

ORIGINAL

Language shifts in the digital age: the transformation of lexical and grammatical structures under the influence of social networks

Cambios lingüísticos en la era digital: la transformación de las estructuras léxicas y gramaticales bajo la influencia de las redes sociales

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ABSTRACT

The article examined the role of digital linguistics—particularly mobile applications and educational games—in enhancing foreign language (English) learning within a university setting. It highlighted how the rapid development of digital linguistics transformed educational approaches and expanded opportunities for individualized learning. The study outlined the methodological foundations of applying digital linguistics in higher education, assessed the didactic potential of widely used mobile applications for learning English, and evaluated the effectiveness of digital games in the instructional process. The research employed a combination of theoretical and empirical methods, including analysis, synthesis, a pedagogical experiment, statistical tools, and mathematical analysis. Special focus was given to the use of Kahoot, an interactive digital game platform. The findings identified two primary patterns: while the use of Kahoot enhanced vocabulary and grammar acquisition, its effectiveness varied in terms of consistent assessment of grammatical and lexical skills. Nevertheless, the integration of the platform intensified the learning experience and significantly boosted student motivation. The study concluded that the current paradigm of digitalization and gamification fostered the development of digital linguistics as an interdisciplinary and integrative field, encompassing areas such as machine translation, computer lexicography, national corpora, and language resource development. The results offered both theoretical and practical value and could be applied by educators and students alike. The study recommended the implementation of Kahoot in at least two instructional formats: under direct teacher supervision and as an independent extracurricular activity.

Keywords: Gamification; Educational Games; Digitization Of The Educational Process; E-Learning Platforms; Mobile Applications; Vocabulary.

RESUMEN

El artículo examina el papel de la lingüística digital -en particular, las aplicaciones móviles y los juegos educativos- en la mejora del aprendizaje de lenguas extranjeras (inglés) en un entorno universitario. Destaca cómo el rápido desarrollo de la lingüística digital ha transformado los enfoques educativos y ha ampliado las oportunidades de aprendizaje individualizado. El estudio esbozó los fundamentos metodológicos de la aplicación de la lingüística digital en la enseñanza superior, evaluó el potencial didáctico de las aplicaciones

móviles de uso generalizado para el aprendizaje del inglés y valoró la eficacia de los juegos digitales en el proceso de instrucción. La investigación empleó una combinación de métodos teóricos y empíricos, incluidos el análisis, la síntesis, un experimento pedagógico, herramientas estadísticas y análisis matemáticos. Se prestó especial atención al uso de Kahoot, una plataforma de juegos digitales interactivos. Los resultados identificaron dos patrones principales: si bien el uso de Kahoot mejoró la adquisición de vocabulario y gramática, su eficacia varió en cuanto a la evaluación coherente de las destrezas gramaticales y léxicas. No obstante, la integración de la plataforma intensificó la experiencia de aprendizaje y aumentó significativamente la motivación de los estudiantes. El estudio concluía que el paradigma actual de digitalización y gamificación fomentaba el desarrollo de la lingüística digital como campo interdisciplinar e integrador, abarcando áreas como la traducción automática, la lexicografía informática, los corpus nacionales y el desarrollo de recursos lingüísticos. Los resultados ofrecieron un valor tanto teórico como práctico y pudieron ser aplicados por educadores y estudiantes por igual. El estudio recomendaba la aplicación de Kahoot en al menos dos formatos de enseñanza: bajo la supervisión directa del profesor y como actividad extraescolar independiente.

Palabras clave: Gamificación; Juegos Educativos; Digitalización Del Proceso Educativo; Plataformas De E-Learning; Aplicaciones Móviles; Vocabulario.

