

PODCAST DESIGN IN EAL PROJECT-BASED LEARNING: INTERDISCIPLINARY QUASI-PROFESSIONAL COMMUNICATION

Olga V. Gudkova, Olesya V. Shadrina

Moscow Institute of Physics and Technology, Moscow, Russia

ORCID iDs: Olga V. Gudkova
Olesya V. Shadrina

<https://orcid.org/0009-0003-9554-9847>
<https://orcid.org/0000-0003-1980-3754>

Abstract. *Digitalizing English teaching in universities is a current trend. While prior research emphasizes the need for a conceptual shift, this study focuses on enhancing student-produced podcasts as a digital tool. We advocate for integrating Project-Based Learning (PBL) technology with podcast production, which fosters EAL (English as an Additional Language) and domain knowledge integration. This approach masters communication skills, increases motivation, develops technical literacy, and supports personalized learning tailored to individual needs while extending learning beyond the classroom. The paper presents experimental results demonstrating the effectiveness of teaching English through project-based learning and podcast production in a TEFL setting, showing improvements in self-regulation, executive functioning, metacognitive skills, perseverance, creativity, and independence in learning.*

Key words: *podcast, Project-Based Learning, tertiary university, innovative learning, EAL, education digitalization*

1. INTRODUCTION

EAL (English as an Additional Language) development pursues “a broader goal than just the development of linguistic and communicative skills” (Kohonen et al., 2014). Its key idea today is to contribute to the development of students' personalities and equip them with the skills and competencies of the 21st century, such as critical thinking, creativity, problem-solving, collaboration, digital literacy, etc.

Interactive teaching methods aim at developing the student's personality, showing initiative, increasing the significance of their own achievements, emphasizing the importance of decisions made, as well as significantly activating linguistic and professional training, which accounts for increased motivation and reflection. Project-Based Learning (hereinafter PBL) provides the appropriate environment for the aforementioned challenges. The main benefits of this technology comprise fulfilling creative potential, stimulating research, integrating theory and practice, and applying knowledge and skills to find reasonable solutions to particular problems. Additionally, it focuses on comprehension of the learning situation, solves complex real-world problems, and fosters self-regulation in the learning process. The content of the

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Corresponding author: Olesya V. Shadrina, Moscow Institute of Physics and Technology, Moscow, Russia

E-mail: shadrina.ov@mipt.ru

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project depends on such factors as the area of professional interests, the level of foreign language proficiency, the allotted academic time for the project implementation, the tasks set by the language instructor, the relevance of the chosen topic for the modern scientific community.

The novel model implemented by an incrementally increasing number of educators focuses on students' strong self-regulation, executive functioning, and metacognitive skills, perseverance, creativity, independence in forming personal pace and techniques of gaining knowledge, and curiosity. One of the working methods for EAL learning is the usage of student-produced podcasts both within and outside the classroom. Podcasts represent a form of personalized learning that can be tailored to learners' individual needs and extend learning beyond the classroom. A podcast is a digital audio or video program that is available for streaming or downloading on the internet. It is typically episodic and can cover a wide range of topics including breaking news, entertainment, education, recent scientific innovations, social issues in the format of storytelling and interviews.

Changes in the landscape of higher education determine a shift towards interdisciplinarity, diversity, digitalization, and mobility in academic environment. Acquiring and accumulating professional expertise on an active basis, through the appropriate activity of the student, team cooperation, navigation in the information space in accordance with personal interests is currently in focus (Land and Jonassen, 2012). A central intention of modern educators is to create such an atmosphere that would support all of the dimensions of students' needs, requirements, and trends in personal development.

The advent of the digital age has given rise to innovative, student-centric multimodal approaches to teaching and learning, which subvert traditional pedagogical paradigms. New emerging opportunities prioritize learner agency, thereby redefining the boundaries of educational praxis. Such development may pose significant challenges for educators, who are no longer the sole providers of information. Furthermore, it necessitates that students independently navigate their own pathways to knowledge acquisition, adhere meticulously to instructions, cultivate effective time management skills, and foster self-discipline. This calls for a new deeply integrated approach to education emphasizing the active role of student. Another aspect to bear in mind is digital technologies that have already entered the integrative stage, creating new opportunities for second language learners to work in collaboration from different locations (Kersten, 2023).

