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INNOVATIONS IN LANGUAGE LEARNING: A STUDY OF STUDENTS' ATTITUDES TOWARDS THE USE OF WEB 2.0 AND WEB 3.0 TECHNOLOGIES

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Abstract

The study examines students' perspectives on using Web 2.0 and Web 3.0 technologies for learning foreign languages and assesses the impact of digital transformations on motivation. The research employs theoretical content analysis, synthesis, an online survey of the students (n = 332), and mathematical statistics. Content analysis and synthesis explore the role of these technologies. Findings show that while 52% of students favoured Web 3.0 tools, comparative analysis did not confirm statistically significant differences in learning outcomes. The distribution of respondents into Web 2.0 users (n=89), Web 3.0 users (n=175), and non-motivated participants (n=68, 20,8%) highlights challenges in motivating students resistant to educational innovations. The second stage of the survey confirms that students using Web 3.0 tools demonstrate increased engagement. Based on these findings, recommendations were proposed to enhance the educational process, improve motivation, and reduce student anxiety. The study highlights the importance of integrating Web 3.0 technologies (and applications into language education to optimize learning outcomes and foster a more engaging learning environment.

Keywords **–** Pedagogical innovations, Web 2.0 technologies, Web 3.0 applications, Foreign language learning.

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1. Introduction

Innovations in learning foreign languages directly result from various factors, such as digital advancements, evolving educational requirements and interests, globalization, and new standards for recruiting professionals in the global labor market. The introduction of innovations in teaching is rapid and inevitable. The use of technology is becoming increasingly common in language education (Hasumi & Chiu, 2024; Palacios-Hidalgo, 2020). According to Şişianu and Puşcaşu's (2024), the long-term integration

of Web 3.0 technologies, particularly artificial intelligence and machine learning, is expected to advance language education by establishing conditions that will reduce language barriers.

Web 2.0 refers to the generation of web technologies that enable user interaction, collaboration, and content creation through social media, blogs and online forums. In the context of foreign language learning, Web 2.0 tools include applications such as YouTube for authentic listening materials, Google docs for collaborative writing, of Duo lingo forums that foster peer interactions. The use of the most advanced technologies contributes to the effective development of language skills (Tran, Hoang, Gillespie, Yen, Phung, 2024) Web 3.0, also known as the "semantic web" or "intelligent web", represents the next stage of technological development, characterized by personalization, artificial intelligence, and decentralized data exchange. Examples of Web 3.0 in language education include IA-driven chat bots for practicing conversation (e.g., ChatGPT), adaptive learning platforms that recommend individualized exercises, and block chain-based credentialing systems that truck learning achievements.

Web 2.0 and Web 3.0 technologies serve as indispensable tools in the process of foreign language learning, promoting student engagement and supporting the fulfillment of broader educational objectives (Fan, Yecies, Zhou & Shen, 2024). They contribute to the development of various language skills: vocabulary development, reading and grammar improvement (Zhang & Zou, 2022a), and enhancing productive skills – speaking and writing (Shadiev & Yang, 2020). Technology is changing the interest level and leading to a noticeable rise in motivation, engagement and confidence (Shadiev & Wang, 2022). In particular, Jamalova (2024) demonstrated that student engagement was significantly higher in groups that regularly used digital tools for foreign language learning. An important aspect is using technology to develop language skills and practical abilities such as solving life problems and optimizing social interactions, creativity, and analytical and critical thinking. The symbiosis of the above aspects, combined with language skills, allows the student to adapt to society and rationally manage their competitiveness, considering the trends in the global labor market (Shadiev, Yi, Dang & Sintawati, 2022).Nevertheless, alongside the evident advantages of tecnology, its excessive use may result in dependency, open pathways for manipulation, and construct an illusory sense of linguistic proficiency (Kern, 2024). Although the transition to using Web 3.0 applications in foreign language learning is actively supported in modern conditions due to the advantages of technology (especially in terms of improving pronunciation and vocabulary) (Dizon, Tang & Yamamoto, 2022), certain limitations, such as a decrease in students' critical and analytical thinking abilities, should be considered. Artificial intelligence (AI, from now on) creates the illusion of interaction with the student but does not provide a critical, real assessment of learning results. "AI (as one of the most common Web 3.0 tools) is unable to tell what is wrong in the learning process, offering only description and prediction, in most cases without specific explanations (which is typical of real intelligence)" (Chomsky, Roberts & Watumull, 2023). That may create an incorrect impression of the student's language knowledge and skills (Kern, 2024). The relevance of the study is based on the need to modernise the educational process in connection with global trends in digital transformation. Many researchers have shown the effectiveness of using Web 2.0 tools, which is due to the long time they have been used in pedagogical practice. Instead, the use of Web 3.0 tools has been studied much less, due to their development and partial use by some higher education institutions or teachers. Web 2.0 is characterised by the user's interactive and social nature, while Web 3.0 has more opportunities for personalisation based on artificial intelligence, decentralised data exchange and intelligent learning systems. The integration of Web 3.0 features such as machine learning-driven language learning recommendations and language processing tools is changing the paradigm of educational models. However, there is currently little research on students' or teachers' evaluations of the effectiveness of Web 3.0 technologies, or on how the use of technology affects students' motivation to learn, cognitive load, or understanding of the amount of material to be learned. This study aims to investigate students' perceptions of Web 2.0 and Web 3.0 technologies for learning foreign languages, and the characteristics of motivation to learn among students who have a greater preference for Web 2.0 and Web 3.0.

