

# Bibliometric Analysis Of Writings On The Use Of Technology In Language Teaching

Fetullah Uyumaz (Corresponding Author)<sup>1</sup>, Ahmet Karadoğan<sup>2</sup>, Abdulkadir Kırbaş<sup>3</sup>

<sup>1</sup>Research Assistant Ataturk University, (Department of Turkish Language Education), Erzurum, Turkey Post Adress: Kazım Karabekir Education Faculty, Yoncalık Statement, Yakutiye-Erzurum-Turkey. Post code: 25010

[fetullah.uyumaz@atauni.edu.tr](mailto:fetullah.uyumaz@atauni.edu.tr) <https://orcid.org/0000-0002-0274-8640>

<sup>2</sup>Erzurum, Turkey 05316553913, [karadoganahmet@hotmail.com](mailto:karadoganahmet@hotmail.com) <https://orcid.org/0000-0002-7183-3929>

<sup>3</sup>Associate Professor Ataturk University, (Department of Turkish Language Education), Erzurum, Turkey <https://orcid.org/0000-0001-9846-0256>

## Abstract

The aim of this study is to look at the studies on the use of technology in language teaching from a bibliometric perspective. In this study, we analysed a total of 24 articles obtained from the Web of Science database. In these 24 articles, we determined the distribution of articles on the use of technology in language teaching according to years, the average number of pages and citations, the most cited articles, the distribution of authors according to countries, the most used keywords and the most cited authors. We used bibliometric analysis in the study. We used document analysis method in data collection and data analysis. We presented the findings we obtained in the study through figures and tables. In the results section of this study, we evaluated the data of the 6 questions sought to be answered within the scope of the study. The findings of the study generally show the following. The number of studies on language teaching is low. The reason for this is that the study was limited to "the use of technology in language teaching". In addition, the fact that only the studies in Web of Science were taken is also an important factor. Another factor is that we limited the study to articles only. This is because articles are more accessible than books and other sources.

**Keywords:** Language education, language teaching, technology, bibliometric

## Introduction

Language teaching is an activity carried out in order for individuals to realize the structures in the language they speak in daily life or to express themselves or understand others in another language in routine communication. Communicating is a substantial feature for humans that distinguishes them from other living things. Throughout history, people, societies and states have sought ways to communicate in various ways. This search has brought body language, daily speech and writing. Over time, these methods have started to gain new features with the differentiation of people and the necessity of communicating with other people. In order for people to understand

each other, it has been necessary to learn and teach the language they speak. For this purpose, books have been prepared by various authors for language teaching throughout history. With these books, language teaching has become systematic. In this way, teaching was made easier.

As time progresses, changing needs and human expectations have brought innovations. Technological developments, which are revolutionary for humanity, continue to surprise us every day (Borthwick & Gallagher-Brett, 2014; Aburezeq, shtaiwa-Dweikat & Patronis, 2020; Domingo & Gargante, 2016; Kinash, Brand, & Mathew, 2012). Technology, which we feel its presence in almost every field, has

started to intertwine with education. Laptops, cell phones, tablets that we need in daily use have become an integral part of education (Hsieh & Tsai, 2017; O'Bannon & Thomas, 2015). Thanks to these tools, it is now possible to access information in much shorter periods of time. Technology, of course, has the biggest share in reducing access to information in such short periods of time.

We reviewed the literature on the use of technology in language teaching and included the following publications in the study. Wrigley, (1993); Goltz-Wasiucionek (2010); Gonzalez (2012); Nurkhamitov & Gerkina (2017); Romanyuk (2014); Vassilieva & Drugov (2019); Al-Ajmi & Aljazzaf (2020); Korytska (2018); Hawamdeh & Soykan (2021); Vertyanova, Arziutova & Ermoshina (2021); Rusetskaya, Rubleva & Khekhtel (2019); Chimenti & Lins (2016); Fabian, Bartosh, Shandor, Volynets, Kochmar, Negrivoda & Stoika (2021); Aburezeq, Ishtaiwa-Dweikat & Patronis (2020); Pazo (2008); Balchin & Wild (2022); Diab, Matthews & Gokool (2016); Ruan, Dai & Yeh (2014); Zimina (2018); Kandeel (2014). The studies listed on technology and language education are also noteworthy. Compton (2009); Golonka, Bowles, Frank, Richardson & Freynik (2012); Chang, Yan & Tseng (2012); Domingo & Gargante (2016); Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur (2012); Hsu, Hwang & Chang (2013); Levy (2009); Kern (2006); Stockwell (2010); Chinnery (2006); Yang & Chang (2015).

