DOI:10.46991/FLSP.2025.25.053
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WEBQUESTS AS A MEDIUM FOR IMPLEMENTING COLLABORATIVE ONLINE INTERNATIONAL LEARNING (COIL) PROJECTS

ABSTRACT

With the advent of Information and Communication of Technologies (ICT), Collaborative Online International Learning (COIL) projects have become a vital component of university education, connecting higher educational institutions (HEIs) worldwide. This form of virtual exchange enables students to engage in meaningful cross-cultural communication and

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Received: 05/11/2025
Revised: 11/12/2025
Accepted: 12/12/2025

collaboration, thereby fostering the internationalization of higher education. The methodological framework of this article lies in the implementation of Project-Based Learning (PBL) as a means of fostering students' critical thinking and creativity. This article underscores the effectiveness of integrating PBL into COIL projects as a strategy for enhancing student learning outcomes. The study aims to demonstrate that incorporating WebQuest creation within a PBL framework will lead to meaningful learning experiences. The article presents the effectiveness of a COIL experience implemented between São Paulo State Technological Colleges (Brazil) and Yerevan State University (Armenia) in February-March 2024. The project engaged students in creating seven WebQuests collaboratively in international teams based on the provided themes. The results of the study indicate that integrating WebQuest creation as a PBL medium enhances students' ability to create resources, which could serve as learning materials in HEIs. The results of the survey conducted after the project reveal a generally positive experience with this COIL project. The study concludes that implementation of such initiatives should be fostered in the educational process.

Key words. collaborative projects; virtual exchange; Project-Based Learning; WebQuests; cross-border networking; critical thinking.

ԱՄՓՈՓՈՒՄ

ՎԵԲ-ՔՎԵՍՏԵՐԸ ՈՐՊԵՍ ՄԻՋԱԶԳԱՅԻՆ ԱՌՑԱՆՑ ՀԱՄԱԳՈՐԾԱԿՑԱՅԻՆ ՈՒՍՈՒՑՄԱՆ (COIL) ՆԱԽԱԳԾԵՐԻ ԻՐԱԿԱՆԱՑՄԱՆ ՄԻՋՈՑ

Տեղեկատվական և հաղորդակցական տեխնոլոգիաների (ՏՀՏ) զարգացման արդյունքում միջազգային առցանց համագործակցային ուսուցման (COIL) նախագծերը դարձել են բարձրագույն կրթության կարևոր բաղադրիչ՝ միավորելով աշխարհի համալսարանները: Վիրտուալ փոխանակման այս ձևաչափը հնարավորություն է տալիս ուսանողներին ներգրավվել իմաստալից միջմշակութային հաղորդակցության և համագործակցության մեջ՝ նպաստելով բարձրագույն կրթության միջազգայնացմանը: Ուսումնասիրության մեթոդաբանական հիմքը նախագծահեն ուսուցման (PBL) կիրարկումն է՝ որպես ուսանողների քննադատական մտածողության և ստեղծագործական կարողությունների զարգացման արդյունավետ

միջոց: Աշխատանքը կարևորում է PBL-ի ինտեգրման արդյունավետությունը COIL նախագծերում՝ ուսումնական արդյունքների բարելավման ռազմավարական նպատակով: Ուսումնասիրության նպատակն է ցույց տալ, որ վեբ-քվեստերի ստեղծումը PBL շրջանակում նպաստում է իմաստալից ուսումնական փորձի ձևավորմանը: Այս ուսումնասիրության շրջանակում վերլուծվում է Սան Պաուլոյի պետական տեխնոլոգիական քոլեջի (Բրազիլիա) և Երևանի պետական համալսարանի (Հայաստան) կողմից 2024 թվականի փետրվար-մարտ ամիսներին իրականացված COIL նախագծի փորձը: Նախագծի ընթացքում ուսանողները միջազգային խմբերով մշակել են յոթ վեբ-քվեստ՝ առաջարկված թեմաներով: Արդյունքները ցույց են տալիս, որ վեբ-քվեստերի կիրառումը որպես PBL գործիք բարձրացնում է ուսանողների կարողությունները ստեղծելու ուսումնական ռեսուրսներ, որոնք կարող են ծառայել որպես կրթական նյութեր բուհերում: Նախագծի ավարտին իրականացված հարցման տվյալները վկայում են ուսանողների կողմից COIL նախագծին մասնակցելու ընդհանուր դրական փորձի մասին: Եզրակացվում է, որ նման նախաձեռնությունների ներդրումը կրթական գործընթացում պետք է խրախուսել և շարունակաբար աջակցել:

