Innovative Technological Pedagogy Used to Teach English to University Students

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***Abstract*—This study explores university students' perceptions regarding the integration of pedagogically innovative tools in English language instruction. Despite growing interest in educational technologies, limited research addresses how students themselves evaluate such innovations in language learning environments. To address this gap, the study employed a qualitative research design. The participants comprised 39 university students enrolled in English-related programs in Kazakhstan. Data was collected through semi-structured interviews developed by the researchers to elicit in-depth insights into students' attitudes and experiences. The findings reveal that participants widely supported the integration of pedagogically innovative technologies in English language education. Students emphasized that such tools enhance engagement and facilitate more effective language acquisition. Furthermore, participants highlighted the importance of targeted professional training for educators to maximize the pedagogical potential of these technologies. These findings underscore the need for institutional support in adopting educational innovations and stress the relevance of equipping instructors with the necessary competencies for effective implementation.**

***Keywords*—innovative technologies, English education, university students**

I. Introduction

Innovative pedagogical technologies in higher education require instructors to model content, forms, and teaching methods in line with educational objectives. Modern universities apply a wide range of approaches, including differentiated instruction, problem-based and contextual learning, virtual and augmented reality, mobile learning, gamification, information technologies, Artificial Intelligence (AI), credit-modular systems, student-centered learning, and blended learning [1]. Karashash *et al.* [2] indicated that interest in a course increase with the implementation of innovative pedagogical technologies. The application of innovative education, combined with the blended learning method, enhances comprehension of the subject matter and fosters a stronger connection between students and course instructors.

Innovative pedagogical technology has become a powerful influence in English instruction in recent years, especially in higher education. With the move toward more dynamic and immersive approaches, universities rely on technology integration to support students' diverse learning needs. Rapid advances in information and communication technology, which have transformed traditional teaching and interaction, highlight the importance of these tools. Meeting diverse student demographics, including varying linguistic competency, learning styles, and cultural origins, presents a challenge for educators [3, 4]. To foster an environment of inclusive and productive learning, it has become crucial to create and execute cutting-edge teaching strategies that make use of technology like digital platforms, interactive software, and mobile applications.

Additionally, enhancing the efficacy of English instruction requires the integration of cutting-edge technologies with pedagogical ideas. A pedagogically grounded framework ensures that technology is integrated in ways that strengthen, rather than weaken, educational aims. Theories such as constructivism and social learning stress collaboration and active participation, which technology is well positioned to support [5, 6]. The integration of technology with pedagogical practices enhances student engagement and motivation by facilitating the development of immersive and interactive learning environments.

The current state of English education is increasingly defined by technology-supported formats, such as hybrid learning environments and fully online courses. Both opportunities and challenges are presented by this evolution; teachers must modify their methods while staying cognizant of the unique needs of their student bodies and the learning environments. Integrating advanced technologies with effective instructional models allows educators to overcome challenges and introduce innovative methods for developing students' language and communication abilities. Understanding the complex effects of pedagogically innovative technology is crucial in this quickly evolving educational landscape to promote responsive, pertinent, and successful English teaching strategies for all students. There is substantial empirical evidence supporting the effectiveness and involvement of integrating cutting-edge technologies into English language teaching methods across a range of educational contexts. Houda [7] reported that artificial intelligence offers substantial benefits in foreign language instruction; however, a careful and integrated approach remains essential to ensure fairness, equity, and effectiveness in assessment practices.