The aim of this study is to examine studies on the use of technology in education. In order to understand the focus of the studies on the use of technology in language education, we asked the following questions;

- 1- How is the distribution of writings on the use of technology in language education according to years?
- 2- What is the average number of citations and pages of the writings on the use of technology in language education?

3- Which are the most cited writings among the writings on the use of technology in language education?

4- What is the distribution of the authors of the writings on the use of technology in language education according to countries?

5- What are the most commonly used keywords in writings on the use of technology in language education?

6- Who are the most cited authors in writings on the use of technology in language education?

### Design

This study was designed using bibliometrics, which is a quantitative research methodology. Bibliometric methodology involves the application of quantitative techniques (e.g. bibliometric analysis - citation analysis) on bibliometric data (e.g. publication and citation units) (Broadus, 1987; Pritchard, 1969; Becker & Chiware, 2015). Citation analysis is a type of analysis that helps researchers to know the sources that have reached the leading feature in their field. With this analysis, sources, journals and authors with a determining role in the relevant literature can be identified (Karagöz & Şeref, 2020).

### Data collection and analysis

We obtained the data through a search on (<https://www.webofscience.com/wos/woscc/basic-search>) on September 27, 2023. This search was limited to "title". The purpose of limiting it in this way is to reach studies directly related to the subject. As a result of the search, we reached a total of 44 studies. For these 44 studies, we selected the "writings" option from the left limitation menu. In this way, we reached a total of 25 writings. We could not reach 1 of these writings, and we downloaded the remaining 24 writings to the study computer.

While collecting the data, we used the document analysis method. Document analysis is based on analyzing written documents containing information about the phenomena targeted for

research (Yıldırım & Şimşek, 2018). In this research method, as a source of primary research data, various forms of written texts are collected, reviewed, questioned and analyzed to reach a conclusion (Sak, Şahin- Sak, Öneren-Şendil, & Nas, 2021). In accordance with this method, we downloaded the documents to the research computer.

In order to ensure the principles of validity and reliability in research, researchers need to act impartially. In order to achieve this, the process

should be explained in detail and leave no question marks in mind (Yıldırım & Şimşek, 2018). As researchers, we explained the study process from the beginning to the end. In order to see this process more clearly, we presented it to the readers in the form of a table. We adhered to a certain scheme in the data collection and analysis process. This scheme is called PRISMA Preferred Reporting Items For Systematic Reviews And Meta-Analyses (Moher et al., 2009).