Բանալի բառեր՝ համատեղ նախագծեր, վիրտուալ համագործակցություն, նախագծահեն ուսուցում, վեբ-քվեստեր, միջմշակութային համագործակցություն, քննադատական մտածողություն:

РЕЗЮМЕ

ВЕБ-КВЕСТЫ КАК СРЕДСТВО РЕАЛИЗАЦИИ ПРОЕКТОВ СОВМЕСТНОГО МЕЖДУНАРОДНОГО ОНЛАЙН-ОБУЧЕНИЯ (COIL)

С появлением информационно-коммуникационных технологий (ICT) проекты совместного международного онлайн-обучения (COIL) стали важнейшим компонентом университетского образования, объединяя высшие учебные заведения по всему миру. Эта форма виртуального обмена позволяет студентам участвовать в содержательной межкультурной коммуникации и сотрудничестве, тем самым способствуя интернационализации высшего образования.

Методологическая основа данной статьи заключается в реализации обучения на основе проектов (PBL) как средства развития критического мышления и творческих способностей студентов. В данной статье подчёркивается эффективность интеграции PBL в проекты COIL как стратегии повышения результатов обучения студентов. Цель исследования – продемонстрировать, что включение создания веб-квестов в структуру PBL приведёт к созданию содержательного опыта обучения. В статье представлена эффективность проекта COIL, реализованного Государственным технологическим колледжем Сан-Паулу (Бразилия) и Ереванским государственным университетом (Армения) в феврале-марте 2024 года. В рамках проекта студенты в международных командах совместно разработали семь веб-квестов по предложенным темам. Результаты исследования показывают, что использование веб-квестов в качестве средства PBL повышает способность студентов создавать ресурсы, которые могут служить учебными материалами в вузах. Результаты опроса, проведенного после завершения проекта, свидетельствуют в целом о положительном опыте участия в проекте COIL. В исследовании сделан вывод о необходимости внедрения подобных инициатив в образовательный процесс.

Ключевые слова: совместные проекты; виртуальный обмен; обучение на основе проектов; веб-квесты; международное сотрудничество; критическое мышление.

In today's globalized world, it is more important than ever to promote internationalization of higher education institutions by implementing cross-cultural projects, which apply innovative and creative methods to keep students actively engaged. According to Deardorff, one recently emerged approach that addresses this need is Collaborative Online International Learning (COIL), which helps bridge cultural and physical distances between higher education institutions worldwide. Unlike conventional online classes, COIL fosters a shared learning environment in

which instructors from different cultural backgrounds co-design and co-teach classes. This intercultural cooperation improves the educational process making it more meaningful and impactful for students (Deardorff, 2009).

The article aims to explore the effectiveness of integrating PBL into COIL projects as a means of enhancement of student learning outcomes. Considering development of WebQuests an interactive approach to be incorporated into PBL frameworks, the study assumes that involving students in creative, intellectual tasks can lead to meaningful learning experiences.

The reason for implementing this project was based on the successful outcomes of the COIL project implemented in 2023, when students explored a website featuring WebQuests designed by students from Fatec Rio Preto . Building on that experience, in 2024 a new challenge was introduced: instead of simply solving existing WebQuests, students were tasked with designing their own ones. The COIL project was implemented between students from Yerevan State University (YSU), Armenia and Fatec, Brazil. In order to assess the project, students from the Brazil and Armenia were asked to take part in an anonymous survey, which included several questions that focused on important aspects of the project, the detailed results of which are presented in the article.

Collaborative Online International Learning (COIL) is a modern and innovative approach in higher education that connects accredited courses across different countries. It brings together classrooms from two

or more institutions located in different parts of the world, often from diverse cultural backgrounds. COIL is not just an online exchange — it involves joint teaching between professors from different cultures who work together to create a shared course. These courses focus on hands-on and group learning, helping to build a rich, international learning environment (Kučerová, 2023).

Today, COIL projects are growing in popularity across many academic fields, offering students and educators valuable chances to engage globally. These activities range from shared classes and assignments to collaborative research. By connecting people from different cultures, COIL supports cultural exchange and helps students see the world from new perspectives. These projects can take many forms, from fully online classes to hybrid courses that combine virtual and face-to-face learning (Marcillo-Gómez & Desilus, 2016).

One reason for COIL's success is its ability to bring new ideas and diverse viewpoints into traditional education. When students and teachers from different cultures work together, classroom topics become more relevant and meaningful. Students gain insight into how the same subject might be seen or taught differently in another country. In addition, COIL makes it easier for HEIs to work together without the need for complex international agreements. Since it does not require extra funding, it also encourages more students to take part in international learning, including programs abroad (Marcillo-Gómez & Desilus, 2016).