2. Literature Review

The Organization for Economic Cooperation and Development report states that the development of linguistic competence is the process of acquiring knowledge and skills related to grammar and vocabulary formation, which are necessary for reading, listening, speaking, writing, and the overall development of the learner's communicative abilities (OECD, 2024). Traditional ways of organizing the educational process involve two forms: direct development of linguistic competence through studying linguistic forms and indirect development of skills via communication-oriented tasks that form linguistic knowledge (OECD, 2024). The second form does not have precise requirements for the organization, which led to the introduction of technologies to ensure it during digitalization. In this context, technologies have come a long way – from tools for training and developing language skills to digital interactive platforms and applications for developing a wide range of linguistic competencies (phonetic, grammatical, lexical knowledge, knowledge of intercultural features, ethnic differences that form ideas about the features of communication between representatives of different nationalities) (Davies, Otto & Rüschoff, 2012). Since the beginning of the 2000s, the educational process has been filled with Web 2.0 technologies, such as discussion forums, blogs, and cloud-based tools. The development of media tools, particularly YouTube, "allowed students to become creators of educational content, not just consumers of foreign language knowledge" (Davies et al., 2012). Aşiksoy, (2018) showed a positive attitude of students towards the use of web 2.0 technologies for learning a foreign language, in particular, listening. The evolution of forms for managing language learning has advanced to the point where there is a shift from utilizing Web 2.0 technologies to adopting Web 3.0 applications. The most common is text-based generative AI, which can provide learners with a wide range of universal or customized capabilities. AI offers atypical learning content, contextual vocabulary definitions, and communication capabilities. It has taken on a new role in education by generating sentences and text vocabulary notes, explaining additional meanings of words depending on context, and identifying parts of speech (Kohnke, Moorhouse & Zou, 2023).

Researchers distinguish the following groups of technologies in education:

- Tools for teamwork (Google Docs, Trello) and social interaction (Facebook, Skype, WhatsApp) (Sevy-Biloon & Chroman, 2019);
- Tools for interactivity and creative self-realization for students (Photo Story, Adobe Spark, Google MyMaps, WordPress) (Valdebenito & Chen, 2019);
- Technologies for learning management (Moodle platform), integration of educational activities, adaptability;
- Interaction tools (Quizlet, Kahoot), gaming applications, and platforms (Duolingo, Busuu) that increase a sense of belonging (Girgin & Cabaroğlu, 2021; OECD, 2024) can be used for classroom and self-study (Bahari & Gholami, 2022);
- Multimedia tools (audio and video resources, interactive multimedia textbooks);
- Tools for visualizing learning content (PowerPoint, Canva, Prezi);
- Digital platforms and augmented virtual reality tools (such as Google Glass) (Chen, Hung & Yeh, 2021).

Scholars have proposed several frameworks for integrating technology into language education. Zhang and Zou (2022a) identified five major tools – computers, mobile devices, printed materials, audio players, and PowerPoint slides – later expanding the classification to include speech-to-the text tools (Zhang & Zou, 2022b).

In turn, Shadiev and Wang (2022) analyzed 34 scientific articles that were published between 2011 and 2022, emphasized that speaking, writing, and vocabulary development remain the most frequently researched areas. They also noted the importance of 21-st century skills such as communication, collaboration, critical thinking and intercultural interaction, and outlined learning models based on online collaboration, critical thinking, and intercultural interaction. These findings highlight both the technological tools and pedagogical approaches most relevant for modern foreign language learning.