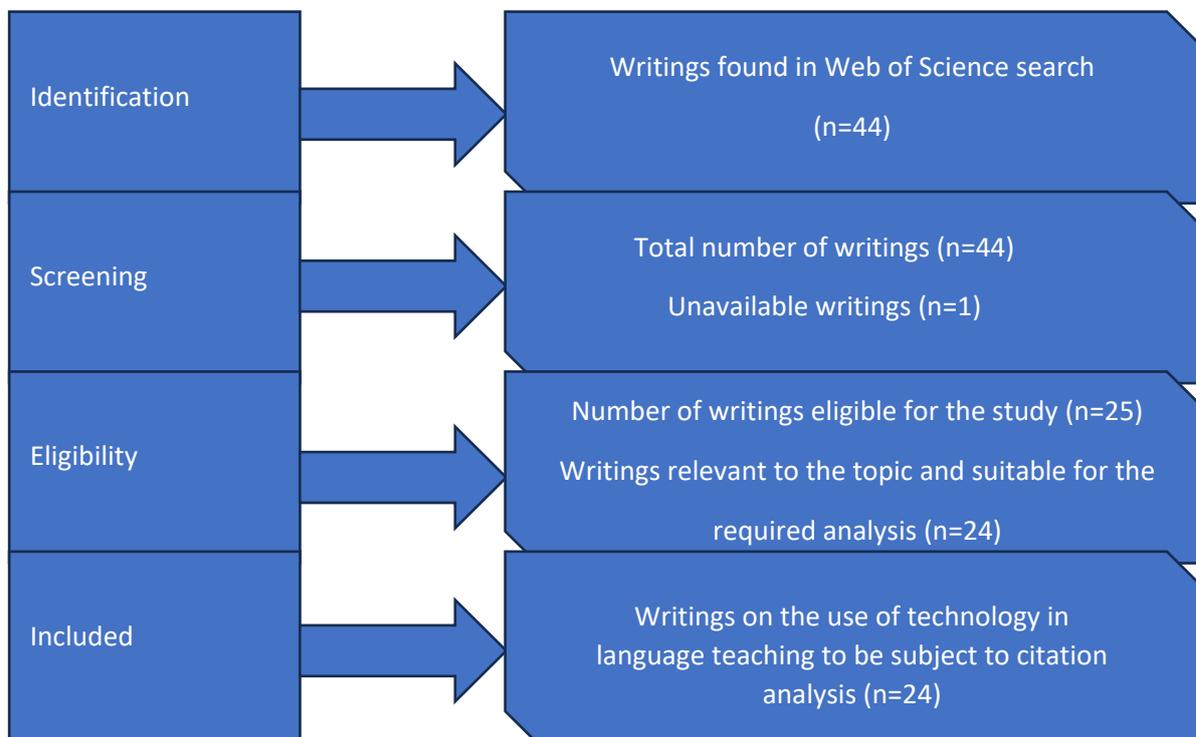


Figure 1. Data collection scheme

In order to make the necessary analysis of the writings we downloaded within the scope of the research, an excel work file was obtained with the export option from

([https://www.webofscience.com/wos/woscc/summary/9113e77a-8de8-4519-bc35-e9ec3f4ae9ed-a7482058/relevance/1\(overlay:export/exc\)](https://www.webofscience.com/wos/woscc/summary/9113e77a-8de8-4519-bc35-e9ec3f4ae9ed-a7482058/relevance/1(overlay:export/exc))). In this work file, the author information of the writings, the universities to which the authors are affiliated, the number of citations to the

writings, the year the writings were published, the number of pages of the writings, the titles of the authors, the most cited; journal, book, authors are given.

## Results

The distribution of writings on the use of technology in language teaching according to years is shown in Table 1. This table is efficient in terms of showing where the subject has come from over the years.

