study made it clear that teacher digital literacy had significant effects on the development of languaculture tasks, which resulted in boosting learners' speaking fluency and accuracy. Likewise, the findings revealed that languaculture tasks provide a social setting where learners can interact with each other. In such settings, various forms of scaffolding are available for novices. Moreover, it can be concluded that increasing learners' languaculture awareness may significantly improve their verbal ability.

The findings of the current study shed more light on the development of the task. In this regard, textbook writers are suggested to cover the target language's cultural values. Besides, language teachers and syllabus designers are suggested to take the vital roles of cultural values in task design into account.

Furthermore, teacher preparation programs should consider the development of teacher digital literacy as an integral part of the training program. Besides, the Ministry of Education should prepare effective training programs for in-service teachers. Training programs should be held to make teachers and learners aware of the roles and regulations, consequences, and ethical issues of using social media or technological means.

### *Acknowledgments*

We would like to thank the editorial team of TESL Quarterly for granting us the opportunity to submit and publish the current synthesis. We would also like to express our appreciation to the anonymous reviewers for their careful, detailed reading of our manuscript and their many insightful comments and suggestions.

### *Declaration of conflicting interests*

The authors declare no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

### *Funding*

The authors received no financial support for this article's research, authorship, and/or publication.



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