The transition to "smart" Web 3.0 tools in education is defined as "a fundamental shift that has redefined the education landscape" (Zamiri & Esmaeili, 2024). The following factors determine the effectiveness of technologies in the field of language teaching:

- Voluntariness of the process – an open organization of knowledge exchange is considered ideal; it is necessary to minimize judgment, competition, and the perception of knowledge as a source of power;
- Motivation – using innovation to unite students and create a sense of belonging, significance, and self-confidence;
- Trust – and it is multifaceted. It is the student's confidence that his knowledge will be used rationally by other participants in the educational process. This is transparent communication, demonstrating a commitment to developing an inclusive culture. The significance of technology is the elimination of boundaries between students (Zamiri & Esmaeili, 2024).

Advancements in language learning have benefits, including flexibility of time and location and personalized learning experiences (Shadiev & Wang, 2022). Technologies enable students to use the acquired skills in authentic and communication aspects and become acquainted with a wide range of information in a foreign language. This aspect correlates with personal and cultural development, expansion of worldview, and awareness (Dania & Adha, 2021). Podcasts, videos, and interactive simulations are necessary for multisensory learning. They simplify intricate learning methods and educational models, making them more accessible (Louadi, Koch, Rowe, Kuhlmann, Kamesh, Ferreira et al., 2023).

Despite the growing interest in technological innovations, their integration into foreign language learning remains limited and faces several challenges (Sim & Rahmat, 2022). Recent studies point to three main categories of risks. First, cognitive risks include the potential decline in critical and analytical thinking due to excessive reliance on AI and the illusion of interaction (Chomsky et al., 2023). Second, pedagogical risks involve a possible decrease in overall efficiency of the educational process (Muscanell, 2023). Third, epistemological risks concern the manipulation and distortion of learners knowledge levels (Kern, 2024). Taken together, these findings highlight the necessity of a cautious and balanced approach to the adoption of innovations in language education.

3. Methodology

3.1. Methods

The study used theoretical content analysis, synthesis, an online student survey, and mathematical statistics methods. Innovations' role in foreign language learning was studied using theoretical content analysis and synthesis. Content analysis has become an important part of studying the factors influencing the choice of language learning applications. To ensure the fundamental part of the study, students were surveyed using an online survey method. The responses were evaluated using a five-point Likert scale, where 1 means "strongly disagree" and 5 means "strongly agree." The method of mathematical statistics was used to process the data.

3.2. Design

The study structure includes:

Stage I – theoretical content analysis of the role of innovation in learning foreign languages. The development of the educational process under the influence of technology integration is studied. The literature analysis process describes the advantages and disadvantages of using Web 2.0 and 3.0 technologies.

Stage II – is devoted to an empirical analysis of the role of Web 2.0 platforms and Web 3.0 applications in learning foreign languages. Students' attitudes toward Web 2.0 and Web 3.0 were assessed based on three components: readiness, attitude, and prospects for using these technologies. The authors designed the

questionnaire and agreed with the study's objectives (Appendix A). Also, the role of Web 2.0 and Web 3.0 technologies in student motivation was assessed; results are presented in the Table 2. The study assessed students' attitudes towards Web 2.0 and Web 3.0 technologies through targeted items. Results revealed that in both the "Attitude" section – (questions 7, 9, 11, 13) and the "Directions for development" section (questions 19, 21), students consistently indicated a Web 2.0 technologies, and in the section "Directions for development" the choice and evaluation of questions 19, 21 meant a greater commitment of students to the choice of web 2.0 technologies. Similarly, the choice and rating of questions 8, 10, 12, 14 in the Attitude section and questions 20 and 22 in the "Directions for development" section indicated a greater commitment to the future use of Web 3.0 technologies for foreign language learning. At the same time, the final decisions on the division of students into groups for processing the results of the next survey were based on the answers to questions 19 and 20, which determined the preference for using Web 2.0 or 3.0 technologies in the future.

According to the students' choice of certain technologies, they were divided into 2 groups, which are presented in the following assessment of the student's motivation when learning a foreign language, which presented in the table 3. The validity of the questionnaire was defined as face validity and content validity. Content validity is based on the fact that the questionnaire was developed based on the analysis of scientific literature on the topic under study. The questions were grouped into 3 blocks, readiness to use web 2.0 or web 3.0 technologies, but also allowed us to assess students' general impression of the use of technology in language learning. To check the content validity, 5 teachers evaluated these questions to determine whether they sufficiently assessed certain items, and these questions were discussed and a consensus was reached. Therefore, the questionnaire demonstrates high content validity.

