



## **Digital Communication Technology for Teaching a Foreign Language and Culture through Reading**

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### **Abstract**

Currently, university teachers combine traditional pedagogical teaching methods with information and communication technology (ICT) to help students in the educational process of studying a course and controlling their own learning process. For this reason, there is a growing demand for creating high-quality and effective digital tools to promote human activities. The present research is aimed at studying the use of digital communication technology for teaching English as a foreign language. The study was carried out quantitatively by examining how the use of ICT tools like websites and mobile applications can enhance students' reading skills. The focus was on the students' progress in reading comprehension and if the ICT tools contributed to the progress. The results of the study showed the effectiveness of using digital technology in teaching a foreign language and culture. Conclusions were drawn about the need to introduce digital technology into the educational system.

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## 1. Introduction

The use of Information and Communication Technology (ICT) helps students to better digest the material studied and to apply the knowledge gained in practice and contributes to students' personal orientation towards independence, responsibility for their own educational activities, and the formation of their cognitive interests. In this way, acquired skills provide the ability to organize life in a computer society while performing various social and professional functions (Smirnov, 2011).

When ICT is used in pedagogical activities, it allows students to develop new forms of behavior or decisions and permits a broader and more comprehensive study of the material, but ICT is just a tool in the educational process since the computer itself does not teach or educate students. According to Smirnov (2011), there are three ways to use computers for educational purposes: computers acting as simulators, computers performing certain functions of the teacher, and computers simulating specific environments and behavior of students. In this sense, ICT is only a means of quantitatively and qualitatively improving lecturer functions, increasing the speed of information exchange between lecturers and students, and increasing the efficiency of decision-making in education. So, these advantages are the reasons for computerizing education around the world.

A number of recent studies focus on the benefits of using ICTs in teaching foreign languages. The Internet and online applications are shown to encourage foreign (second) language acquisition and enhance performance (Bhatti et al., 2021). ICTs are also claimed to provide language learners "with increased opportunities to engage with the target language and culture even with a mouse click or a tap on their smartphones" (Yildiz, 2021, p. 202). The use of ICTs helps make the educational process become more student-centered and increase language learners' autonomy and confidence (Rakhmanova, 2022). Al-Tamimi and Alrefai (2021) affirm that ICT is a resource that broadens opportunities for students to learn, can help facilitate the teaching process, and test the effectiveness of learning using training media applications. As a result of their study, they conclude that the availability of multimedia

learning tools can improve the quality of education.

According to Kassaie et al. (2021), the integration of mobile-assisted language learning, for instance, in the form of authentic podcasts, can significantly improve the listening and speaking skills of second language learners. Moreover, second language vocabulary skills, especially those related to professional communication, can be enhanced by means of online thesauri of industry-specific terminology (Bayekeyeva et al., 2022). However, despite the importance of ICTs in the development of particular aspects of language learning, little attention has been paid to the contribution of ICTs to the enhancement of reading skills. This study focuses on reading as part of learning English as a foreign language and investigates how English language learners' reading skills can be improved by using digital communication technologies. Drawing on the experiment data and student survey, we identify the role of ICTs in the students' progress made in reading comprehension and substantiate the argument that it is essential to introduce digital communication technology into language education.

## 2. Theoretical Framework

Information and communication technology is the basis for information society development, so it is of great importance in the sphere of education due to some facts related to the use of ICT in education. According to Khilchenko (2013), ICT contributes to the quality assurance of teaching and learning as an innovative and experimental tool for educational restructuring, offers greater flexibility to the educational process that meets social needs, and serves as a toolkit that can contribute to efficiency improvement in educational services. A special form of teaching foreign languages using modern information and communication technology is the development of a new technological, social, cultural, and modern educational process. Educational and methodological studies on the use of ICT tools in teaching mainly focus on analyzing the use of information technology, confirming the possibility of ICT for increasing the efficiency of the educational process, and determining the educational requirements for ICT tools (Verbitsky & Kalashnikov, 2010).

Murtiyasa and Rahmavati (2021) maintain that ICT plays an important role, especially in the field of education. Hussain and Muhammad (2008) determine that information technology has influenced all aspects of human activity and can play a potential role in education and learning, especially in distance education, to transform it into an innovative form of experience. Ratheesvari (2018) believes that information and communication technology, for example, the Internet and interactive multimedia, are obviously an important area for future education and should be effectively integrated into formal teaching and learning. Presentations, podcasts, and various tools can help educators include as much information as possible in various graphical forms, thereby making each course brighter and more diverse and memorable in terms of vocabulary, grammar, speaking, and professional topics (Firth et al., 2010). Websites and mobile apps are recommended for experiments with non-language groups at the university studying foreign languages (Omarova, 2018). The advantage of this method is the ability to compare research results in and outside the classroom.