INTRODUCTION

The key characteristics of the modern world in the digital economy are a sharp increase in the volume of data; changes in communication; freedom of development; and an increase in the number and speed of new technologies. Therefore, linguistics in the digital age is not just the science of language. It is a science that uses intelligent algorithms that recognize text, construct sentence structures, count the number of words, and output results in the form of ready-made statistics, as well as perform automatic written and oral translation of texts into other languages. Today, linguistics offers a wide range of opportunities for linguistic research of language and text using special technologies and services. The development of an ever-changing society is influenced by the ever-accelerating pace of information technology. This rapid development plays an important role in the development of linguistics, as in all fields of science, making it necessary to introduce information technology into the teaching of foreign languages.

Computer linguistics as a scientific field has become particularly active in recent years. In essence, it is a branch of applied linguistics focused on the use of computer programs and technologies for organizing and processing information to model the functioning of language in various conditions, situations, and problem areas. Computer linguistics includes practically everything related to the use of computers in linguistics.⁽¹⁾

With the development of information technologies and the emergence of specialized educational programs, computer linguistics tools have confidently taken their place in the educational process of foreign language departments. Modern technical educational conditions allow the use of multimedia as technologies that can fully simulate an environment that imitates linguistic and communicative reality, as well as activate the basic methodological principles of foreign language teaching.⁽²⁾

There's been a bit of an evolution in digital language, from simple online chats and forums to mobile apps, educational platforms, and social networks.⁽³⁾ Digital language has a number of features, such as conciseness, dynamism, simplicity, the ability to update vocabulary, and the use of visual elements, which have a positive impact on the development of vocabulary and grammatical skills of learners studying foreign languages.⁽⁴⁾ Digital language has a significant impact on the grammatical structure of language,⁽⁵⁾ in particular, syntactic constructions are reduced, punctuation is simplified, and new grammatical forms are used. The vocabulary is also changing, with new words coming into use, slang and jargon being used, and words taking on new meanings in digital language.

Despite the fact that gamification of the educational process and the use of electronic learning tools have been introduced into the educational paradigm for quite a long time, the effectiveness of this implementation needs further study, which determined the choice of this research topic.

The use of digital tools in the educational process, particularly in foreign language learning, has repeatedly been the focus of scientific research. Scientists have examined this process from different angles. For example, Akimova et al.⁽⁶⁾ studied the psychological aspects of the educational process. Bakhov et al.⁽⁷⁾ investigated the peculiarities of training future teachers of humanities. Griffiths and Light⁽⁸⁾ note the convergence of social networks, and Wang⁽⁹⁾ concludes that convergence influences the formation and transformation of digital language, so the modern educational paradigm should take this into account when motivating students to learn foreign languages. The introduction of a gaming element has a positive effect on the mental health of students⁽¹⁰⁾ and increases motivation.⁽¹¹⁾ The gaming industry creates new opportunities for using games for educational purposes.⁽¹²⁾ A study by Tao and Zou⁽¹³⁾ showed the effectiveness of using the Kahoot app in

the process of learning English by Chinese students. This study was based on a psychological approach, as it examined the impact of a digital app on student motivation.

Digitized approaches to the educational process need to be balanced with other approaches so as not to diminish the role of the teacher in the educational process.⁽¹⁴⁾ Some studies show the positive impact of digital games on the learning process of students with disabilities.⁽¹⁵⁾ A game-based approach to foreign language acquisition and the formation of stable lexical and grammatical skills has been the focus of scientific reflections by Yu and Tsuei,⁽¹⁶⁾ Ibrahim,⁽¹⁷⁾ and Dubreil.⁽¹⁸⁾ The game-based approach is not only possible in language learning, but also effective in STEM education⁽¹⁹⁾ and in the study of natural sciences.⁽²⁰⁾ However, even educational games can cause addiction in students and schoolchildren, which is a serious psychological condition that requires correction by specialists, so this factor must be taken into account when researching or implementing gamification in the educational process.⁽²¹⁾

The purpose of this article is to investigate the role of digital linguistics, in particular mobile applications and educational games, in improving the process of learning foreign languages, especially English, in a university environment. To this end, the following tasks were set: to describe the methodological principles of using the achievements of digital linguistics in the educational process of higher education; to describe the didactic potential of the most popular mobile applications for learning English as a foreign language; to select a mobile application that can be used for learning English in a university environment, i.e., designed for adult users; to evaluate the effectiveness of using digital games in the learning process; to analyze the collected data and describe the patterns.