The analysis of the responses allowed us to assess the greater propensity to use Web 2.0 tools or to devaluate them in favour of Web 3.0 tools, as different tools are effective for different aspects of language learning and for different students. However, the survey was intended at finding out about the motivation of students who would use Web 2.0 or Web 3.0 tools in the future, but this does not exclude their combination. To implement this task, the questionnaire proposed by researcher Martin (2001) was used (Appendix B). For this study, the questionnaire items were translated into the students' native language and contextually adapted, ensuring that their original intent remained unchanged. The questionnaire assesses students' motivation using nine parameters, divided into two groups: "boosters", which evaluate the influence of thinking, and "guzzlers", which assess the impact of demotivating factors. Boosters – 5 subdivisions, each of which reflects one of the following strategies:

- Self-confidence (belief in one's ability to understand and complete tasks, overcome difficulties, perform tasks as well as possible);
- Focus on learning (focus on problem solving, skill development);
- Value of learning (understanding the benefits of learning, the importance of learning),
- Planning and monitoring (timely completion of tasks and effective organization of work).

Gluzzers four subdivisions that represent thoughts and behaviors negatively affecting learning and causing anxiety. These include:

- Nervousness before exams;
- Worry – fear of performing poorly on tasks;
- Avoidance behavior – attending classes and completing tasks to avoid negative grades so as not to disappoint parents.

Self-sabotage – postponing tasks or wasting time that should be devoted to learning. In total, the questionnaire contained 5 questions for each of the above sub-items (45 questions). The validity of the questionnaire was proven by Martin, (2003).

3.3. Sample and Data Collection

The target population of the study consisted of undergraduate students enrolled in higher education institutions in the Republic of Kazakhstan who study foreign languages as part of their curriculum. The survey was conducted online in the first semester of the 2023-2024 academic year. The questionnaires were distributed via Google Forms through. institutional email lists, ensuring random recruitment of participants. As part of the study, 350 copies of questionnaires were prepared. At certain stages of the study, 7 students refused further participation. While processing the survey results, it was revealed that some questionnaires (11 pieces) were irrelevant; the final number of respondents was 332. This sample covered all academic years (from first to fourth-year students) and demonstrated a gender balance (39.7% male, 60.3 % female, which ensures sufficient representatives of the student population (Table 1).

No	Characteristics	Frequency	Percentage
1.	Country		
	Republic of Kazakhstan	332	100%
2.	Year		
	First-year	46	13.8%
	Second-year	107	32.3%
	Third-year	92	27.7%
	Fourth-year	87	26.2%
3.	Gender		
	Male	132	39.7%
	Female	200	60.3%

Table 1. Distribution of survey participants by different characteristics

Ethnics approval for the study was obtained from the institutional research ethnics committee. Participation was voluntary, and informed consent was secured from all respondents. Data confidentiality was guaranteed: all respondents were anonymized, and the datasets are securely stored in the institutional digital repository with access restricted to the research them.

3.4. Data Analysis

Data analysis was implemented using MS Excel functionality.

4. Results

The first research stage presents the study results on aspects such as readiness, students' attitudes toward using technologies in foreign languages learning and prospects. Table 2 shows the survey results of 332 respondents. The average score for using Web 2.0 and Web 3.0 in foreign language learning is above average 3.852. The trend of increasing students' willingness to use Web 3.0 applications can be outlined. The average rating of the effectiveness of Web 3.0 applications in language learning reached 4.395, and Web 2.0 platforms is 3.867.

Questions		% and number of the students	Answers	
			Mean	SD
Readiness: Do you think you are ready to learn foreign languages using non-formal forms of learning, interactive technologies and innovative tools?				
1.	I am well prepared to use innovations in education.	100%	3.958	0.640
2.	I am comfortable using innovations as well as Web 2.0 platforms and Web 3.0 applications in foreign language learning.	100%	3.735	0.779
3.	I have good basic skills in working with computers and smartphones and information and communication technologies (ICT) to develop and improve my language skills.	100%	4.361	0.506