In the same vein, Hodaová et al. (2020) reveal that digital technology is a great way to discover and create new things, while Nazarova and Mohova (2016) describe the problem of new information technology applications. The author emphasizes the importance of modern types of technology for creating conditions for the practical acquisition of a foreign language and for developing students' cognitive activity and emphasizes the use of interactive methods of activity in foreign language lessons. Moreover, Alazam et al. (2013) found a strong relationship between the use of technical skills and the level of technology integration in the classroom. Similarly, other studies have indicated the need for better technology integration in the classroom, depending on the users' knowledge and technological skills levels (Buntat, 2010; Quito, 2013).

The use of computer-based teaching programs has many advantages over traditional teaching methods. Their potential is that they allow the training of different types of speech activities and present them in different combinations. They also help teachers to understand linguistic phenomena, form linguistic abilities, create

communicative situations, improve speech and language skills, implement an individual approach, and improve the students' independent work, increasing the cognitive activity, motivation, and quality of students' knowledge. Using ICT to support English language learning requires lecturers capable of using new and emerging technology, so foreign language teachers should consider new teaching strategies. However technology in teaching foreign languages must constantly be adapted and updated in order to be compatible with a world dominated by technology (Niculescu & Obilishleanu, 2017).

Information technology in education in the Republic of Kazakhstan is carried out as a set of reforms aimed at creating a unified educational information environment that meets the requirements of the 21<sup>st</sup> century – integration into the world educational community. These processes require appropriate adjustment of educational programs. According to the Universities Development Programs of the Republic of Kazakhstan, in the coming years, as part of cross-cutting competencies, students will systematically master digital competencies, and bachelors and masters training will be expanded with additional qualifications in digital technology (Volkova, 2015).

The concept for developing students' digital competency (DC) was elaborated considering the international experience and educational context, and it describes an approach to the formation, development, and measurement of digital competencies in students. DCs are a set of competencies for working in a digital environment and with digital products, including activity in data creation and collection and their processing and analysis, as well as automation of the work processes using computer technology.

DCs are integrated into educational programs in relation to the following concepts: digital literacy for the use of digital technology and tools for work, with information to meet personal, educational, and professional needs; teamwork in a digital environment considering the basics of security, ethical, and legal norms; algorithmic thinking and programming, from the formalized problem statement and solution algorithm development to the use of modern programming tools; and data analysis and methods of artificial intelligence, from the use

of mathematical methods and models for knowledge extraction to solving professional problems and developing new approaches (Genova, 2019).

The formation and development of DCs among students are based on the following principles: a) *levelness*, according to which mastering DCs are arranged in vertical levels in order to increase complexity, in which each educational program (EP) establishes the minimum required level of DCs for students by the end of the EP; b) *customization* in relation to educational programs, with the complex formation and development of DCs carried out, considering the specificities of educational programs where the content of academic disciplines is adjusted to the EP specifics, and the needs of labor market corresponding segment are considered. Different competencies can be formed at different levels, and at the same time, during an EP or specific specializations of EP, where it is relevant; students master DCs at a professional level and are able to develop new methods in their use and conduct research activities (Fokin, 2012); c) *individualization* of trajectories as another principle, according to which the minimum required level of DC mastery by students is ensured by compulsory disciplines. At the same time, students have the opportunity to build their individual educational trajectory, increasing the level of DC through the choice of the appropriate specialization; d) *project approach*. In universities, first of all, DC teaching is practice-oriented, and in relevant disciplines, a project-based approach is actively used with a focus on learning through solving applied problems relevant to the field of students' future professional activities; e) *independent measurement*. The results of students' mastery of DCs are subject to mandatory measurement, carried out separately from the assessment procedures within specific disciplines, checking the presence of end-to-end digital skills that do not depend on the training direction. Students' achievement of the minimum required DC level for their EP is carried out regardless of the disciplines' customization provided for in the educational program (Olek-Taszarek, 2016); and f) *external expertise*. Due to the rapid updating of the digital space and tools used to streamline it, DC teaching is built with the involvement of IT industry experts. Therefore, IT industry experts

are involved in the development and teaching of disciplines, building a project approach, and introducing digital practices used by employers (Semenova, 2016).