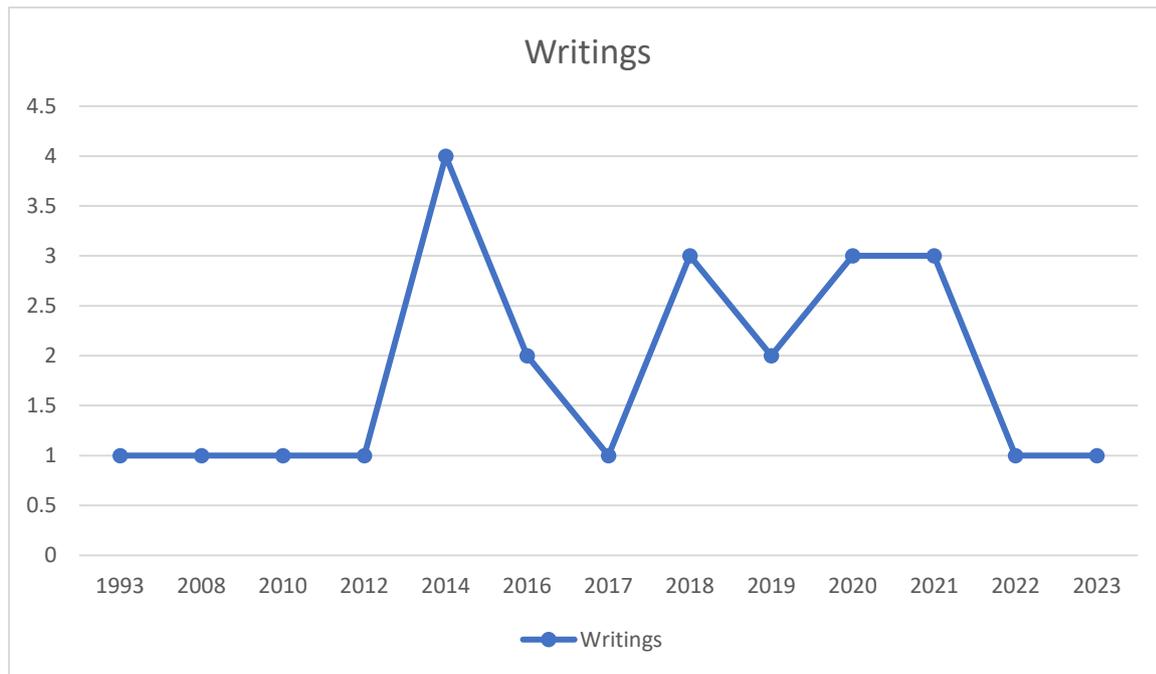


Figure 2. Distribution of papers according to years Distribution of writings according to years

When Figure 2 is analyzed, it is seen that the writings on the use of technology in language teaching started in 1993. There are 24 writings in total on this subject.

One of the writings was published in 1993, one in 2008, one in 2010, four in 2014, two in 2016, one in 2017, three in 2018, two in 2019, three in 2020, three in 2021, one in 2022, and one in 2023.

**Table 1. Page and citation distribution of writings**

Type of publication number		Page number		citation number	
		n	mean	n	mean
Writings	24	332	13.83	606	25.25
Total	24	332	13.83	606	25.23

When Table 1 is analyzed, there are 24 writings. The total number of pages of these writings is 332. The average page count of the writings is

13.83. The total number of citations of the writings is 606. The average number of citations of the writings is 25.25.

**Table 2. Most cited writings in the writings**

Row	Writings name	Citation number	Number of WOS citations
1	Ertmer, P. A., Ottenbreit-Leftwich, A. T., Sadik, O., Sendurur, E., & Sendurur, P. (2021) Teacher Beliefs and technology integration practices: A critical relationship.	1	720

2	Chang, C., Yan, C., & Tseng, J. (2012) Perceived convenience in an extended technology acceptance model: Mobile technology and English learning for college students	1	440
3	Golonka, E., Bowles, A., Frank, V., Richardson, D.L., & Freynik, S. (2012) Technologies for foreign language learning: A review of technology types and their effectiveness	1	408
4	Chinnery, G. M. (2006) Going to the MALL: Mobile-assisted language learning	1	297
5	Stockwell, G. (2010) Using Mobile Phones for Vocabulary Activities: Examining the Effect of the Platform	1	193
6	Kern, R. (2006) Perspectives on Technology in learning and Teaching languages.	1	188
7	Levy M. (2009) Technologies in use for second language learning.	1	151
8	Compton, L. (2009) Preparing language teachers to teach language online: a look at skills, roles, and responsibilities	1	134
9	Yang, J., & Chang, K. S (2015) How effective are mobile devices for language learning? A meta-analysis	1	126
10	Domingo, M. G., & Gargante, A. B. (2016) Exploring the use of educational technology in primary education: Teachers' perception of mobile technology learning impacts and application' use in the classroom	1	126

In Table 2, we have given the 10 most cited writings in the writings on the use of technology in language teaching. We have also given the WOS citation numbers for these

writings. When the writings are analyzed, the number of citations for all ten writings in Table 1 is 1. What brings these 10 writings to the table is the total number of WOS citations.

**Table 3. Distribution of the authors of writings on the use of technology in language education by country**

Author number	Country
5	Russia
4	Ukraine
2	Brazil
2	England
2	Spain
1	USA
1	UAE
1	Cyprus

1	Jordan
1	Kuwait
1	South Africa
1	Taiwan

Table 23 shows that the authors are distributed across 12 different countries. Russia had the

highest number of authors with 5, followed by Ukraine with 4.

**Table 4. The most commonly used keywords in writings on the use of technology in language education**

Keywords	Frequency of use
Language teaching	3
Technology	3
Information and communication technology	3

The most commonly used keywords in the writings on the use of technology in language teaching are Language teaching 3, Technology

3, Information and communication technology 3.

**Table 5. The most cited authors in writings on the use of technology in language education**

Author	Citation number
Borthwick, K; Gallagher-Brett, A (2014)	15
Diab, P; Matthews, M; Gokool, R (2016)	9
Al-Ajmi, NH; Aljazzaf, ZM (2020)	8

The most cited authors in writings on the use of technology in language education Borthwick, K; Gallagher-Brett, A 15, Diab, P; Matthews, M; Gokool, R 9, Al-Ajmi, NH; Aljazzaf, ZM 8.