Thus, COIL serves as a flexible and powerful model for global education. By encouraging teamwork across borders and promoting intercultural understanding, it offers students a more interconnected and culturally enriched learning experience (Appiah-Kubi & Annan, 2016).

The decision to integrate WebQuests into the COIL project stemmed from a desire to raise student engagement level by offering them challenging tasks. According to Bernie Dodge and March, WebQuests involve deep learning activities like making generalizations, drawing conclusions, and finding patterns. Comprehensive WebQuests typically take about a month to complete and should be both realistic and interesting (Dodge, 1995: 1). WebQuests are used to teach important content, abilities, competences and skills, and are closely connected to what students are expected to learn. To complete these projects successfully, they need to apply higher-level thinking and work effectively with each other. WebQuests usually begin with a situation or problem that asks students to be creative and work as a group, which is quite different from typical classroom tasks. Students become actively involved in solving the problem, which helps to keep them motivated.

In the 1990s, WebQuests were widely used in Elementary Education in Brazil and globally. Over time, their application extended to higher levels of education, as the tool demonstrated its effectiveness across various contexts. A notable example is the case of the National University of Life and Environmental Sciences in Kyiv, Ukraine, where WebQuests were successfully implemented with 72 students as a technological aid for

language learning. In this context, WebQuests functioned as a pedagogical and integrative learning tool (Berezova et al, 2018: 112). The use of WebQuests in EFL settings revealed a clear connection between students' positive perceptions and a decrease in anxiety related to reading and writing tasks (Berezova et al, 2018: 116).

The steps for building a WebQuest can vary depending on the guiding question, but according to Bernie Dodge, the basic structure typically follows a consistent framework. The procedure begins with the Introduction, where the context is set and background information is provided. The next step is the Task, which should be both engaging and realistic, designed to spark curiosity and students. The third step is the Process, which outlines the procedure students should follow. The fourth step, Resources, offers students a selection of websites and materials to help them begin their exploration. During this phase, students receive optional tips or guidance, which they may choose to follow or ignore. The students are free to choose different ways if they will. After the task is completed, the group conducts an internal evaluation and works together so the group can get together to formulate a Conclusion. Finally, the complete WebQuest is evaluated by teachers or coordinators (Dodge, 1996: 1-2).

Costa describes WebQuests as activities that "appeal to the development of competences which are more important than factual knowledge, like decision taking, augmenting and evaluation, and it also implies in an investigation and transformation process towards the obtained information." WebQuests integrate several respected pedagogical strategies

into a task that is relatively easy. Through them, students develop teamwork skills, creative thinking, and technological literacy (Costa, 2008: 40).

According to the Brazilian researcher Lilian Bacich from University of São Paulo, the investigative nature of WebQuests, often perceived as a challenging one, enables the group to get to a "collective construction of knowledge" supported by Information and Communication Technologies (ICTs) (Bacich, 2020). The concept of scaffolding, originally introduced by Wood, Bruner, and Ross (1976), is frequently associated with WebQuests. It refers to the supportive role of the teacher or facilitator, who initially guides the learning process but gradually steps back, allowing students to be free to act and take greater responsibility while maintaining the learning path (Bacich, 2020: 6).

This article presents a COIL project that incorporates WebQuests as a main tool for implementing Project-Based Learning (PBL). Today, PBL is becoming more and more common in many educational environments because it chains diverse teaching methods and active learning. This teaching method encourages students to acquire, enhance and deepen their knowledge and develop skills by handling and solving real-world complex issues and multifaceted problems. True PBL requires students to think critically, work in teams, solve problems, and use different forms of communication and cognitive skills.

The traditional model of teaching is based on specific roles, where teachers are the transmitters of knowledge while students are the receptors

of information (Alorda, Suenaga & Pons, 2011). However, conventional class projects sometimes are not able to achieve important aspects of student learning. Achieving meaningful outcomes remains a challenge, as there is a gap between classroom learning and the practical skills demanded by today's workplaces. To bridge the gap, Project-Based Learning (PBL) offers an alternative approach that highlights active student engagement in knowledge construction.

Having emerged in the early 20th century as a structured teaching method, PBL was popularized by the Buck Institute for Education, which defines it as follows: "Project-Based Learning (PBL) is a teaching method in which students learn by actively engaging in real-world and personally meaningful projects ." The main idea of PBL is to promote skills such as collaboration, critical thinking, communication, and creativity.