According to Wu, Zhang, and Lee's [8] research, mobile technology has a major influence on students' motivation and engagement in language acquisition. Through gamification and interactive features that encourage student autonomy, mobile applications make language practice easier. This

independence is most noticeable in academic settings when students frequently look for chances to engage in self-directed learning. Likewise, Bizami, Tasir, and Kew [9] demonstrate the benefits of blended learning strategies that blend in-person education with virtual resources. Bizami, Tasir, and Kew [9] found that hybrid approaches address diverse student needs by providing access to materials aligned with varying learning styles and competency levels, thereby promoting increased academic commitment. Furthermore, the use of chat platforms like ChatGPT and agents has been essential for raising student engagement as well as for enhancing language proficiency. Saleh [10] emphasized that the interactive capabilities of artificial intelligence technologies provide a low-risk environment for language experimentation, thereby promoting conversational practice. This conversational practice fosters confidence and motivation, two qualities that are crucial for language learning, especially for non-native speakers in higher education settings. These technologies' instantaneous feedback can also have a big impact on learning outcomes since they allow students to get real-time suggestions and corrections, which promotes an iterative learning process.

The successful integration of these cutting-edge instruments is not without its difficulties. Teachers frequently express difficulty matching technology tools to their learning goals. To successfully integrate technology with teaching practices, Adipat [11] emphasizes the need for educators to acquire technological knowledge of pedagogical content (TPACK). This information is necessary to guarantee that technology utilization is not merely supplemental or surface-level, but rather seamlessly integrated into the educational process. Meirovitz, Russak, and Zur [12] further advanced that teacher preparation programs should be modified to provide educators with the knowledge and abilities they need to use these technological resources efficiently. The significance of continuous professional development in technological pedagogy remains critical due to its direct influence on teacher confidence and competitiveness in the application of such tools within instructional settings.

Furthermore, Surayya [13] highlights the variable degrees of technological access and digital divide that may exist in diverse educational settings. This split may jeopardize the potential advantages of technology integration and make it more difficult to execute such creative methods fairly. Consequently, teachers are required to manage an environment that combines pedagogical demands with infrastructural constraints and student diversity. In conclusion, evidence confirms that pedagogically innovative technologies support student engagement and achievement; however, their effective use in English language instruction requires deliberate pedagogical strategies, teacher training, and consideration of socioeconomic inequalities in access. The use of cutting-edge technology in English language instruction has a big impact on learning outcomes, increasing students' competitiveness and language proficiency.

According to research, the most individualized learning experiences are made possible by cutting-edge technologies, enabling students to engage with the curriculum in a way that suits their unique learning preferences. Dziubata *et al*. [14] highlighted that when these technologies are used successfully, they result in significant gains in students' language skills, showing a clear link between better language acquisition and technology integration. Similarly, Li [15] posits that cutting-edge technological strategies, such as interactive language apps and immersive language learning through Virtual Reality (VR), can create an engaging learning environment that promotes critical thinking, effective communication, and language retention. According to Oliveira *et al*. [16], these technologies help students comprehend and remember linguistic constructions and motivate them to actively participate in their educational experiences. Students who engage with a variety of content types, including podcasts, films, and interactive online exercises, improve their adaptive abilities, which are essential for overcoming obstacles in global communication.

Furthermore, Muftah [17] noted that having a variety of methods for language exercises not only enhances language proficiency but also fosters critical dedication to the material, which promotes profound cognitive growth. Wong *et al*. [18] suggested that institutions should foster an adaptive learning environment that encompasses technology advancements. The use of cutting-edge technology in English language education reflects the dynamic interaction between students' dedication, skill development, and adaptability, highlighting the importance of ongoing curriculum reform to meet the demands of a globalized society.

Some of the main selected studies on the use of innovative technological pedagogies in ELT can be listed as follows. Dehghani & Mashhadi [19] explored the factors influencing the acceptance of ChatGPT, an artificial intelligence chatbot, for English Language Teaching (ELT) among Iranian EFL (English as a Foreign Language) teachers. Jamrus *et al*. [20] examined Malaysian English teachers' readiness to use Augmented Reality (AR) in English instruction and their intention to adopt AR for teaching reading. Yu [21] determined gender differences in cognitive loads, attitudes, and academic achievements in English language learning assisted with this mobile English learning platform. Kaya and Sagnak [22] investigated the literature on the effects of gamification on students' English learning as a second language and the tendency of students to use games to learn English as a second language. Aydin and Su-Bergil [23] investigated what blended English learning, the first of its kind at their school, means to primary school students and their parents.