METHOD

The article is an original empirical study based on a pedagogical experiment. The article uses a bunch of theoretical and practical research methods, like analysis and synthesis, critical analysis (when reviewing the literature, describing the methodological principles of using digital linguistics in education, and the didactic potential of mobile apps for learning English), experimentation, statistical methods, the method of mathematical analysis (to study the effectiveness of using Kahoot, an electronic platform based on a digital game).

The experiment was conducted in two university groups. The study was conducted in two groups of first-year students majoring in English (secondary education) at the Vasyl Stefanyk Carpathian National University. The experiment was conducted from February to April 2025. The quantitative composition of the experiment participants was distributed as follows: total number $n=40$, group 1: $n=20$ and group 2: $n=20$. Group 1 (experimental) used the Kahoot electronic platform for three months, while group 2 (control) followed the same curriculum but did not use game tools in the learning process. The age of the participants in the experiment ranged from 17 to 21. After the experiment, English language training (subject “Practical English Course”) based on a digital game was also conducted, and vocabulary and grammar skills were assessed in the form of testing. The topics of the training program (table 1) were used to classify the knowledge and skills to be tested. The number of hours allocated to each topic in the curriculum was the same for both groups. However, only group 1 was given access to Kahoots.

Table 1. Thematic plan for teaching English grammar and number of Kahoot mini-games

English grammar	Hours	Kahoots
Topic 1. Present tense in English	6	8
Topic 2. Past tense forms in English	6	8
Topic 3. Future tense forms	6	4
Topic 4. Tense agreement in English	6	4
Topic 5. Modal verbs	6	8
Topic 6. Gerund or infinitive?	6	8
Topic 7. Passive voice	6	6
Topic 8. Degrees of comparison of adjectives	6	6
Source: developed by the authors based on the syllabus of the academic discipline “Practical English Course		

After completing the content modules, groups 1 and 2 took tests with automated checking. Kahoots, designed for each topic, included at least 4 to 8 mini-games in three categories: educational games, games to check knowledge, and games for testing purposes.

Data analysis and statistical processing

An automated test of students' grammar and vocabulary proficiency became a tool for measuring the effectiveness of Kahoot in the learning process. The results were processed and summarized by the teachers of this course.

Ethical issues and methodological limitations

Students who agreed to participate in the experiment gave their written consent to participate in the study. All agreements were developed, proposed, updated in accordance with the needs of all parties, and signed before the start of the experiment. Thus, the above conditions eliminate all possible ethical issues. The participants were selected randomly and did not represent the general population. The limitations of the study are related to the sample size and homogeneity of the participant groups.

RESULTS

For our pedagogical experiment, there was chosen an interactive platform based on the digital game Kahoot. This choice was determined by a number of factors. Most of the features of this digital platform are free, and Kahoot's interface is easy to use. Using this platform minimizes the need for technical assistance. At the same time, the platform has the basic tools to facilitate the learning process, but there are no elements of deep immersion that form game addiction.

The results of the final testing of knowledge of lexical and grammatical topics in English, as provided for in the curriculum, showed the following objective data (figure 1).