2. LITERATURE REVIEW

2.1. Project-Based Learning in tertiary universities

PBL, which is a means of innovative affective learning, involves emotional realm (feelings), subjectiveness (attitudes), and personality portfolio (values) consideration that considerably changes the shape of behavior, way of thinking, choosing ways of gaining information and transforming it into knowledge (Allen, 2010). When participating in projects, students use various experiences to produce ideas, solve problems, and apply their domain knowledge. They get engaged into contextual meaningful inquiry, interaction, self-reflection, and process of hypothesizing (Cranton, 2012). Dewey was one of the first scholars to prove the relevance and efficiency of using projects in education (Dewey, 1938) as personal experience, emotional tone, errors, and achievements are what students recall and impose. Projects in education are of various types, varying by time, objective, number of participants, level of instructors' authority

and students' autonomy, all share common characteristics, including focus on end product, real-world problem, and active collaboration of different levels, "student-student", "student-instructor" (Stanley, 2021).

Why are these factors important for successful educational process? Firstly, they encourage students to think critically while communicating their ideas. This occurs from internal demand for a positive outcome, solution to the problem, unanimous decision that may be achieved only in case of productive and argumentative discussion. Secondly, project requires multidisciplinary academic knowledge, equally profound in the areas of students' specialization and in a foreign language learning practice that is beneficial for academic cooperation in the atmosphere of mutual supervision, support, knowledge exchange (Lau et al., 2013). Thirdly, teamwork through synergy as an effective strategy in educational process helps realize high performance as every team member gets not only domain knowledge, but also develops personal affective communicative and extralinguistic skills (Covey, 2020). Finally, PBL, taking students as the education centre and setting authentic problems to them, promotes enthusiasm, rejection of passive non-deterministic behavior, self-regulation (Krajcik and Blumenfeld, 2006).

PBL is viewed as one of efficient strategies to integrate an educational model and quasi-professional activity by establishing appropriate conditions for students maximum involvement, motivation and initiative in the process of creating a new product based on subject-matter knowledge. Quasi-professional activity as a part of context-based learning (Verbitsky, 2004) encompasses educational and professional practices considering the conditions, content, dynamics, and relations of the participants involved in the process. Projects, being a structured and purposeful activity, require students to express their ideas clearly orally and in writing, apply persuasion techniques, arrange and participate in discussions, use active listening practices, adapt their own communicative behavior to the assigned role, develop research skills through logical and relevant question-asking, demonstrate emotional intelligence as a tool that promotes positive interaction (Hsu and Liu, 2023). Students of a tertiary university seem to understand epistemology and professional discourse only by being immersed into a contextualized medium. Like business incubators where large companies support young entrepreneurs in business development, language learning is to be designed in such a way that it becomes a similar educational incubator, creating a platform that provides students with necessary tools to implement ideas, tasks, and challenges. A project is a success if it satisfies the following criteria: an urgent problem, continuous research, novelty, reflection, critical analysis, effective, and affective presentation of the end product (Byram, Porto, and Yulita, 2023).

The project implementation can be logically divided into the following stages: project coordination; project creation; putting project into action; outcomes assessment; closing (Zhang et al., 2019). All these stages are included into the lifecycle of the project, from initiation and up to fading and eventually closing when the desired results are achieved.

2.2. What are student-produced podcasts?

The term «podcast» is derived from «iPod», the brand name of a digital audio player, and «broadcast» (Bushi and Kristo, 2024). A student-produced podcast is an audio or video program created and directed by students, usually focused on a particular topic or theme and featuring the perspectives and voices of students. This type of podcast allows students to explore, discuss and share ideas, stories and information in an academic setting.

Podcasts in tertiary universities are designed to facilitate interaction between the podcast host and the listener through social media, email, or direct messaging. This level of engagement frequently leads to the creation of a community around the podcast (Bushi and Kristo, 2024).

In an educational context, student-produced podcasts can be a powerful tool. They permit the learner to become immersed in a subject matter and enhance a variety of skills:

- communication skills: effectively communicate their ideas and thoughts in a clear and concise manner to engage listeners;
- research skills: conduct thorough research on their chosen topics to ensure accurate and well-informed content;
- critical thinking: analyze information, evaluate different perspectives, and formulate well-reasoned arguments for their podcast;
- collaboration: work in teams to produce podcasts, requiring them to communicate, delegate tasks, and work together towards a common goal;
- technical skills: learn how to use audio recording and editing software to produce high-quality podcasts;
- creative expression: express their ideas, creativity, and unique perspectives in their podcasts;
- time management: perform careful planning and organization to meet deadlines and ensure the podcast is completed on time;
- presentation skills: develop engaging and compelling presentations to capture the attention of their audience and effectively communicate their message.