	Questions	% and number of the students	Answers	
			Mean	SD
4.	My higher education institution provides appropriate help and technical support for developing innovative, informal forms of education, actively using Web 2.0 platforms and Web 3.0 applications for educational work with students.	100%	3.280	0.450
Attitude: What is your attitude towards education based on non-formal, innovative methods, and how effective are they for you in developing language skills?				
5.	I use Web 2.0 platforms and/or Web 3.0 applications in learning foreign languages.	100%	3.852	0.837
6.	I would like to see Web 2.0 platforms, and Web 3.0 applications become the new norm in learning foreign languages.	100%	3.587	0.852
7.	I believe using Web 2.0 platforms contributes to my effective learning of foreign languages.	44,58% (148 students)	3.867	0.760
8.	I believe using Web 3.0 platforms contributes to my effective learning of foreign languages.	55,42% (184 students)	4.395	0.829
9.	Using Web 2.0 promotes the development of oral speech.	42,77% (142 students)	3.660	0.475
10	Using Web 3.0 promotes the development of oral speech.	57,23% (190 students)	3.858	0.770
11.	Using Web 2.0 helps improve writing skills (a more profound understanding of grammar and syntax basics, reducing the number of syntactic and spelling errors).	46,69% (155 students)	3.404	0.491
12.	Using Web 3.0 helps improve writing skills (a more profound understanding of grammar and syntax basics, reducing the number of syntactic and spelling errors).	53,31% (177 students)	4.349	0.822
13.	Using Web 2.0 helps develop cognitive skills, analytical and critical thinking.	41,87% (139 students)	3.877	0.721
14.	Using Web 3.0 helps develop cognitive skills and analytical and critical thinking.	58,13% (139 students)	4.187	0.774
15.	Using Web 2.0 and Web 3.0 helps me better understand the cultural characteristics and traditions of the countries whose language I study, thereby contributing to my comprehensive development as an individual.	100%	3.422	0.860
16.	I find it more convenient to develop my language skills using innovative solutions (Web 2.0 and Web 3.0) rather than in the classroom format.	100%	3.910	0.905
17.	Using Web 2.0 and Web 3.0 makes learning more interesting and interactive.	100%	4.304	0.669
18.	Using Web 2.0 and Web 3.0 increases my motivation to learn foreign languages since the educational process is based on interactive and innovative teaching methods.	100%	3.928	1.072
Directions for development: Indicate the innovative tools you prefer and plan to use to improve the learning process of foreign languages.				
19.	I consider Web 2.0 platforms to be more effective in language learning, and therefore, I prefer them.	44,58% (148 students)	3.235	0.654
20.	I consider Web 3.0 platforms to be more effective in language learning, and therefore, I prefer them.	55,42% (184 students)	3.599	0.800
21.	In the future, I plan to use Web 2.0 platforms (online services for learning a foreign language, social networks, specialized blogs, forums and communities, educational platforms, online services for collaborative work, etc.).	44,58% (148 students)	3.913	0.718
22.	In the future, I plan to use Web 3.0 applications (artificial intelligence, decentralized platforms, blockchain, and machine learning).	55,42% (184 students)	4.172	0.768

Table 2. Results of a statistical analysis of respondents' answers received during the survey about their readiness, attitudes and prospects of Web 2.0 and Web 3.0 in foreign language learning

The results of the analysis show that more than half of the students still choose Web 3.0 technologies to improve their language skills and rate them slightly higher, although the comparison of students' scores did not show statistical differences. In particular, the answers to question number 19 and 20 did not have statistically significant differences (# 19, t=0,678, p>0,05; #20, t=0,775, p>0,05). Next, it was analyzed how what is the motivation of students who have chosen web 2.0 and web 3.0 technologies The results of the statistical analysis of the responses are presented in Figure 1 and Table 3. To implement the second stage of the study, two groups of students were identified among all respondents: those who prefer using Web 2.0 (89 students) and those who prefer using Web 3.0 (175 students).

Based on the results of the first part of the study, a third group of respondents was identified, which included students with a neutral or negative assessment of Web 2.0 and Web 3.0 ratings (the respondents comprised 68 people (or 20.48%) who did not participate in the motivation survey). Signs of a negative attitude towards educational innovations suggest that their use cannot motivate students, so they were not surveyed about their motivation to study.

Criteria	**Students who, according to the results of the first survey, preferred the use of Web 2.0 technologies in the field of learning a foreign language**		**Students who, according to the results of the first survey, preferred the use of Web 3.0 technologies in the field of learning a foreign language**			
	Mean	**SD**	**Mean**	**SD**		
Boosters					**T test**	**p**
Self-belief	2.516	0.963	4.826	0.925	6,565	<0,05
Value of learning	2.452	0.457	4.757	0.495	6,875	<0,05
Learning focus	2.492	0.441	4.793	0.594	9,451	<0,05
Planning and monitoring	2.302	1.109	4.799	0.518	9,454	<0,05
Persistence	2.984	0.518	4.826	0.755	5,767	<0,05
Guzzlers						
Anxiety	4.069	0.644	3.483	0.537	1,554	>0,05
Low control	4.011	0.746	2.969	0.725	3,767	<0,05
Avoidance	4.076	0.518	2.394	0.737	6,743	<0,05
Self-sabotage	2.433	0.393	2.253	0.793	0,778	>0,05

Table 3. Assessment of the student's motivation when learning a foreign language, considering differences in their use of Web 2.0 and Web 3.0 technologies

Comparing the actual value of the t-test with its critical value at a given significance level $\alpha = 0.05$, it is worth saying that the actual value in absolute value is higher than the critical one. Also, the calculated statistical significance p-value equals as <0,05, proving that the differences in the motivation levels of the two groups of students are statistically significant. Compared to respondents who prefer Web 2.0 technologies, students who prefer Web 3.0 technologies in language learning have higher self-confidence, lower anxiety, and greater focus on the educational process. The average motivation value of students who prefer Web 2.0 technologies is lower than the corresponding indicator of motivation of students who prefer Web 3.0 technologies.