However, several questions remain unresolved: "How can innovative technologies be effectively implemented in foreign language education? To what extent can students and instructors adapt to these technologies? To what extent can innovative educational technologies contribute to the learning process in English language instruction? What are the views and suggestions of students when English language education is delivered through innovative technologies at the university level?" These questions remain unanswered in the current body of research. In other words, substantial research gaps persist and require systematic investigation. Addressing these questions within a scientific research framework is essential for filling a critical gap in literature.

A. Purpose of the Research

The purpose of the present research is to evaluate student

perspectives on the application of pedagogically innovative technologies in university-level English language instruction. The research questions are as follows:

1) What are the views of university students on the use of innovative pedagogical technologies in English education?
2) What are the opinions of university students regarding the advantages of using innovative pedagogical technologies in English language education?
3) What are the opinions of university students about the disadvantages of using innovative pedagogical technologies in English language education?
4) What are the suggestions of university students regarding the use of innovative pedagogical technologies in English education?

II. Methods and Materials

In this section, the research method, data collection tools, the participant group of the research, and the data evaluation process are explained in detail.

A. Research Method

In this study, qualitative research methodology was employed. Qualitative research facilitates an in-depth examination of human perceptions and phenomena within social reality and the natural environment, employing a holistic perspective that incorporates insights from multiple disciplines. Additionally, qualitative research takes an interpretative method to look at the issue in its context, focusing on the interpretations that people give to events and data. When conducting qualitative research, a researcher's exploratory mental processes are useful and help them more adeptly comprehend many relationships between events [24]. Therefore, the qualitative method was employed in this study to evaluate student perspectives on the use of pedagogically innovative technologies in university-level English language instruction. In addition, qualitative research methods were chosen for this study because they were believed to significantly contribute to the in-depth acquisition and interpretation of data. Considering the data obtained, this choice proved to be a very sound one.

B. Participants

The selected participants were students enrolled in teacher training programs at universities in Almaty, Taldykorgan, and Ust-Kamenogorsk cities, Kazakhstan. At the time of conducting this research, there were over 3000 students studying in teacher training programs in these three regions. In this study, a probability sampling technique was used, considering sample size, implementation costs, and time factors. Probability sampling is a method in which a sample is randomly selected from each member of the population, with each member having an equal probability of inclusion in the sample. According to Neuman & Robson [25], creating an equal chance for every element of the population in the probability of sampling may not always be possible. Although probability sampling has its drawbacks, such as its high cost and difficulty of implementation, there are indications in the literature that it is more scientifically accepted [26].

Thirty-nine prospective teachers were selected for the qualitative research group and agreed to participate in the study voluntarily. The selected students were studying in different teacher training programs at the time of the present study. Participants in the study were university students who were enrolled in classes during the spring semester of the academic year 2023–2024. The study involved 28 male students and 11 female students. Ten (10) students were in the first grade, 6 were in the second, 9 were in the third, and 14 were in the fourth. Every college student took classes at the faculty of education.

C. Data Collection Tools

In this study, the researchers implemented numerous precautions to mitigate or eradicate the factors influencing validity and reliability [27, 28]. In qualitative research, interviewers must follow ethical principles during both the preparation phase and the interviews. These include obtaining informed consent, respecting participants' privacy, avoiding harm or deception, and maintaining a courteous tone and language [29]. However, some emphasize that formal tone and language would be more beneficial in semi-structured interviews, especially at the beginning [30]. Therefore, the questions in this study were prepared and implemented with these fundamental principles in mind. The researchers utilized a semi-structured interview to gather the research data. To guarantee the internal validity of the study, expert comments were solicited prior to the implementation of the interview form developed by the researcher for the study. Two English professors with a doctorate, and two educational technology professors with a minimum h-index of 5 in the Scopus database, comprised this group of specialists. Four experts were solicited for their viewpoints in preparation for the semi-structured interview. The specialists assessed the semi-structured interview questions to assess their compatibility with the study's topic. Based on the expert recommendations, the researcher re-evaluated the form for clarity and question appropriateness, implementing necessary adjustments. The semi-structured interview form was subsequently administered to three university students. The questions were straightforward for the students to comprehend. Three students who engaged in this research phase were excluded from the study group. During the interviews, participants' responses to each question were registered for confirmation, and any misunderstandings were promptly rectified. Participants received explanations before the interviews, and efforts were made to establish a natural conversational atmosphere between them and one of the researchers.