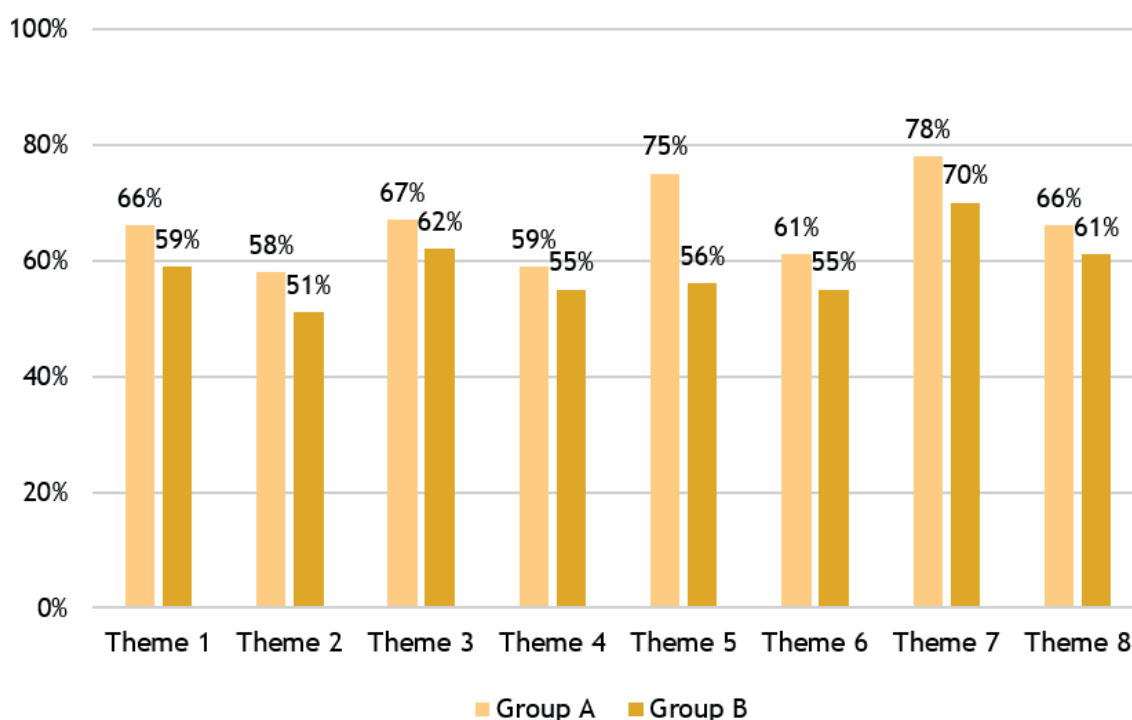


Figure 1. Percentage of positive results in group 1 (experimental) and group 2 (control) for each topic of the curriculum

As the diagram shows, students in group 1 (experimental) demonstrated better results in testing their level of English vocabulary and grammar acquisition. However, the difference in scores between groups 1 and 2 is not significant. The largest difference between the groups was recorded in topic 5 - 19%, and the smallest difference was 4% in vocabulary and grammar in topic 4. Both groups - experimental and control - had the same amount of classroom time, but group 1 also included the use of a digital gaming platform. However, it should be noted that when analyzing students' results in grammar and vocabulary, no consistent progress was observed in the groups. Each topic shows better or worse results compared to other topics, and variables such as the number of teaching hours are also significant. However, it is undeniable that group 1 demonstrated better test results in all topics, which confirms the effectiveness of the game-based approach in the learning process of first-year students majoring in English (secondary education).

After the experiment, 14 out of 20 students in group 1, who used the game platform, provided feedback, and their answers show the following patterns: Kahoot can become a permanent part of the learning process,

especially for building lasting skills and for review before exams; the platform fosters cooperation among students, encourages them to support each other, and reduces barriers to learning; students are willing to use the platform in other classes, not just when learning English.

Among computerized tasks, exercises from general and specialized sections of practical foreign language courses in university language and non-language training programs, the following types of tasks have proven to be effective: lexical games, exercises for developing creative thinking, creating various letters or electronic stories, exercises for machine translation of texts and their further processing, various types of computer tests on grammar sections with a grading system. Tasks and exercises can be posted on the university website, in which case such a system can be directly integrated with the means of collecting the results of tasks and exercises, and these results can form the final assessment of the student in the discipline. In recent years, speech recognition systems have become so sophisticated that they allow working not only with the meaning of words, phrases, sentences, or larger fragments of spoken text, but also to check the correct pronunciation of individual words.