Phillips supplements this list with additional skills of writing an outline, drafting and editing the script, and conducting repeated rehearsals to improve pronunciation and fluency (Phillips, 2015).

As podcasting is still underrepresented in tertiary universities and many students are not yet familiar with the process of making podcasts in English, learning about this educational tool can lead to an increase in students motivation and learning experience (Dale and Povey, 2009; Lonn and Teasley, 2009). This novelty factor has been identified by some researchers as the primary motivational drive for learning (Nie, Cashmore, and Cane, 2008; Prensky, 2009). Additionally, numerous scholars have demonstrated that the incorporation of podcasts in educational settings can enhance intrinsic motivation, which can be achieved when tasks are perceived as both engaging and challenging (O'Brien et al., 2007; Royer, 2009; Dale and Povey, 2009).

Another significant benefit of podcast production is the boosting of students confidence. The task is designed to reduce tension and anxiety when performed outside the classroom, creating a more comfortable environment, particularly for students who are shy or reluctant to use English. Thus, podcast design can be considered effective for developing English speaking skills (Hsu, Wang, and Comac, 2008) and confidence in front of the camera.

Evidently, podcasting can be an efficacious instrument for augmenting classroom interaction and fostering collaboration (Nie, Cashmore, and Cane, 2008; Salmon and Edirisigha, 2008). This is because students are able to express their opinions and consider the problem from diverse perspectives, as well as develop community-building skills and share responsibilities.

Furthermore, podcasts facilitate the acquisition of the 21st century skills, such as creativity and digital literacy. Dale emphasized the advantages of student-created podcasts in fostering creative and critical thinking, as well as problem-solving abilities (Dale, 2007).

This is consistent with the findings of other researchers who have demonstrated that podcasting assignments facilitate creativity in students writing the audio script. They also enable students to devise techniques for capturing the audience, and to utilize language that is not scientifically precise in describing scientific concepts or methods (Kemp et al., 2011). Concerning digital literacy, it is pertinent to note that contemporary students are digital natives, yet podcasts can facilitate the further development of their digital skills (Phillips, 2017).

2.3. Podcasts and Project-Based Learning integration

The integration of Project-Based Learning (PBL) and student-produced podcasts holds significant potential for enhancing educational outcomes. Both methods actively engage students in the learning process, positioning them as active participants who take responsibility for curating content that aligns with their personal and academic interests.

Integration of PBL and student-produced podcasts is of high potential since both the methods encourage students involvement in the educational process, making them, students, active subjects, who form the content of their own interest. What's more, diversity of tasks and activities allows to take into consideration students personality portfolio that echoes the call for personalized learning. This criterion is especially relevant in EAL learning that is critically individual and can rarely be efficient without psychologically comfortable atmosphere. "Project-Based Learning is a learning model that gives students the opportunity to participate actively in making a project within the group or individual work to improve English language skills, especially in speaking skills" (Thomas, 2000). Student-produced podcasts implemented at the presentational stage of a project are a perfect scope to demonstrate creativity, communicative skills, persuasion techniques, time management skills, digital literacy. Student-produced podcasts help students learn how to articulate their thoughts clearly, organize information logically, and speak confidently. It is when generating a podcast as the end product of the project that students may think critically about the work they have completed and the core information they want to convey.

3. METHODS

The primary objective of this study was to investigate the impact of podcast production on the success of interdisciplinary quasi-professional communication. The study was conducted as part of an English language course for 46 first-year students in the spring semester, 2024 (offline format) and focused on global trends and business ethics. The students used the MIPT Digital Learning Environment (LMS) as a platform to communicate, exchange information, and perform assigned tasks autonomously and collaboratively.

The entire study was conducted over 15 weeks and comprised three assignments: script writing, podcast draft design and presentation of the final podcast version. All the tasks were mandatory, but only the final one was graded.