The semi-structured interview form had two demographic inquiries. These inquiries were designed to find out the students' gender and class information. Here are some semi-structured interview questions about the use of pedagogically innovative technologies to teach English to university students that were created to elicit student opinions:

1) What are your thoughts on the application of novel pedagogical technology in the teaching of English? Please choose from the options: "Definitely should be used", "Must be used", "I am undecided", "Should not be used", and "Definitely should not be used".
2) What do you think about the benefits of utilizing pedagogically innovative tools in teaching English?

3) What do you think about the drawbacks of adopting cutting-edge pedagogical technologies in English education?
4) What recommendations do you have for the use of novel pedagogical technology in English education?

D. Data Gathering Procedure

Research data were collected through face-to-face interviews conducted with university students participating in the study, in a university setting. The semi-structured questions were asked during the interviews, in the same order and without any guidance. The pupils were asked for their consent before the interview process could begin. Each of the student interviews lasted between 30 and 35 minutes. The present study's interview process took about two months to complete.

Limitations: The main limitations encountered during the research are outlined as follows: The implementation of the study across three different cities in Kazakhstan constrained opportunities for extended collaboration and exchange of ideas among the researchers. Additionally, periodic challenges arose in coordinating meetings with prospective teachers at predetermined times. These limitations may have affected the depth of collaborative analysis and reduced the consistency of data collection scheduling, potentially influencing the timing of the research process.

E. Ethics

This study primarily used the conceptual dimensions of volunteerism, and the material was explained to each participant. All study participant groups were enrolled voluntarily, and those who chose not to participate were not included in the study. To maintain the integrity of the participant groups, demographic and identity data were kept private. For university students, a code name was set up, and their original data was preserved. Students were given a thorough explanation of all the information that would be transferred during the study, and those who freely participated were expected to comply. All the inquiries from college students were addressed in the application area, and it was clarified that the study was generic rather than unique to them.

F. Data Analysis

Descriptive analysis or content analysis is commonly used in the analysis of data collected in qualitative research [31]. Content analysis is the careful, detailed, and systematic examination and interpretation of data to identify patterns, themes, biases, and meanings related to the essence of the research. The research data were analyzed using the content analysis methodology. In content analysis, the collected data needs to be examined in further detail to identify the concepts, categories, and themes that explain the data. The collected data is the focus of the content analysis; codes are taken from the incidents and details that recur frequently in the dataset or that the participant places a lot of emphasis on (codes to categories, categories to themes, and codes to categories). In other words, information (codes) that are discovered to be connected to and like one another are interpreted by grouping them with other information (codes) within the context of specific ideas (categories) and themes. The content of the participants' viewpoints is methodically broken down in content analysis [32].

Intercoder reliability metrics for qualitative data are crucial for evaluating the consistency of interpretation and coding among researchers and analysts. Common measures encompass percentage agreement, Cohen's kappa, and Krippendorff's alpha, each providing distinct methodologies for quantifying agreement and adjusting for chance agreement [33]. Since the data collected by two researchers in this study were divided into themes, reliability between coders was determined as acceptance or adjustment. Unanimity was used as the basis for coding each theme. In other words, a 100% acceptance rate was adopted.

Audio recordings obtained during interviews with university students were transcribed. Student responses were then categorized and thematically grouped, followed by tabulation using frequency and percentage distributions. Likewise, the findings were explained as percentages. Additionally, selected student responses were presented below the tables, with personal information kept confidential. Responses were identified using coded labels such as "1st student," "2nd student," and "3rd student."