The most accessible multimedia tools for teaching students are electronic textbooks and various modern digital programs and simulators. Electronic supplements to textbooks usually include educational programs for memorizing new vocabulary and practicing grammatical structures, as well as additional materials for listening and writing. To test and monitor knowledge, there is suggested the usage of MOODLE electronic testing. This system can be used both to assess students' knowledge and for interim assessments in a distance learning format.

DISCUSSION

The active introduction of various information and communication technologies is reorganizing the learning process, in particular, there is a need to develop new teaching methods for individual disciplines within the information and educational environment. As a result, the question arises of regulating the interaction between participants in the educational process. Organizing learning within a system based on ICT requires a set of rules governing communication, information transfer, etc. Teachers are faced with the task of not only creating an information environment, but also ensuring the effective functioning of the system. In addition, the technical equipment of educational institutions is one of the priority tasks, the solution of which is based on organizational and economic factors.

Teaching a foreign language has its own characteristics compared to other disciplines. The main goal of language education is to develop communicative competence, which consists of linguistic, sociolinguistic, sociocultural, strategic, discursive, and social competencies, and the main goal of foreign language teaching is to teach practical language skills and create a knowledge base for international and foreign language communication with native speakers and foreign language learners. In the process of teaching foreign languages, the use of modern educational technologies helps to recreate learning situations, complements traditional teaching methods, promotes the formation of communication skills, allows students to express their opinions in another language and solve communication tasks independently, increases motivation, and reveals the creative and intellectual potential of students.

The formation of a constant need for independent work in the process of learning a foreign language is ensured by new forms of internal motivation, cognitive extracurricular activities, methodological recommendations for organizing extracurricular systematization of forms of activity, including targeted activities of the teacher. Educational technologies are a set of methods and techniques that reflect the characteristic processes of educational activities and the interaction between them, which, when skillfully managed, achieve effective

results in teaching and educational activities.

Here are a few ways to use digital linguistics tools:

- computerized tasks and exercises;
- computer-based training courses with phonetics sections that let one record and recognize speech;
- putting electronic versions of specialized textbooks and exercises on the university server;
- inclusion in the list of compulsory tasks in master's degree programs of tasks involving the search for and analysis of professional publications in a foreign language using the Internet.

The availability of personal laptops and tablets allows each student to use an electronic textbook simultaneously with an electronic dictionary, translator, and pronunciation practice applications. Today, there are many electronic dictionaries available, and the ability to use them in practice is one of the basic skills in learning a foreign language. They are aimed at consolidating and demonstrating language skills and practicing phonetic skills, which is very important for mastering lexical communicative units. During classes, there is not enough time to work on the pronunciation of each individual student, so the use of the English Pronunciation, Speak English Pronunciation, and English Pronunciation Training apps provides an excellent opportunity for

students to practice their pronunciation independently outside of class. Let's consider the educational potential of each of these apps:

1. English Pronunciation is a small program that teaches how to pronounce words correctly and shows the position of one's tongue when pronouncing a particular sound. The program shows how to pronounce consonants and vowels. It is possible to listen to the words with American or British pronunciation. There is progress tracking and checkpoints to make the learning process easier.
2. Speak English Pronunciation. Most of the features in this program are the same as English Pronunciation, but there is one significant difference. Speak English Pronunciation has a recording feature that allows users to record their pronunciation, listen to themselves, and correct their pronunciation. This tool allows practicing and improve the pronunciation without a teacher. The program rates the pronunciation on a scale of 1 to 5 stars.
3. The English Pronunciation Training app teaches one how to pronounce English words correctly, checks one's speaking skills, and allows repeating lessons.
4. Quizlet is an app that allows creating sets of flashcards on various topics and from any subject. The purpose of this resource is to help students learn and remember the material they need, mainly vocabulary. The advantage of this service is the ability to practice the material being studied in several learning modes: memorization, flashcards, letter, spelling, test, selection, the "Gravity" game, and the "Live" competition mode. It is possible to track one's own progress.
5. My quiz is an interactive platform for creating games, quizzes, and trivia on any topic. It is a simple tool for creating engaging lessons or testing students' knowledge in class.
6. Wordwall is a convenient platform for working with vocabulary: crosswords, quizzes, quizzes, missing word searches, and many other task options are available ready-made, or teachers can create their own tasks.
7. Online Test Pad is a free, universal, and simple constructor that can be used to create various tests, assignments, tasks, crosswords, scanwords, surveys, logic games, and dialogues in Russian and English. This service is used to collect and systematize information or as a digital tool for formative and summative assessment.
8. Crash Course is an English-language platform with short educational videos on various topics, ranging from astronomy and anatomy to mythology and the history of computer games.
9. TED electronic resources - an electronic resource of a large international conference containing speeches by speakers from around the world on a wide variety of topics. Here it is possible to select content in over 100 languages, thereby developing listening and critical thinking skills.