5. Discussion

5.1. Prospects of Integrating Web 3.0 Into Language Education

The analysis of respondents' answers analysis confirms the prospects and necessity of practical support for implementing technologies in language learning and the inevitability of replacing Web 2.0 tools with more progressive ones, particularly Web 3.0 applications. It is determined that the educational sphere has a

reliable basis for further transformations. This idea closely correlates with Şişianu and Puşcaşu's (2024) opinions, who emphasized that in the long-term role of the integration of Web 3.0 technologies (AI and machine learning) in reducing language barriers.

5.2. Students' Perceptions and Alignment with Previous Studies

Students' assessments indicate that most of them are oriented towards using innovations in foreign language learning, which was also confirmed in the works of Bahari and Gholami (2022), Chen et al. (2021), Girgin and Cabaroğlu (2021), Sevy-Biloon and Chroman (2019) and Valdebenito and Chen (2019). Simularly, Tran et al. (2024) studied the impact of videoconferencing tools on pronunciation and listening skills, emphasizing that the development of language skills should be accompanied by using the most advanced technologies. Decentralized online resources provide effective communication, which helps improve communication in a foreign language and increases students' motivation for deeper language learning (Tran et al., 2024). Progress is the foundation for students' formation of new goals. That positively affects their confidence in their knowledge. Such an idea by Tran et al. (2024) is complemented by the results of our work.

5.3. Comparative Effects of Web 2.0 and Web 3/0

An experimental study conducted within the framework of this work suggests that Web 2.0 and Web 3.0 technologies have almost the same impact on improving oral speech. In the context of developing writing skills, respondents ranked Web 3.0 tools as their top priority (53,31% rated the impact of web 3 technologies at 4,349 points). The illusion of interaction between the student and the AI is an important element in acquiring grammar and syntax, and machine learning helps find and eliminate errors effectively. According to the respondents, using Web 3.0 tools to develop cognitive skills and analytical and critical thinking is more rational (58,13%% rated the impact of web 3 technologies at 4,187 points). The average rating given by students (100%) for their preparedness to learn foreign languages using interactive technologies and innovations was 3.834 points. Their attitudes towards education, based on non-formal, innovative methods and the effectiveness in developing language skills, received a rating of 3.900. Regarding using Web 2.0 and Web 3.0 to enhance the learning process of foreign languages, the average ratings were 3.730 and 3.912, respectively (100%). Additionally, the preference for using Web 3.0 in the future received the highest rating of 4.172 (55,42% of students, who participated in this study) , while Web 2.0 received a rating of 3.912 (44,58% of students, who participated in this study). In this context, our study complements Jamalova (2024) and Shafiee-Rad (2024) work. Particularly, Jamalova (2024) studied differences in student achievement and engagement by dividing the entire population of respondents into two groups – those who prefer traditional ways of learning a foreign language and those who are inclined to use innovative tools. It was confirmed that student engagement was 40.0% higher in groups that regularly used digital tools than in those that used traditional methods of foreign language learning (Jamalova, 2024). The study included a survey of both teachers and students, and both groups of interviewers recognized the benefits of technology in language learning. Our study more deeply describes the influence of different generations of Internet technologies on the educational process and students' motivation, but it also has certain limitations. Some respondents positively assessed both Web 2.0 platforms and Web 3.0 applications since they prefer combined technologies for learning a foreign language to achieve the maximum educational effect. In future research, it is important to study students' perceptions of specific digital online platforms and applications.

5.4. Contradictions And Comprehensive Use Of Technologies

Also, there are some contradictions. Shafiee-Rad (2024) proves that AI, which belongs to Web 3.0 technologies, is the most effective in developing pronunciation and forming readiness for communication. However, this study indicates that Web 2.0 is more effective in this context. 42,77% prefer Web 2.0 technologies for developing speaking skills, and 57.72% prefer Web 3.0 technologies. All the students positively assessed both Web 2.0 and Web 3.0 technologies in the context of language skills development, which highlights the need for a comprehensive use of innovations in foreign language learning.