### 3. Methodology

#### 3.1. Participants

The participants of the study were 32 first-year students of the Language Department at the Al Farabi Kazakh National University who study English as a foreign language. The participants of the experiment were selected following the random stratified method and were then divided into two groups: a control ( $n = 16$ ) and an experimental ( $n = 16$ ) group. The study population of 17-20 years old was distributed equally according to the variable of gender. Regarding the participants' level of language proficiency, they had the same learning background. Prior to the experiment, the participants of both groups had studied the teaching materials, including topics related to literature and cinema: New English Files – Elementary – Unit 9B “I’ve read the book, I’ve seen the movie”; New English File – Intermediate – Unit 7C “Switch it off”; New English File – Upper-Intermediate – Unit 4 “Stage and Screen” (Iftakhar, 2016).

#### 3.2. Experiment Design and Research Instruments

The present research is of experimental nature and follows a pre-/post-test design. A pre-test was conducted at the beginning of the treatment to understand the participants' current proficiency in reading, whereas a post-test was carried out after the treatment to see if the reading level had been improved. A set of research instruments was developed, including two reading comprehension tests, each containing 20 multiple-choice questions. The reading comprehension tasks were based on the Harry Potter novels by J. K. Rowling, which are considered a prominent representative of British culture. Parts of both the Harry Potter books and movies were used as supporting material in the study, as they allow acquiring knowledge of the target culture (Rizkiyzh & Winanda, 2019).

The classroom in our study used digital technologies, including a smartboard and computers. Moreover, if necessary, the students made use of their personal smartphones. During

the experiment, various ICT tools were used that were freely available on the Internet and did not require registration and payment for services. First, a multimedia presentation provided visual support during the class and tested independent students' work. The Memrise platform (<https://www.memrise.com>) was employed for learning and practicing vocabulary via flashcards. The participants of the experiment could also download the Memrise application on their smartphones. The Lingualeo website (<https://lingualeo.com>) provided excerpts from the Harry Potter movies with attached texts that do not distract from viewing. The site also offered an opportunity to see the translation of an unfamiliar word without being distracted by third-party resources (Ivanova, 2015).

The Learn English Teens website from the British Council (<https://learnenglishteens.britishcouncil.org/>) provided videos by bloggers containing dynamic and colorful content to interest the viewers, immerse them in the explored world, and create the atmosphere of the chosen topic. The website also offered tasks for understanding the video content, self-

testing, or performing in class (Avramenko, 2017). On the British Council's Learn English website, news reporting on certain topics was employed for the experiment (Klimenko, 2016). Finally, the online service Google Forms was used to create online tests and surveys. This service allowed us to immediately process the received data. Resources, tasks to be performed, and tests to determine the effectiveness of the methodology employed in class are placed on the Google Forms platform (Mirgiyazova, 2017).

To complement the analysis of the students' assignments, at the end of the experiment, the participants were asked to respond to a survey, which contained five questions designed to identify the participants' attitudes toward the methodology employed in class. All the five questions were close-ended and were provided with a four-point Lickert scale. The survey was delivered to both the experimental and control groups of L2 students. It was administered online via the students' smartphones or computers. The questions and possible answers are given in Table 1.

**Table 1**  
*The Survey Questions and Variants of Responses*

No.	Questions	Possible answers
1	How difficult was the final Reading Comprehension task for you?	Not at all / A little / Somewhat / A lot
2	Compared with Task 1, to what degree do you think you have improved your reading skills in English?	Not at all / A little / Somewhat / A lot
3	To what degree were ICT tools used in class?	Not at all / A little / Somewhat / A lot
4	To what degree did the materials used in class offer support in learning the English language and culture through reading?	Not at all / A little / Somewhat / A lot
5	How interested and motivated did you feel during the class?	Not at all / A little / Somewhat / A lot

### 3.3. Procedure

The participants were asked to do two reading comprehension tests containing 20 multiple questions. These tests were given at different points in time: at the beginning of the class (pre-test) and at the end of the class (post-test). The

tests were created on Google Forms to quickly distribute the questions and check the results. The tests were administered online via the students' smartphones or computers. The fulfillment of the tasks by the participants was assessed in accordance with the scale shown in Table 2.

**Table 2**  
*Assessment Criteria for Reading Comprehension Tests*

Number of correct answers	Points
18-20	5 points
15-17	4 points
10-14	3 points
6-9	2 points
2-5	1 point
0-1	0 points

During the class, the students of the experimental group completed several assignments using the suggested ICT tools. For the first task, they needed the Memrise website on their computers or the Memrise application on their smartphones. They were asked to find the course called “Harry Potter 1” and study new vocabulary and reinforce the words they already knew from the first chapter of *Harry Potter and the Philosopher’s Stone*, and then read the chapter itself.