The study revealed the following patterns. First, the digital platform there are chosen improves the process of acquiring vocabulary and grammar in a foreign language, in our study - English, but this effect is inconsistent in terms of assessing grammatical/lexical skills. This pattern is consistent with previous findings by researchers.⁽²²⁾ Second, the use of an interactive digital platform intensified the educational process and increased students' motivation to learn the language, which also correlates with the findings of researchers.⁽²³⁾ Scientific research shows that the practice of games in the educational process is most common in the United Kingdom, Spain, the United States, and Germany;⁽²⁴⁾ and it is these countries that are distinguished by developed economies and are at the forefront of PISA in terms of education. However, it is a mistake to believe that only countries with developed economies are introducing gamification into the educational process; such trends can be observed in the educational paradigms of countries with different levels of economic development.^(25,26)

At the same time, it is important to remember that excessive use of digital platforms reduces communication between students and teachers, as well as communication within the learning group, i.e., the digitization of the foreign language learning process also has negative consequences.⁽¹⁹⁾ Chinese researchers,⁽¹³⁾ based on a sample of Chinese students who studied English using the Kahoot app, came to similar conclusions about the effectiveness of this digital platform. The introduction of a digital gaming approach to foreign language learning in a group allowed talking about a stable pace, even when the same curriculum was used. The mini-game format helps to structure the learning process.^(27,28)

Another disadvantage of using the Kahoot digital interactive platform is autonomy. Therefore, teachers should combine Kahoot with other games or gamified materials or resort to an alternative method to ensure maximum self-determination and motivation. Regular implementation of a digital gaming approach to foreign language learning will only be beneficial. However, in addition to Kahoot, other digital tools based on digital linguistics should also be used, such as Duolingo,⁽²⁹⁾ Quizizz,⁽³⁰⁾ and HelloTalk.⁽³¹⁾ They can be used as alternatives or in combination. It can be assumed that the use of these technologies may yield slightly different results compared to Kahoot.

CONCLUSION

Digital linguistics differs from other branches of applied linguistics in terms of language processing, as it is an independent field of knowledge that uses a wide range of new concepts and is an interdisciplinary and integrative science that combines various branches of scientific knowledge: machine translation, computer dictionaries, the creation of national machine translation resources and national corpora, etc.

The issues studied by computational linguistics can be grouped into specific clusters: firstly, for the purpose of natural language processing, syntactic, morphological, and semantic analysis of text can be provided; secondly, these can be automatic text translation systems. Our research has shown that the use of digital linguistics in the learning process can be effective, as the use of Kahoot as a set of mini-games improved students' vocabulary and developed their grammatical skills. This learning effect is primarily due to the fact that the tested digital platform provides the opportunity not only to learn, but also to repeat and test. Students in group 1 who used Kahoot during their learning activities showed increased motivation to learn the language, and their grammar/vocabulary assessment results improved slightly (the test results for group 1 were slightly higher than for group 2).

The results of this study can be used both theoretically and practically. All participants in the educational process can use our results to implement Kahoot in pedagogical practice in at least two formats: teacher-led and independent extracurricular work by students. Further research could focus on studying the effectiveness of individual learning platforms or interactive e-textbooks in the process of learning foreign languages.

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