Web 3.0 technologies, in comparison with Web 2.0, have a more positive impact on both the organization of learning and its effectiveness (in particular, on such components as planning and control) and on students' perception of the acquiring new knowledge process. The results focus on the low controllability of learning provided through Web 2.0 platforms, which entails avoidance, anxiety, and decreased self-confidence and success. Web 3.0 technologies promote secure, transparent, and efficient communication in the virtual world. They also create a democratic and fair learning environment where users can control their data and individual development trajectories.

5.5. Motivation and Affective Factors

The issue of motivation and the influence of affective factors on the learning process is understudied, as described in the AlTwijri and Alghizzi (2024) work. Only a few studies, such as Zhang, Meng and Ma (2024), highlight the aspects of anxiety, motivation and enjoyment of the foreign language learning process. Researchers indicate that AI increases student satisfaction, positively affects confidence and readiness to communicate in a foreign language, and helps organize the foreign language learning process under the principles of positive psychology (Zhang et al., 2024). This study extends previous findings. Among respondents who prefer using Web 2.0 technologies (89 students), 86.52% (77) experience anxiety. Respondents who prefer Web 3.0 technologies in language learning (175 students) do not feel anxious: 25.15% indicated a neutral assessment, and 74.85% showed a negative evaluation. This supports the idea of Zhang et al. (2024) and points to a specific pattern – Web 3.0 technologies reduce the influence of affective factors on learning a foreign language, aligning effective education principles with positive psychology principles.

6. Conclusions

The role of Web 2.0 and Web 3.0 technologies in learning foreign languages was thoroughly studied. Students' attitudes towards innovation were analyzed, particularly the difference in students' motivation levels under the influence of Web 2.0 and Web 3.0 technologies. The authors conducted an online survey among students of the Republic of Kazakhstan from the first to the fourth year. Based on its results, the following assessments were obtained:

- The indicator of students' readiness to learn foreign languages using modern interactive technologies and innovative tools is above average and amounted to 3.834;
- The indicator of student attitude towards education based on innovative solutions is above average and amounted to 3.900;
- Students' assessment regarding the potential use of Web 2.0 and Web 3.0 to enhance foreign language learning is 3.730. This includes a preference rating of 3.913 for using Web 2.0 (44,58% of the students who participated in this study) in the future and 4.172 for Web 3.0 (55,42% of the students who participated in this study).

The survey results confirmed the signs of a transition presence from Web 2.0 to Web 3.0. The assessment of the preference criterion for using Web 2.0 technologies for foreign language learning was 3.235 – 89 respondents (26.81%) positively assessed the role of Web 2.0 technologies. The preference indicator for using Web 3.0 technologies is at a higher level – 3.599 – and 175 people positively assessed Web 3.0 technologies. It has been empirically confirmed that students are gradually moving towards using Web 3.0 to learn a foreign language.

The impact of using different generations of Web technologies on students' motivation was studied. The following pattern has been revealed: students who prioritize the use of Web 2.0 technologies, as opposed to those who prefer Web 3.0 technologies, tend to experience higher levels of anxiety, perceive a lower level of control over the learning process, and show signs of avoidance and disinterest in foreign language learning. Students who learn a foreign language using Web 3.0 technologies are more motivated and have lower anxiety levels than those who prefer Web 2.0 technologies. To find a solution to this problem, students choose new ways of organizing the educational process and integrate more

effective tools – innovations of the Web 3.0 generation. Considering the identified trends, several practical recommendations were developed regarding how Web 3.0 technologies can improve the educational process and rationalize the management of student feelings – anxiety, involvement, self-confidence and other aspects related to psychology and behavior. It is rational to use integrated applications that combine different Web 3.0 technologies in their structure. The authors suggested LangAI, Learn&Earn, Rosetta Stone, and Duolingo, among such applications. The significance of employing various Web 3.0 technologies in language learning is that each technology fosters specific language skills, enhances the educational process, and reduces potential risks such as decreased motivation and high anxiety among students.

6.1. Practical Significance of the Results

The patterns and aspects described in the work will improve the educational process and support the integration of effective and innovative applications into its structure. That will potentially positively impact students' motivation, engagement and quality of knowledge.

6.2. Limitations

The study has a combination of limitations. Firstly, this is a period of time. If a different period is chosen for the study, conclusions may change. Secondly, it is a geography of research. The Republic of Kazakhstan, which is not a leader in the technology and innovation market, was chosen. The study of the aspects discussed in the work, using the example of more or less developed countries in digital transformations, can yield other results. Thirdly, this is a complex study of the impact of Web 2.0 and Web 3.0 technologies on education, which does not allow for assessing the effectiveness of specific applications and platforms. Also, the survey was not very comprehensive, focusing on generalised characteristics of students' attitudes towards using technology for language learning.