3.1. Procedure

3.1.1. Stage 1 - preparation and podcast recording

The teacher introduced the concept of creating a student-produced podcast as a means of summative assessment at the end of the term, presented essential elements of podcast script outline, and shared four script templates (with a cohost, interview style, roundtable

and solo-host) (Fig. 1). The topic chosen was Global Trends (climate change, AI, the internet of things, future healthcare, lifestyle and experiential, consumer e-commerce, cashless world, the digital world, urbanization, the evolving consumer, future trends, emerging markets, digital entertainment).

Podcast Script Template

EPISODE INTRO

Start your episode with a brief description of what listeners can expect. Use your podcast's theme song to end the episode.

Intro:

► **Duration:** (0:00–0:00)

[Opening music jingle and sound effects]

KEY POINTS OF EPISODE

Include your episode's key moments and supporting details that will help make your episode interesting. Include any facts and details that will help you the most!

Key point #1:

► **Duration:** (0:00–0:00)

- **Supporting point:**
- **Supporting data:**
- **Supporting quote:**

Key point #2:

► **Duration:** (0:00–0:00)

- **Supporting point:**
- **Supporting data:**
- **Supporting quote:**

Key point #3:

► **Duration:** (0:00–0:00)

- **Supporting point:**
- **Supporting data:**
- **Supporting quote:**

[smooth transition]

CLOSING REMARKS & EPISODE SUMMARY

End your episode with a summary of what you covered. You can also include a call to action by asking listeners to leave a review of your podcast, vote for your video.

► **Duration:** (0:00–0:00)

Episode summary:

[Closing jingle or sound effect]

Fig. 1. Podcast script template

The students were divided into small groups of two and three and given time to brainstorm potential ideas for the podcast. After choosing a specific global trend to focus on, the students were provided with a three-week period to conduct research on the topic. The objective of this research was to gather information from credible sources, including news articles, academic journals, and official reports from international organizations. At the conclusion of this period, the students created a script outlining the structure of their podcast, including an introduction, main content, and conclusion. It was imperative to provide a detailed outline of each episode, encompassing the principal topics to be addressed, the names of any planned guests, and the necessary research or preparation.

The teacher assisted in checking that the language of the script was clear, concise, and objective, avoiding biased or emotional statements. Technical terms were to be explained on first use, and the text was to adhere to accepted academic structure and formatting, be grammatically correct, and free of spelling and punctuation errors.

Upon completion of the script in collaboration with the teacher, students proceeded to record their 7-minute podcasts utilizing recording equipment provided by the university or their own devices. The students then undertook the editing process to ensure a polished final product, which involved the removal of mistakes or pauses, the addition of music or sound effects, the adjustment of volume levels, and the ensuring of a smooth and engaging flow.

3.1.2. Stage 2 - improvements and final presentation

Following the design stage, each group listened to the podcasts created by other groups and provided feedback. The primary objective of this exercise was to provide a critique of the content, delivery, and overall quality of the podcast, with a view to offering suggestions for improvement. Utilizing the feedback received from their peers, each group proceeded to make revisions to their podcast, including updating their script, re-recording specific segments, and enhancing the audio quality.

The podcasts, having previously been uploaded to the LMS platform, were presented to the class at the final lesson of the term. Each group proceeded to play their podcast, thereby providing a concise overview of the global trend which they had been concerned, and highlighting the key points discussed in their podcast.

3.1.3. Stage 3 - assessment and reflection

The teacher evaluated each group's podcast based on criteria such as accuracy of content, creativity, organization and presentation. To increase motivation, encourage creativity and better understand their own capabilities, students were also involved in the evaluation process by assessing the works on the LMS, voting for the best project, and giving general feedback.

Following the presentation of their podcasts, students switched to a reflective process, responding to survey questions and discussing the insights gained from their research and presentation of their chosen topic, as well as any challenges encountered during the project.

3.2. Data Collection

Both qualitative and quantitative measures were applied to evaluate the results of the study. To collect the data relating to a podcast design, a two-page questionnaire was elaborated. The first part aimed at collecting quantitative data regarding students' perceptions of their experience in creating a podcast. It included general questions on general respondent data (age, gender,

native language, English level), overall use of technology (amount of time spent online, social networking accounts, level of digital literacy), experience with podcast creation (vast, some, no experience), and excitement about podcast design task. The format of closed questions included yes/no answer categories and rating scales on a five-point Likert Scale (1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly agree). Whereas, the second section composed of open-ended questions, revealed the qualitative results. These were designed to assess students views regarding their satisfaction and enjoyment of podcast design activities (collaborative or solo podcast format, time-management, ease of use of new technology, overall project enjoyment, collaboration tools and integration with a guest speaker), as well as their academic development and achievements (vocabulary development, improvement of speaking, listening and presentation skills, confidence in front of the camera, changes in digital literacy and feedback). This approach allowed the students to answer specific questions about the tool, giving them the chance to express their learning experiences without limiting their responses.