Afterward, the participants were offered to watch an excerpt from the movie *Harry Potter and the Chamber of Secrets* – the Dueling Club – using the original soundtrack in English provided on the Lingualéo website. While watching the movie excerpt, the participants looked for unfamiliar words in the text on the right, familiarizing themselves with their translation and writing out the unfamiliar words to remember. Having watched the excerpt from the movie, the students studied all the incomprehensible words and entered them into their vocabularies for further use.

Next, the students watched the CBBC video on Harry Potter, *The Wizarding World of Harry Potter* on the Learn English Teens website, which covers not only the series of books and movies about the boy with the scar but also the new (at the time of the video release) movie

*Fantastic Beasts and Where to Find Them*. Then they completed the task on the site below the video, answering whether each statement was true or false and watching the video several times if necessary.

Having fulfilled the previous task, the participants of the experiment watched the video *Literature is Great, Part 2* on Learn English, which highlights famous writers in the UK in general and J. K. Rowling’s contributions to literature. After that, they completed the tasks on the website below the video, determining the main idea of the movie, answering questions, filling in the gaps, and putting words into the required form. They could also watch the video several times if necessary.

#### 4. Results

Table 3 illustrates the results of using ICTs in teaching reading in English as a foreign language for the experimental and control groups. It shows the mean scores obtained by both groups for the two reading comprehension tests before the experiment (pre-test) and after the experiment (post-test). The data for the experimental group reflect the results before and after the treatment using ICT tools, while the data for the control group show the results without the use of digital technologies.

**Table 3**

*Results of Using ICTs in Teaching Reading to Each Group (Experimental and Control)*

Group	Mean score	
	Pre-test	Post-test
Experimental	3.8	4.6
Control	3.9	4.0

As can be seen from Table 3, the experimental group showed considerable progress in the comprehension of reading results after the treatment using ICTs: the mean score increased from 3.8 to 4.6. At the same time, there was no considerable difference between the pre-test and post-test results of the control group, as the mean score remained practically the same.

Table 4 reveals the results of the survey for the control and experimental groups. It shows the proportions of foreign language learners from both groups who chose different answers to the suggested questions. The questions addressed the participants’ attitudes toward the final reading comprehension task (post-test) and the use of ICT tools during the experiment.

**Table 4**

*Results of the Survey*

Response	Number of responses	
	Experimental group	Control group
<i>Question 1: How difficult was the final Reading Comprehension task for you?</i>		
Not at all	4 (25%)	0 (0%)
A little	6 (37,5%)	2 (12,5%)

Somewhat	6 (37,5%)	8 (50%)
A lot	0 (0%)	6 (37,5%)
<i>Question 2: Compared with Task 1, to what degree do you think you have improved your reading skills in English?</i>		
Not at all	0 (0%)	5 (31,25%)
A little	3 (18,75%)	10 (62,5%)
Somewhat	7 (43,75%)	1 (6,25%)
A lot	6 (37,5%)	0 (0%)
<i>Question 3: To what degree were ICT tools used in class?</i>		
Not at all	0 (0%)	11 (68,75%)
A little	0 (0%)	5 (31,25%)
Somewhat	6 (37,5%)	0 (0%)
A lot	10 (62,5%)	0 (0%)
<i>Question 4: To what degree did the materials used in class offer support in learning the English language and culture through reading?</i>		
Not at all	0 (0%)	6 (37,5%)
A little	3 (18,75%)	10 (62,5%)
Somewhat	8 (50%)	0 (0%)
A lot	5 (31,25%)	0 (0%)
<i>Question 5: How interested and motivated did you feel during the class?</i>		
Not at all	0 (0%)	5 (31,25%)
A little	2 (12,5%)	10 (62,5%)
Somewhat	5 (31,25%)	1 (6,25%)
A lot	9 (56,25%)	0 (0%)

As shown in Table 4, the participants of the control group that were not treated using ICTs during the class found the final comprehension test rather difficult for them, as most of the questions they chose were either “somewhat” or “a lot”. They also admitted that no (or almost no) digital communication technologies were used in class, and the materials provided by the teachers did not offer support in learning the English language and culture. In addition, they did not feel they had improved their reading skills in English as a foreign language, and the absolute majority of them did not feel interested or motivated during the class.