Participant responses to the interview questions were presented in the findings section through verbatim quotations. Internal validity was constrained by the reliance on a single data collection method, which limited the diversification of data sources. To ensure external validity, comprehensive details were provided regarding the research model, study cohort, data collection instruments, data gathering procedures, data analysis techniques, and the organization of findings. The study sample consisted of individuals appropriately selected to contribute to the achievement of the research objectives. Findings were presented without interpretative commentary, and the use of a recording device minimized data loss, thereby strengthening internal reliability. Data were independently analyzed by two researchers, leading to the generation of codes. An agreement was reached on the development of themes based on these codes. Results were thoroughly addressed in the discussion and conclusion sections. The coherence between these sections was reviewed, and a consensus was established, contributing to the enhancement of the study's external trustworthiness.

Finally, to ensure reliable results, the researchers carefully considered the principles of transparency, objectivity, and impartiality during data collection and interpretation. It was assumed that no factors beyond this careful attention influenced the study's outcomes.

III. Results

In Table 1, the opinions of university students participating in the research on the use of pedagogically innovative technologies in English education are given.

Table 1 summarizes the opinions of the university students participating in the research on the use of pedagogical innovative technologies in English education; It was evaluated in the categories of "Definitely should be used", "Must be used", "I am undecided", "Should not be used", and "Definitely should not be used". A total of 56.4% of the students answered that it should absolutely be used, 30.8% of them answered that it should be used, 10.3% of them were undecided, and 2.5% of them answered that it should not be used.

Table 1. Opinions of university students on the use of innovative pedagogical technologies in English language teaching

Themes	F	%
Absolutely must be used	22	56.4
Must be used	12	30.8
I'm undecided	4	10.3
Should not be used	1	2.5
It should never be used	-	-
Total	39	100

No student who took part in the research responded that the use of pedagogically innovative technologies should never be employed at all when asked about it.

The following direct quotations from some university students who were involved in the study on the application of pedagogically innovative technology in English education are used to convey their views:

Student 3: I support the use of technology in language education. We are now living in an age where education is not provided by classical methods, but only in the classroom environment. As in every field of education, I also support technology in language education. (Absolutely, I agree.)

Student 28: Taking advantage of innovative technologies while learning a language will reinforce learning. I support the delivery of pedagogically supportive language education with innovative technologies to realize more effective learning. (Must be used).

Student 13: I believe that the use of technology in language education has both advantages and disadvantages. In other words, although it supports learning, on the one hand, it can also cause negative habits such as technology addiction. That's why I was undecided. (I'm undecided).

Student 32: I do not support the use of technology in English education. I think it reduces the role of the teacher. That's why I think that an education that will be given in the classroom environment with classical methods will be more effective. (Shouldn't be used).

In Table 2, the opinions of the university students participating in the research on the advantages of using pedagogically innovative technologies in English education are given.

Table 2. Opinions of university students on the advantages of using innovative pedagogical technologies in English language education

Theme	Category	F	%
Advantages for the student	Making learning easier	28	71.7%
	Providing permanent learning		
	Saving on time		
	Psychological support for English education		
	Supporting English education pedagogically		
	Motivation in learning		
Advantages for the teacher	Offering alternatives in education	17	43.5%
	Possibility to use multiple methods		
	Providing a quality education		
	Saving on time		
Advantages in terms of the learning environment	An educational environment that allows for repetition	6	15.3 %
	Material variety		
	Learning anywhere		

Table 2 presents university students' views on the advantages of using innovative psychological-pedagogical technologies in English education, organized into three themes: benefits for students, teachers, and the learning environment. Student-related advantages include facilitating and reinforcing learning, saving time, providing psychological and pedagogical support, and increasing motivation. Teacher-related advantages include offering alternatives in instruction, enabling the use of multiple methods, improving quality, and saving time. Advantages for the learning environment include opportunities for repetition, diverse materials, and learning in varied contexts. Overall, students classified the advantages as 71.7% student-related, 43.5% teacher-related, and 15.3% environment-related. The opinions of some university students participating in the research on the advantages of using pedagogically innovative technologies in English education are presented below through direct quotations:

Student 10: I think that learning through technology saves time. An education that will support English education both psychologically and pedagogically is a great advantage for us, the teachers of the future.