Of the 46 students surveyed, 84% were male and 16% female, with an average age of between 16 and 18 years old. All students were native Russian speakers; their linguistic abilities ranged from intermediate to upper-intermediate (B1 and B2) due to different educational backgrounds.

4. RESULTS

4.1. Project-Based Learning and Student-Produced Podcasts integration

The implementation of Project-Based Learning (PBL) alongside student-produced podcasts within the classroom environment significantly enhances the relevance of foreign language acquisition. These pedagogical strategies resonate with the expectations and requirements of tertiary-level students, which include a high level of dynamics both inside and outside the classroom, the applicability of domain-specific knowledge, an emphasis on digital content, as well as the cultivation of agility, autonomy, and creativity. Educators cannot anymore be “information couriers”, who deliver facts and expect the same facts to be reported back. They facilitate the process of learning by framing it in a constructive but creative, entertaining but informative way that is beneficial, perspective, and future-oriented. However, students, still being at the stage of knowledge consumption, should be provided with all necessary criteria and instructions to fulfill the tasks set. Consequently, implementing the coupling of PBL and student-produced podcast in the educational process, we worked out the stages of project realization and podcast production (Table 1).

At all the stages of the project and, especially, when generating the podcasts students are to be aware of the roles and skills necessary for different areas of responsibility (Table 2).

Table 1 Stages of project realization and podcast production

Stage	Skills	Specifications
Preparatory: mastering professional content using different models and methods	Communicative Critical thinking Teamwork Flexibility Agility	<ul style="list-style-type: none"> ▪ intersubject quasi-professional communication on the basis of foreign language ▪ one' own strengths and weaknesses realization when solving a certain task ▪ acceptance of a partner's position, active listening, intercomparison of arguments ▪ intellectual initiative, adaptability, tolerance, creativity ▪ the development of professional self-awareness ▪ self-esteem, awareness of the social significance of the product
Operational: planning modeling predicting	Analytical Creative Ideas generation Collaboration Self-discipline	<ul style="list-style-type: none"> ▪ gaining and processing innovative information, domain knowledge as a resource of synergy ▪ adapting personal goals and ideas in accordance with set requirements ▪ building relationships with partners based on parity and respect ▪ jointly coordinating a team work plan ▪ exhibiting qualities of a leader and a team player ▪ generating ideas ▪ anticipating the consequences of decisions made in new settings ▪ sticking to a schedule
Presentational: design presentation	Technical expertise Communicative Emotional intelligence	<ul style="list-style-type: none"> ▪ presenting information in an accessible form, in accordance with the professional interests of the audience ▪ expressing one's own position ▪ transforming personal position upon argumentative criticism ▪ presenting the results creatively in order to attract more attention from the audience ▪ analyzing and comprehending the cultural diversity of the audience, to show respect for their values and views ▪ applying current technologies
Reflective: feedback reflection perspective	Reflection Self-awareness	<ul style="list-style-type: none"> ▪ identifying and comprehending key and meaningful remarks ▪ accepting a diverse vision and a difference of opinion about one's own work; perceiving and effectively utilizing feedback ▪ taking advantage of shortcomings ▪ achieving a positive result ▪ summing up and taking into account the positive and negative remarks in further research