### Conclusion and discussion

In the results section of this study, we have evaluated the data related to the 6 questions sought to be answered within the scope of the study. The findings of the study show the following in general. The number of studies on language teaching is small. The reason for this is that the study was limited to "the use of technology in language teaching". In addition, the fact that only studies in Web of Science were included is also an important factor. Another factor is that we limited the study to writings

only. This is because writings are more accessible than books and other sources.

### Results for the first finding of the study

When Figure 2 of the first finding of the study is analyzed, we see that the most writings were published in 2014. In 2018, 2020 and 2022, 3 writings were published each. Before 2012, 1 writings each was published in 1993, 2008 and 2012. The low number of writings in these years shows that technology has not yet been used actively enough in education. In the world, the use of technology in education has become more widespread in the last 15 years. It is seen from this result that it is not yet at the desired level.

### **Results regarding the second finding of the study**

The average number of pages and citations of the writings on the use of technology in language teaching are shown in Table 1. When the table is examined, we see that the average number of pages for 24 writings is 13.83. This number is in the ideal page count range for writings in the field of education. The average number of citations received by the writings is 25.25. This number indicates an average of 1 citation per writings. We think that the average number of citations will also increase when the number of studies will increase

### **Results regarding the third finding of the study**

The results of the second finding are given in Table 2. When we examine Table 2, we come across the most cited writings in the writings on the use of technology in language teaching. When the writings cited by the authors are examined, no specific concentration was found in any writings. This shows that there has not yet been a sufficiently ambitious publication in this field. However, when the WOS citations of the cited writings are examined, especially Ertmer, P. A., Ottenbreit-Leftwich, A. T., Sadik, O., Sendurur, E., & Sendurur, P. (2021)'s *Teacher Beliefs an technology integration practices: A critical relationship attracts attention with 720 citations*. Because it is valuable that an writings published in 2021 has reached such a high number of citations in such a short time. For the authors working in the field, this writings is one step ahead of the others. It is understood that this writings is frequently cited especially from publications with keywords such as technology, technology in education. The citation numbers of other writings given in Table 2 are also noteworthy. Likewise, authors working in the field of technology and its use in education frequently referred to these writings.

### **Results related to the fourth finding of the study**

The data related to the third finding of the study are given in Table 3. In this table, the authors of the writings on the use of technology in language teaching are classified according to the countries. The highest number of authors was determined as Russia with 5 authors. Considering that the total number of studies is 24, we can say that one out of two studies was conducted in a different country. This situation shows that the subject attracts attention all over the world and is deemed worthy of study.

### **Results regarding the fifth finding of the study**

We have given the keywords used in the studies on technology in language teaching in Table 4. We took the three most repeated keywords from these keywords. We found that these three keywords were repeated 3 times each in 24 writings. These words are Language teaching, Technology and Information and communication technology. We found the choice of these keywords accurate because the first word that those who will study in this field will refer to is language teaching and the second is technology.

### **Results regarding the sixth finding of the study**

The most cited authors on the use of technology in language teaching are shown in Table 5. When Table 5 is examined, Borthwick, K; Gallagher-Brett, A (2014) ranks first in this field with 15 citations with their study. Diab, P; Matthews, M; Gokool, R (2016) ranks second in this field with 9 citations. Al-Ajmi, NH; Aljazzaf, ZM (2020) ranked third in this field with their study. When the results are analyzed, we see that these studies were conducted in 2014 and later. Based on this, we can say that these authors will increase the number of citations in this field in the future. Because we can predict that the number of studies in the field of technology use in language teaching will increase with the development of technology.