Student 21: I think it will provide learning motivation for students. It is also very convenient for the teacher. It offers the chance to provide a more qualified education. In addition, when looking at the educational environment, the diversity in the course content and the opportunity to learn wherever you want can be counted as an advantage.

Student 26: It provides me with more permanent learning. I am much more willing to learn. Besides, I think repetition is important in education. It is a great advantage that such an educational platform offers unlimited repetition opportunities to the students.

Student 33: I think that the education given by the teachers, using more than one method, is much more effective. Pedagogical innovative technologies offer the educator the opportunity to guide the student in an alternative learning environment and to provide a qualified education. For students, this makes learning easier.

In Table 3, the opinions of the university students participating in the research on the advantages of using pedagogically innovative technologies in English education are given.

Table 3 categorizes the opinions of college students who took part in the research on the benefits of utilizing pedagogically innovative technologies in English education.

Table 3. Opinions of university students on the advantages of using innovative pedagogical technologies in English language education

Theme	Category	F	%
Disadvantages for the student	Insufficient knowledge of using technology	32	82%
	Technology addiction		
	Preparation and lack of effort in learning		
	Individualization and socialization in learning		
Disadvantages for the teacher	Inability to use technology properly	19	48.7%
	Technology advances faster than teachers can adapt		
	Risk of reducing teacher initiative		
Disadvantages in terms of the learning environment	Technical glitches	7	17.9%
	Information pollution		
	Access to some content is restricted to paid users		

Students' opinions on the disadvantages of using innovative pedagogical technologies in English education were grouped into three themes: student-related, teacher-related, and environment-related. Reported student disadvantages included limited technology skills, technology addiction, reduced preparation and motivation, and challenges in balancing individualization with socialization. Teacher-related disadvantages included difficulties in using technology effectively, the risk of technology overshadowing the teacher, and reduced teacher effort. Environment-related disadvantages included technical problems, information overload, and paid content. Overall, students classified the disadvantages as 82.0% student-related, 48.7% teacher-related, and 17.9% environment-related.

The opinions of some university students participating in the research on the disadvantages of using pedagogically innovative technologies in English education are presented below through direct quotations.

Student 6: I think the most important disadvantage of technology-supported education is technology addiction. This brings with it other disadvantages as well. It makes the student ready and lazy. The same is true for the teacher. The teacher is getting lazy, too.

Student11: In the education given with technology, the technological inadequacies of the students are ignored. This is a disadvantage. In addition, system glitches are also a big problem. Moreover, in learning through technology, it is difficult to be sure that all the information accessed on the internet is correct.

Student 23: In education given through technology, technological opportunities sometimes overshadow the role of the teacher. It is a serious disadvantage that the teacher, who is the building block of education, is overshadowed by these opportunities.

Student 39: Being constantly intertwined with technology allows one to focus on self-learning. Both having fun and using it for educational purposes cause students to become antisocial. In addition, although using technology is an important tool for education, the fact that some content is paid for is an important obstacle, as it prevents us from benefiting enough from technology.

In Table 4, the suggestions of university students participating in the research regarding the use of pedagogically innovative technologies in English education are categorized. About 76.9% of the students stated that training should be provided by experts, and 61.5% of the students stated that they should be given an education designed to minimize the disadvantages of using technology in education. Approximately 53.8% of the students plan an education in which the active participation of the students will be ensured, 38.4% prepare an education in which the teacher gives active education, 28.2% eliminate the technology deficiencies of the students, and 20.5% attend the teacher training programs in English.