Table 2 Skills and roles correspondence

Role	Requirements	Description	Skills
Subject expert (SE)	<ul style="list-style-type: none"> ▪ in-depth knowledge and expertise in the certain area related to the project ▪ problem-solving skills ▪ ability to provide guidance and advice 	The SE provides the team with validated information on the topic, gives recommendations, assists.	<ul style="list-style-type: none"> ▪ in-depth knowledge ▪ communication skills ▪ collaboration and teamwork ▪ analytical skills ▪ adaptability ▪ problem-solving abilities
Technical lead	<ul style="list-style-type: none"> ▪ technical expertise ▪ experience in software development ▪ ability to lead and mentor team members 	The technical lead is responsible for overseeing the technical aspects of the whole project and podcast generation. They provide technical direction, make architecture decisions, and check if technical standards are followed throughout the development process.	<ul style="list-style-type: none"> ▪ technical proficiency ▪ problem-solving ▪ leadership ▪ communication skills ▪ decision-making ▪ team collaboration ▪ quality assurance
Quality assurance (QA) expert	<ul style="list-style-type: none"> ▪ analytical skills ▪ meticulousness, methodologies and tools ▪ identification and report of defects 	The QA expert is responsible for ensuring the quality, novelty, relevance, and perspective of the project, test plans, quality improvement.	<ul style="list-style-type: none"> ▪ attention to detail ▪ analytical skills ▪ technical proficiency ▪ testing techniques ▪ collaboration and teamwork ▪ time management ▪ adaptability
Head	<ul style="list-style-type: none"> ▪ strong organizational and leadership skills ▪ excellent communication and problem-solving abilities ▪ experience in the domain 	The Head controls the entire project from initiation to completion, allocates roles, communicates with the whole team, and ensures that the project itself and the podcast meet the initial objectives within the specified frame.	<ul style="list-style-type: none"> ▪ communication skills ▪ leadership abilities ▪ organizational skills ▪ problem-solving abilities ▪ negotiation skills ▪ adaptability ▪ time management

4.2. Format preferences and social interaction

It is worth noting that there were differences in the preference ratio of podcast design formats. Of the 19 projects submitted, the most preferred formats were identified as cohost (37% or 7 projects), roundtable (26% or 5 projects), interview (21% or 4 projects), and solo host (16% or 3 projects) (Fig. 2). In addition, around 70% of all projects involved a guest speaker either a subject teacher (26%) or fellow-students (42%). The prevalence of teamwork over individual projects indicates a growing willingness among students to embrace collaborative learning.

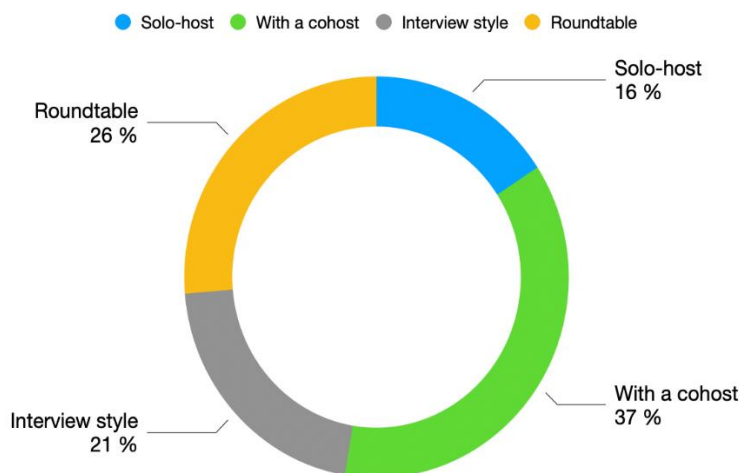


Fig. 2 Podcast formats preferences

Moreover, the need to communicate, delegate tasks and work collectively towards a common goal increases the amount of social interactions between students and strengthens the ties between them. In the event of a disruption to in-person networking, remote collaboration tools, such as Zoom, Google Meet, Telegram and MTS Link, can be employed to facilitate communication between students and group members, as well as with guest speakers, from any location worldwide at any convenient time. Telegram (75%) and Zoom (10%) were the most favored applications during the podcast creation process, while 7% of students still preferred face-to-face format (Table 4).

In addition, the majority of students (56%) found the task time-consuming, with an average completion time of over 24 hours. Those who worked in teams were in a more favorable position, as they were able to share responsibilities, develop interpersonal learning skills, and enjoy the opportunity to work together. This is confirmed by the survey data, according to which 84% of students expressed enjoyment with teamwork. For those who opted for a solo project, the high workload was offset by greater flexibility, time management, and increased speaking practice.

4.3. Digital literacy

A further analysis of the data indicates that student-produced podcasts demonstrate considerable technical potential, attributable to the advancement of technology and the accessibility of online tools and resources. Proficiency in computer-related technologies is a fundamental aspect of the zoomer demographic: of the 46 participants, all had at least one social media account, with Telegram and VK being the most commonly used. The survey results revealed that 96% of respondents expressed confidence in their ability to use digital technology and a willingness to learn new skills related to computer programs and applications (Table 3).