It should also be considered that for a student, the use of, the use of web 2.0 or web 3.0 technologies can be effective for different purposes and in different periods of study or practical application. This survey was conducted during the period of active student learning and in-depth language learning. It should be noted that the results obtained may have been caused by trends in the development of digital tools and greater interest in using new tools. It is possible that the motivation to learn a language itself leads to a deeper understanding of and interest in using digital tools. Further research is recommended for a deeper understanding.

6.3. Prospects for Further Research

Future research should conduct in-depth analyses of specific Web 3.0 applications and explore their effective integration with Web 2.0 technologies to enhance student motivation and learning outcomes. It is also possible to study the influence of student motivation on which tools they find more interesting to use, and whether to use these tools in interaction. At the same time, research into the implementation of certain tools to increase or decrease student motivation in learning a foreign language.

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Appendix A

A questionnaire for students of language specialties to determine the level of readiness and commitment to the use of innovations (Web 2.0 platforms and Web 3.0 applications) in the educational process (answers should be provided on a 5-point Likert scale, where 1 is "strongly disagree", 5 is "strongly agree")

1. Readiness: Do you think you are ready to learn foreign languages using non-formal forms of learning, interactive technologies and innovative tools?

    - I am well prepared to use innovations in education.
    - I am comfortable using innovations, Web 2.0 platforms and Web 3.0 applications in foreign language learning.
    - I have good basic skills in working with computers and smartphones and information and communication technologies (ICT) to develop and improve my language skills.
    - My higher education institution provides appropriate help and technical support for developing innovative, informal forms of education, actively using Web 2.0 platforms and Web 3.0 applications for educational work with students.

2. Attitude: What is your attitude towards education based on non-formal, innovative methods, and how effective are they for you in developing language skills?

    - I use Web 2.0 platforms and Web 3.0 applications in learning foreign languages.
    - I would like to see Web 2.0 platforms, and Web 3.0 applications become the new norm in learning foreign languages.
    - I believe using Web 2.0 platforms contributes to my effective learning of foreign languages.
    - I believe using Web 3.0 platforms contributes to my effective learning of foreign languages.
    - Using Web 2.0 promotes the development of oral speech.
    - Using Web 3.0 promotes the development of oral speech.
    - Using Web 2.0 helps improve writing skills (a more profound understanding of grammar and syntax basics, reducing the number of syntactic and spelling errors).
    - Using Web 3.0 helps improve writing skills (a more profound understanding of grammar and syntax basics, reducing the number of syntactic and spelling errors).
    - Using Web 2.0 helps develop cognitive skills, analytical and critical thinking.
    - Using Web 3.0 helps develop cognitive skills, analytical and critical thinking.
    - Using Web 2.0 and Web 3.0 helps me better understand the cultural characteristics and traditions of the countries whose language I study, thereby contributing to my comprehensive development as an individual.
    - I find it more convenient to develop my language skills using innovative solutions (Web 2.0 and Web 3.0) rather than in the classroom format.

- Using Web 2.0 and Web 3.0 makes learning more interesting and interactive.
- Using Web 2.0 and Web 3.0 increases my motivation to learn foreign languages since the educational process is based on interactive and innovative teaching methods.

3. Directions for development: Indicate the innovative tools you prefer and plan to use to improve the learning process of foreign languages.

    - I consider Web 2.0 platforms to be more effective in language learning, and therefore, I prefer them.
    - I consider Web 3.0 platforms to be more effective in language learning, and therefore, I prefer them.
    - In the future, I plan to use Web 2.0 platforms (online services for learning a foreign language, social networks, specialized blogs, forums and communities, educational platforms, online services for collaborative work, etc.).
    - In the future, I plan to use Web 3.0 applications (use of artificial intelligence, decentralized platforms, blockchain, and machine learning).

Appendix B

Questionnaire for determining students' motivation (answers should be provided on a 5-point Likert scale, where 1 is "strongly disagree", 5 is "strongly agree")

1. Boosters – criteria for assessing thoughts and behavior. The assessment of thoughts includes three criteria – self-belief, learning focus and value of learning; the assessment of behavior consists of two criteria – persistence, planning and monitoring.

    - Self-belief;
    - Learning focus;
    - Value of learning;
    - Persistence;
    - Planning and monitoring.

2. Guzzlers – criteria for assessing feelings and behaviors with demotivational learning consequences. The feeling criteria include anxiety and low control, and the behavior criteria include avoidance and self-sabotage.

    - Anxiety;
    - Low control;
    - Avoidance;
    - Self-sabotage.

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