The students responded that pedagogically innovative technologies should be included in education. Approximately 12.8% of the students suggested that the university should enable students to benefit from technological opportunities, and 5.1% suggested that the continuity of technology-supported English education should be ensured.

The suggestions of some university students participating in the research on the use of pedagogically innovative technologies in English education are presented below through direct quotations.

Student 7: I think that in English education, first of all, a program should be prepared in which active student participation will be ensured. I also think that education should be given to people with technological competence.

Student 12: Such programs usually have some disadvantages in education. If a program that will use innovative technologies is to be prepared, this program should be designed in a way that minimizes the disadvantages.

Student 19: The education given should not be a one-off. It is very important that it is given regularly and continuously. I believe that it would be more beneficial to include such a training program in the curriculum of the faculty where we study.

Student 30: Innovative technologies should not get in the way of the teacher's role in providing education. In addition, I believe that innovative technologies should be presented in the university environment.

Table 4. Suggestions of university students on the use of innovative pedagogical technologies in English language education

Themes	F	%
Providing training by experts in the field of educational technologies	30	76.9%
Providing training designed to minimize the disadvantages of using technology in education	24	61.5%
Planning an education in which the active participation of students will be ensured	21	53.8%
Preparation of education in which the teacher actively teaches	15	38.4%
Elimination of students' technology deficiencies	11	28.2%
In English language teaching in teacher training programs	8	20.5%
Ensuring that students benefit from the technological opportunities provided by the university	5	12.8%
Ensuring the continuity of technology-supported English education	2	5.1%

IV. Discussion

Most university students in the study agreed that innovative pedagogical technologies should be used in English education. Additionally, Afshari *et al*. [34] discovered that students are content with studying a foreign language with the aid of technology. Sung and Yeh [35] reported good sentiments among university students on learning a foreign language through technology-supported education, which is consistent with the findings of this study.

Students' views on the benefits of innovative technologies in English education fall into three areas: advantages for students, teachers, and the learning environment. Advantages for students include the ability to facilitate learning, provide permanent learning, save time, support English education psychologically, support English education pedagogically, and provide motivation in learning. In line with these results, Kharkevyc *et al*. [36] discussed the advantages of applying innovative technologies in English instruction within higher education. They identified reading, listening, speaking, and writing as the essential components of effective language learning, noting that each can be improved through targeted technological applications. These findings are consistent with prior studies.

Advantages of using these technologies in education for the teacher have been categorized as offering alternatives in education, the possibility of using more than one method, providing a qualified education, and saving time. The advantages in terms of learning environment have been categorized as providing an educational environment that allows for repetition, diversity of materials, and the opportunity to learn everywhere. Sarfraz *et al*. [37] found that students have positive attitudes toward communicative activities, including technology-assisted language learning.

University students' views on the disadvantages of using innovative pedagogical technologies in English education were grouped into three categories: student-related, teacher-related, and environment-related. Reported disadvantages for students include insufficient technological proficiency, the potential for technology addiction, reduced effort and passivity in learning, and challenges related to individualization and socialization within the learning process. In contrast to these findings, Kabdykalymkyzy *et al*. [38] revealed in their study that the applications of innovative educational technologies increase the student's learning performance, provide a flexible learning environment, make students pay more attention to the lesson, make them enjoy the lessons more, increase the students' curiosity towards the lesson and increase the students' desire to learn a foreign language. Therefore, although innovative technologies seem to have advantages and disadvantages in certain subjects, they are preferred in terms of actually increasing learning.

Disadvantages identified for instructors include insufficient ability to effectively use technology, the risk of technological developments surpassing instructional capabilities, and the potential for decreased professional engagement. From the perspective of the learning environment, challenges include technical malfunctions, the presence of unverified or low-quality information, and restricted access to some digital content due to cost. Bayrak [39] found that participants held positive attitudes toward the use of computer and internet technologies in foreign language education, recognizing these tools as both resources and means of practice. However, the study also highlighted security concerns as the primary disadvantage. Similarly, findings from another study [39] indicated that experiences with innovative pedagogical technologies significantly enhance student achievement in language education. Thus, the results of previous studies corroborate those of this study, emphasizing that inadequate technological proficiency can constitute a major barrier to effective implementation.