Table 3 Quantitative results

Students' perceptions of their experience in creating podcats	Results		
Gender	male 39	female 7	
Age	under 18 5	18-20 41	
Native Language	Russian 46	other 0	
English level	B1 16	B2 30	
Amount of time you spend online daily	2 hours or less 12	from 2 to 4 hours 25	more than 4 hours 9
Number of social network accounts	1 2	2 40	more than 2 4
Level of digital literacy	very good 44	good 2	poor 0
Experience with podcast creation	vast 10	some 31	no 5
Experience with podcast creation in English	yes 2	no 44	
Excitement about podcast creation	yes 45	no 1	

The majority of students in the study had already gained experience in creating podcasts and therefore did not require the teacher's guidance throughout the process of recording and editing. Nevertheless, we have identified certain technical aspects that could prove beneficial for students engaged in the process of podcast creation. The use of high-quality recording equipment, including microphones, audio interfaces, and recording software, to produce professional-sounding podcasts in a university laboratory represented a novel experience for almost half of the participants (47%). Should they opt to record in a laboratory setting, they would require the assistance of a technician to facilitate the recording of the podcast. The primary challenges were encountered during the initial phase of recording the draft. However, students demonstrated a greater sense of assurance during the final recording process. Additionally, one-third of students were required to enhance their proficiency in utilizing editing software. In the event that the pre-installed editing software on cell phones and laptops lacked the requisite capabilities to satisfy the students' requirements, they could download and use alternative software such as Adobe Premiere Pro, Microsoft Clipchamp, or Wondershare Filmora. A review of digital tutorials on the exploitation of these programs enabled students to develop editing skills and improve the quality of the final product.

Finally, students were able to use the interactive features of the LMS by completing a peer review assignment on the draft and final versions of the podcast. After submitting their work, the students received a number of podcasts created by their peers. Assessments were carried out according to criteria set by the teacher and students were encouraged to provide comments, queries and feedback. Together, these activities contributed to the development of a more engaging and interactive learning experience in podcast design and received a positive response from 68% of the students.

4.4. Academic development

Although most students were familiar with podcast creation technology, the novelty factor for 96% of respondents was creating the podcast in English. This gave rise to feelings of anxiety involved with speaking English in front of the camera and perceiving their own voice. The open-ended part of the questionnaire reflects that confidence in front of the camera improved for 84% of respondents, while 14% still felt uncomfortable and 37% did not get used to their recorded voice (Table 4).

Table 4 Qualitative results

Satisfaction and enjoyment of podcast design activities	Results				
What type of script layout have you chosen?	collaborative 84 %	solo 16 %			
How much time have you spent on the project?	less than 12 hours 12 %	12 - 24 hours 32 %	more than 24 hours 56 %		
What challenges have you faced in creating the podcast?	professional recording software 47 %	professional editing software 35 %	script writing 18 %		
Project Enjoyment	yes 99 %	no 1 %			
What remote collaboration tools have you used?	Zoom 10,0 %	Google Meet 3 %	MTS link 5 %	TG 75 %	none 7 %
Who was your guest speaker?	teachers 5 in 19 projects	fellow students 8 in 19 projects	none 6 in 19 projects		
Academic development and progress	Results				
Vocabulary development	improved 82 %	remained the same 18 %			
Improvement of speaking skills	improved 73 %	remained the same 27 %			
Improvement of presentation skills	improved 56 %	remained the same 44 %			
Improvement of listening skills	improved 79 %	remained the same 21 %			
Confidence in front of the camera	improved 84 %	remained the same 16 %			
Changes in digital Literacy	improved 65 %	remained the same 35 %			
Feedback					
felt awkward with the voice			were	37%	
uncomfortable in front of the camera			enjoyed	14%	
teamwork			found peer	84%	
review task useful			were able to	68%	
express ideas creatively			enjoyed the	76%	
opportunity to conduct a research				31%	

Beyond increasing confidence in on-camera behavior, the results also indicated that the student-produced podcasts helped to improve speaking and listening skills in over 70% of the students. Furthermore, 82% of the students found the podcasts to be a useful tool for practising vocabulary in context, while 56% noted an enhancement in their presentation skills.