### **References**

1. Broadus, R. N. (1987). Toward a definition of “bibliometrics”. *Scientometrics*, 12(5–6), 373–379.
2. Pritchard, A. (1969). Statistical bibliography or bibliometrics? *Journal of Documentation*, 25(4), 348–349.
3. Becker, D. A., & Chiware, E. R. (2015). Citation analysis of masters’ theses and doctoral dissertations: Balancing library collections with students’ research information needs. *The Journal of Academic Librarianship*, 41(5), 613–620.
4. B. Karagöz & İ. Şeref – Intellectual Structure of Mobile Learning Field: Bibliometric Evidence from Turkey (2006-2020). *Open Journal for Educational Research*, 2021, 5(2), 403-418.
5. Yıldırım, A. & Şimşek, H. (2018). Sosyal bilimlerde nitel araştırma yöntemleri. Seçkin.
6. Sak, R., Şahin Sak, İ. T., Öneren Şendil, Ç. & Nas, E. (2021). Bir araştırma yöntemi olarak doküman analizi. *Kocaeli Üniversitesi Eğitim Dergisi*, 4 (1), 227-256. DOI: 10.33400/kuje.843306
7. Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & Prisma Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Medicine*, 6(7), e1000097.
8. Borthwick, K., & Gallagher-Brett, A. (2014). ‘Inspiration, ideas, encouragement’: teacher development and improved use of technology in language teaching through open educational practice. *Computer Assisted Language Learning*, 27(2), 163-183
9. Aburezeq, I. M., Ishtaiwa-Dweikat, F. F., & Patronis, M. (2020). Behavioral intention to use mobile technology in language teaching: A qualitative analysis of a UAE case study. *International Journal of Technology and Human Interaction (IJTHI)*, 16(4), 14-34.
10. Domingo, M. G., & Gargante, A. B. (2016). Exploring the use of educational technology in primary education: Teachers’ perception of mobile technology learning impacts and application’ use in the classroom. *Computers in Human Behavior*, 56, 21–28. doi:10.1016/j.chb.2015.11.023
11. Kinash, S., Brand, J., & Mathew, T. (2012). Challenging mobile learning discourse through research: Student perceptions of blackboard mobile learn and iPads’. *Australasian Journal of Educational Technology*, 28(4), 639–655. doi:10.14742/ajet.832
12. Hsieh, W. M., & Tsai, C. C. (2017). Taiwanese high school teachers’ conceptions of mobile learning. *Computers & Education*, 115, 82–95. doi:10.1016/j.compedu.2017.07.013
13. O’Bannon, B., & Thomas, K. (2015). Mobile phones in the classroom: Preservice teachers answer the call. *Computers & Education*, 85, 110–122. doi:10.1016/j.compedu.2015.02.010
14. Aljazzaf, Z. (2020). Factors influencing the use of multimedia technologies in teaching English language in Kuwait. *International Journal of Emerging Technologies in Learning (iJET)*, 15(5), 212-234.
15. Zheng, Y. (2019). Inquiry based teaching in an animation multimedia course. *International Journal of Emerging Technologies in Learning (iJET)*, 14(17), 17-28.
16. Han, M., & Niu, S. (2019). Effect of computer multimedia assisted word annotation on incidental vocabulary acquisition of English reading. *International Journal of Emerging Technologies in Learning (Online)*, 14(13), 21.
17. Nurkhamitov, M. R., & Gerkina, N. V. E. (2017). Using the technology of podcasting in modern foreign language teaching. *Modern Journal Of Language Teaching Methods*, 7(9), 121-125.
18. Wrigley, H. S. (1993). One size does not fit all: Educational perspectives and program practices in the US. *Tesol Quarterly*, 27(3), 449-465.