Unlike the control group, the participants of the experimental group found the final reading comprehension test quite easy or somewhat difficult. What is essential here is that they did not choose “a lot” as the response to the first question. They responded they had used ICT tools during the experiment, and the majority of the respondent admitted that ICT tools had been used a lot. The larger part of the students of the experimental group answered the ICT tools had offered considerable support in learning the English language and culture and that they had improved their reading skills. All of the students admitted, although to different degrees, that they felt interested and motivated during the experiment.

## 5. Discussion

The results of the present study showed that there was no statistically significant difference between the experimental and control groups at the pre-test. It can be explained by the practical equivalence of the two groups in terms of their initial proficiency in reading English as a foreign language. However, the experiment revealed a significant difference between the experimental and control groups in the post-test. According to the final test results, the experimental group demonstrated better performance. Based on the results of the final reading comprehension test and the survey, it is possible to conclude that ICTs play an essential role in developing language learners' reading skills and contribute to the enhancement of learning a foreign language and culture. Using ICTs in class has considerably contributed to the improvement of the participants' achievement in reading comprehension and helped increase the students' interest and motivation for learning English as a foreign language.

When using the suggested ICTs during the experiment, the students set a comfortable rhythm of work in accordance with their language level: reading speed, the need to coordinate with the dictionary, and also to

watch the video before doing homework in order to better understand the material. In addition, the participants of the experiment were able to monitor the time spent on the exercises to fit into the allotted time. Self-study also allowed the members of the experimental group to fully appreciate the foreign language resources to further improve their knowledge, skills, and abilities in the language.

The research results also demonstrate that it is very convenient to use websites and mobile applications for teaching foreign languages. Research on this issue helped the researchers reach the conclusion that the use of websites and mobile apps allows students to receive information in a convenient and interesting format and access educational resources in their free time, which helps to improve the quality of education. Moreover, the experiment carried out on a group of students shows that students have the technical ability to use ICT to learn foreign languages, with great interest in the introduction of websites and mobile apps into the educational process of universities and the study of a foreign language outside the educational process.

The result of this work is the selection of some methodologically valuable websites and mobile applications for learning foreign languages, as well as the use of materials on Internet resources for methodological development, which help to increase students' interest in learning English as a foreign language, broaden their outlook, and increase their knowledge and skills. The actual value of this study lies in the possibility of using websites and mobile apps for enhancing reading skills with teacher guidance for ICT practice in foreign language teaching, as well as in promising directions for further research on this issue.

Digital transformation affects almost all spheres of human activity and significantly changes professional activity practice, supplementing it with the use of software packages or specialized databases and the application of models that help to improve these processes. Advances in information and communication technology (ICT) have opened up new opportunities to restructure the learning/teaching environment and have now posed new challenges for both language learners and teachers. Responsibility for

completing learning assignments has shifted to students, which has dramatically changed the roles of lecturers. In this scenario, ICT acts as a powerful tool for teaching foreign languages by using new technologies in language groups, allowing students a better preparation for the international, intercultural interactions that are increasingly necessary for success in academic, professional, or personal life.

Another interesting issue that arises with the use of ICT in teaching a foreign language is the concept of emotioncy, which is defined as a blend of emotion and frequency dealing with sense-induced emotions relativizing cognition (Pishghadam, 2015). This concept implies that when more senses are added in learning, involving students' background knowledge, their level of emotioncy is increased. In this way, second language learners move from exvovement to involvement, coming to a better understanding of reality (Pishghadam et al., 2016). Emotioncy is believed to have a significant influence on motivation (Pishghadam et al., 2019). The integration of the latest information technology into the educational process helps increase the level of emotioncy, which in turn considerably raises students' motivation. The ICTs used during the experiment provided the participants with many opportunities to actively participate in the language environment, overcome language barriers, be creative, and improve their reading skills. In this way, ICT can help increase students' motivation to learn a foreign language and form personal, creative, and cognitive abilities. It can give the educational process an important personal meaning for students, where they can fully reveal their creative potential and show their research abilities, imagination, creativity, activity, and independence.

The descriptive findings allow the observation of a high degree of introduction and use of ICT as a valuable resource. The study shows great potential for the further introduction of websites and mobile applications in the process of teaching foreign languages, and the results demonstrate students' technical readiness when performing tasks on educational websites and mobile apps, but also their desire to use ICTs outside the university classrooms and educational activities. This indicates that students have not only the technical ability to use ICTs to learn foreign languages but also the



ability to use websites and mobile applications in the process of studying at university, as well as indicating the effectiveness of learning a foreign language outside the educational process.

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