Other noteworthy observations pertain to creativity and the opportunity to conduct research. 76% of students expressed appreciation for the opportunity to express creative ideas regarding content and innovative approach to podcast design. Additionally, 31% of students indicated a preference for the idea of searching the web for additional information, interesting facts, and examples.

5. DISCUSSION

The aim of the research conducted among 46 Russian-speaking students of tertiary university was to explore the interviewees' experience in participating in PBL and in a podcast, as the end product, production. The students were asked to (a) assess their digital literacy skills, (b) level of comfort when working collaboratively on the task given, (c) a foreign (English) language skills improvement. The survey demonstrated that almost all of them (84%) preferred collaborative work on the project and spent more than 24 hours on this activity (56%). These results are in line with the results of Phillips, who has found that podcast production is time consuming and can be offered to the students as individual or group activities (Phillips, 2017).

44 out of 46 students declared a very good level of digital literacy that eliminated concern of the operational side of the whole process. The most popular remote collaboration tool chosen by 75% of respondents was TG, whereas only 3% preferred Google Meet for online communication. As only 2 students had experience in generating a podcast in English before, the excitement expressed by 45 students at the initial stage is quite explainable by the factor of novelty, digitalization, and a variety of modes (solo, collaborative projects) provided to the cohort. These findings align with those of other researchers who posit that contemporary students are digital natives and require minimal technical assistance (Forbes, 2015). However, students may need supervision with professional equipment and editing applications.

The survey captured the influence of PBL and podcast production on foreign language skills development. 82% of students demonstrated vocabulary improvement, only 21% showed no positive dynamics in listening skills, and speaking skills remained the same among only 27%. As for the presentation skills, 84% of the cohort claimed an increased confidence in front of the camera and only 37% felt awkward with their voice.

The findings echo several researchers who proved a positive impact of student-produced podcasts on foreign language skills formation and enhancement (Lee, McLoughlin, and Chan, 2008); demonstrated students' encouragement caused by higher autonomy, flexibility and increased communication at the level "student-student" (Popova and Edirisingha, 2010).

The issue of voice perception has already been addressed (Phillips 2017) and can be overcome with practice. It is necessary for students to become accustomed to their recorded voice, which may initially sound more isolated.

6. CONCLUSION

Integration of PBL and student-produced podcasts echoes the idea that for the teaching process to be a success, individual rationales of students must be catered for. Another important factor is the students' independence in the learning process and their awareness of what they are doing, why, and what their personal benefits are (Stojković and Zerkin, 2023). The higher the student's involvement in the learning process the faster the language skills development (Moon, 2004). Presumably, the process arranged in such a way that students share the responsibility for their academic achievements with the educator is of high potential due to knowledge being a social construct that implies tight interaction, communication, self-awareness, and reflection (Vygotsky, 1997).

Overall, the participants of the survey demonstrated motivation and initiative when participating in the project. They reported the task to be much more demanding as it requires productive and creative skills rather than reproductive, they are more used to when processing the information of different types provided by the educator. Another important criterion that enhances the efficiency is the diversity of activities incorporated into the project. This diversity creates a fruitful environment for less-confident students, introverts realize the full potential by opting for the tasks comfortable for their pace of studying and temper.

Despite the high potential and efficiency of PBL and student-produced podcast integration in a foreign language learning process it is worth mentioning its challenges for educators and students. One of them lies in the plane of digital literacy: far from all educators are "digital natives". Hence, they are incapable of providing students with support along the way. However, in our opinion, this challenge may be transformed into an advantage if a proper climate of mutual support in the team is created. If this is the case, students will have to apply their research and investigation skills to find a way out that may be of use in their future professional life. Another challenge is lack of time. Some students are not ready to spend hours working on one and the same project. Considering that every student is a necessary "brick" in the "wall" (project) reluctance of one of them may lead to a considerable delay or insolvency of the whole project. One more possible difficulty is a multidisciplinary nature of PBL and student-produced podcast integration. For the project as a frame activity and the podcast as the end product to be valuable, they must reflect urgent real-world problems in the field of students' specialization that requires deep collaboration with the experts from the field who are not always available or willing to help.

Finally, PBL and student-produced podcast integration promotes active collaboration and enhance the process of mastering a foreign language one the aforementioned criteria are satisfied. This teaching strategy may help educators vary the tasks and activities bearing in mind students' needs and abilities, as well as their personal learning mode.

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