19. Goltz-Wasiucionek, D. (2010). Blended learning in language education. *e-Mentor*, 46.
20. González, P. D. J. (2012). Uso de las nuevas tecnologías en la enseñanza de lenguas extranjeras. *Revista de lenguas para Fines Específicos*, 18, 183-212.
21. Nurkhamitov, M. R., & Gerkina, N. V. E. (2017). Using the technology of podcasting in modern foreign language teaching. *Modern journal of language teaching methods*, 7(9), 121-125.
22. Romaniuk, Z. (2014). To the problem of using multimedia technologies in English language teaching. *Advanced Education*, 66-75.
23. N Vassilieva, V., & V Drugov, A. (2019). Integrative Use of “Techno-R” Remedial Technology and Gaming Technology in Teaching Foreign Language Listening. *Journal of Research in Applied Linguistics*, 10(Proceedings of the 6th International Conference on Applied Linguistics Issues (ALI 2019) July 19-20, 2019, Saint Petersburg, Russia), 463-472.
24. Aljazzaf, Z. (2020). Factors influencing the use of multimedia technologies in teaching English language in Kuwait. *International Journal of Emerging Technologies in Learning (IJET)*, 15(5), 212-234.
25. Korytska, H. R. (2018). Using webquest technology in teaching ukrainian language to students on principles of activity approach. *Information Technologies and Learning Tools*, 65(3), 66-75.
26. Hawamdeh, M., & Soykan, E. (2021). Systematic analysis of effectiveness of using mobile technologies (MT) in teaching and learning foreign language. *Online Journal of Communication and Media Technologies*, 11(4), e202124.
27. Vertyanova, A. S., Arziutova, S. N., & Ermoshina, M. A. (2021). Using the technology of blended learning in teaching students from China English and Russian languages. *Yazyk I Kultura-Language and Culture*, 185-203.
28. Filita, N., & Jita, T. (2023). The use of information and communication technology in the teaching of Sesotho as a home language. *Journal of Education*, (91), 3-14.
29. Rusetskaya, M. N., Rubleva, E. V., & Khekhtel, A. S. (2019). The use of audiovisual technologies in teaching Russian as a foreign language (as exemplified by podcasts). *Amazonia Investiga*, 8(20), 582-595.
30. Chimenti, C., Carolina, M., & Andreia, H. (2016). An Action Research In English Language Teaching And Learning For Children With Use Of Digital Technologies. *Texto Livre: Linguagem e Tecnologia*, 9(2), 128-147.
31. Fabian, M. P., Bartosh, O., Shandor, F., Volynets, V., Kochmar, D., Negrivoda, O., & Stoika, O. (2021). Using The Anthology Of Learning Foreign Languages In Ukraine In Symbiosis With Modern Information Technologies Of Teaching. *International Journal of Computer Science and Network Security*, 21(4), 241-148.
32. dos Santos, D. M., da Costa, M. C. F., & dos Santos, D. M. (2020). Utilização das tecnologias de informação e comunicação no ensino da língua inglesa e seus desafios na formação docente. *Práxis Educacional*, 16(41), 787-801.
33. Borthwick, K., & Gallagher-Brett, A. (2014). ‘Inspiration, ideas, encouragement’: teacher development and improved use of technology in language teaching through open educational practice. *Computer Assisted Language Learning*, 27(2), 163-183.
34. Aburezeq, I. M., Ishtaiwa-Dweikat, F. F., & Patronis, M. (2020). Behavioral intention to use mobile technology in language teaching: A qualitative analysis of a UAE case study. *International Journal of Technology and Human Interaction (IJTHI)*, 16(4), 14-34.
35. Trotsko, A. V., & Korotkova, Y. M. (2018). Using information and communication technologies in the process of teaching foreign languages: the experience of

- Ukraine and Greece. *Information Technologies and Learning Tools*, 68(6), 166-180.
36. Soliño Pazó, M. M. (2008). El uso de las nuevas tecnologías en el aula de lenguas extranjeras: un cambio en el proceso de enseñanza y aprendizaje. *Cartaphilus*, Vol. 4 (2008).
37. Balchin, K., & Wild, C. (2022). Exploring the role of context and collaboration in normalising technology use in English language teaching in secondary schools in Malaysia. *Computer Assisted Language Learning*, 35(7), 1437-1457.
38. Diab, P., Matthews, M., & Gokool, R. (2016). Medical students' views on the use of video technology in the teaching of isiZulu communication, language skills and cultural competence. *African Journal of Health Professions Education*, 8(1), 11-14.
39. Nguyen, Dung C., Dai, Kim H., & Yeh, P. Y. (2014). The impact of Chinese teachers' perceptions of digital technology on the use of digital tools in Chinese language teaching. *Journal of Technology & Chinese Language Teaching*, 5(1), 18-29.
40. Zimina, E. A. (2018). Teaching Home Reading in the German Language Classes Using Information and Communication Technologies (from the Experience of Working in a Non-Linguistic Institution). *Nauchnyi Dialog*, (8), 247-260.
41. Kandeel, R. H. (2014). Representaciones de los alumnos jordanos sobre la utilización de tecnologías de información y comunicación en la enseñanza/aprendizaje del francés como lengua extranjera: el caso de la universidad de Yarmouk. Thélème. *Revista Complutense de Estudios Franceses*, 29, 91-110.