Most university students in the study suggested three improvements: training from experts in educational technologies, preparation to reduce the disadvantages of technology use, and instructional design that promotes active student participation. Similarly, Sharifi *et al*. [40] highlighted the importance of integrating pedagogical content knowledge with innovative technologies, emphasizing the teacher's role in creating an effective learning environment. These findings align with the suggestions made by the respondents in the present study.

In education and training, particularly in foreign language teaching, innovative technological pedagogy has emerged as a double-edged sword in contemporary life, serving both as a support system and a source of distraction. It enhances communication and information exchange, hence increasing productivity in various settings [41]. Conversely, it frequently results in considerable distractions, especially in academic settings, where multitasking with digital devices can markedly impede learning outcomes [42]. This influence extends beyond academia; workplace distractions can undermine self-regulation and reduce overall commitment, negatively affecting both individual productivity and organizational performance [41].

Technology-related distractions have psychological implications, raising concerns about mental health, interpersonal relationships, and general well-being [43]. To harness its benefits while avoiding risks, technology must be applied in a balanced way. Beyond Kazakhstan, the influence of modern instructional technologies on English learning is both significant and multifaceted. AI-powered platforms improve engagement, accessibility, and immersion, thereby enhancing proficiency in higher education [44]. Nevertheless, issues such as limited infrastructure and unequal digital literacy continue to challenge implementation, particularly in Latin America [45]. The adoption of tools like ChatGPT also requires cultural sensitivity to ensure effective outcomes [46]. Taken together, global research shows that while these technologies hold promise, success depends on customized strategies that reflect local needs [47].

V. Conclusion and Recommendations

One significant outcome of the research is the recognition that Kazakh and Russian are the official languages of Kazakhstan, while English instruction in higher education and other levels expanded mainly after the 1990s. The study offers important and innovative contributions to the planning, implementation, and especially the evaluation of foreign language education in Kazakhstan.

The use of technology in education forces a radical change in the understandings that guide education. In the context of the current era, the acquisition of information-processing skills has become essential not only for educational institutions but also for individuals seeking to realize their potential and achieve self-actualization. Aligned with these demands, this study investigated how university students perceive the use of pedagogically innovative technologies in English language education. The study's findings revealed that most of the respondents believed that pedagogically innovative technology ought to be used in English education. Student opinions on the advantages and disadvantages of implementing pedagogically innovative technologies in English language instruction were categorized into three domains: those related to students, teachers, and the learning environment. Most university students participating in the study emphasized the importance of instruction being delivered by specialists in educational technologies. In this regard, participants recommended the provision of targeted training to mitigate the disadvantages associated with technology use in education. They also highlighted the necessity of designing instructional approaches that promote active student participation.

In English language education for university students, both in Kazakhstan and in other non-English-speaking countries, learning outcomes may remain low if innovative technologies such as smart learning environments are not

applied. The study's findings encourage the use of pedagogically innovative technologies in university students' English instruction. Accordingly, laws governing teacher preparation should be set up to encourage kids to obtain an education that includes cutting-edge technologies.

Some drawbacks to the employment of pedagogically innovative technologies in English education have been recognized by university students. To reduce technology use and addiction, seminars for university students should be arranged in this way. University academic personnel should also receive support in using technology.

Examining the application of pedagogically innovative technologies in English language instruction across all educational levels is considered essential for advancing the field. Future studies may build upon the current research by employing quantitative methodologies to further validate and expand the findings.

Finally, future research should include both short- and long-term mixed-method studies, as well as cross-country comparisons of technologically innovative tools in foreign language education.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

E.U. conducted the research; U.A. analyzed the data; H.U. wrote the paper; G.Y. Revised the paper; and all authors had approved the final version.

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