According to Condliffe et al. (2015), what clearly distinguishes PBL from other instructional approaches is that learning takes place through project itself rather than the project being a final product of instruction. In this model, the project is the central mechanism for learning. The authors emphasize that many aspects of PBL models are designed to support students' development of intra- and interpersonal competencies, such as communication and collaboration skills, metacognitive skills, grit, and self-regulation skills. Further, they note that a key element of effective PBL is that it is connected to real-world problems, which males learning more authentic and meaningful.

In support of this perspective, Thomas's (2000), in his review of the relationship between PBL and student outcomes, found evidence that PBL can support student learning and may be more effective than traditional instructional methods.

Similarly, Kokotsaki et al. (2016) describe PBL as an active, student-centered approach that fosters students' autonomy, constructive investigations, collaboration, communication, and reflection within real-world practices. The review finds PBL effective in building 21st-century skills and deepening students' understanding through engagement with real-world, authentic tasks.

Moreover, PBL promotes some skills such as analyzing and presenting information. For instance, Stoller (2006) observed in his studies that Project-Based Learning (PBL) in second language classes is looking for students that take responsibility for their own learning process by presenting, analyzing and sourcing information from target language materials. Therefore, when students are engaged in individual projects, the level of responsibility is higher, once the extent and nature of language acquisition depend, most of the time, on the individual student's dedication. Dressler (2020) also recognized, through his research, that a higher autonomy in language learning is a positive aspect of PBL.

Vogler (2018) has demonstrated the significance of interdisciplinary approach of PBL among educators whose objective was to encourage students to go beyond their disciplinary limitations. In addition to interdisciplinary focus, PBL also underscores the combination of formal

and informal learning environments. For instance, Hung (2012) argues that formal learning can be enriched through the inclusion of informal environments.

In short, Project-Based Learning, a method that brings together problem-based and collaborative learning, can be considered one of the most effective approaches in teaching a foreign language. Besides encouraging students to think critically and creatively beyond the limits of the classroom, it also offers deep understanding of subjects, cultivates cultural awareness, improves reasoning abilities, promotes tolerance towards diverse perspectives, as well as provides students with essential skills: analysis, evaluation, and communication that are essential skills for success in many aspects of life.

In February-March 2024, twenty-two students from São Paulo State Technological Colleges (Fatec) in Brazil, in collaboration with fourteen students from the Chair of English for Cross-Cultural Communication of Yerevan State University (YSU), participated in a six-week COIL project titled "Creating WebQuests Collaboratively in International Teams." The project provided both teachers and students with an opportunity to communicate and collaborate virtually through online technologies with their international counterparts. Over the course of the project, which also included six one-hour online meetings, students selected the topic for their WebQuests, conducted joint desk research within the chosen themes, and collaboratively designed WebQuests as the final product.

While connecting two classes from different parts of the world posed both didactic and administrative challenges, the initiative offered valuable learning experiences, particularly in oral communication, enabling students to interact, collaborate and take responsibility for their learning process. It further expanded opportunities for intercultural and, most importantly, linguistic development. Throughout the COIL experience, participants reflected critically on the process of creating WebQuests collaboratively, aiming to produce materials that could later be used as learning resources.

Following clear instructions on the concept and design of WebQuests and how they could be developed, participants exchanged perspectives and selected one of the four topics proposed by the supervisors: “Analyze the Impact of Technology on Education,” “Global Hunger,” “Data Security,” and “How to Produce Energy without Harming Nature.”

The project began with an icebreaker activity in which students shared pictures and interesting facts about their cultures and countries via the Padlet platform. This initial engagement laid the groundwork for forming seven mixed intercultural teams from both institutions, typically comprising three Fatec students and two YSU students.

Following Week 1, which fostered participant interaction through the "Cultural Picnic," students selected one of the proposed topics and began the initial stages of developing their own WebQuests. The primary aim at this stage was to design a strategic plan for creating a compelling

Introduction, formulating an engaging Task, outlining the Process part, and providing the necessary Resources.

Week 2 focused specifically on the Introduction, which is the first section of the WebQuest. Students engaged in collaborative research to collect firsthand data, such as videos, images, and articles, to secure the visual and informative appeal of the section. After gathering comprehensive data, participants held fruitful discussions in order to determine the most effective approach suitable for the section. Several ideas were proposed and justified before the teams finalized their Introduction drafts.

In the following weeks, students continued to work collaboratively on all WebQuest sections making effective use of the collaboratively collected resources. The final week featured each of the seven mixed intercultural teams presenting their completed WebQuests. Following each presentation, participants received constructive feedback from the project coordinators on both their joint efforts and final product.

Upon project completion, coordinators designed an anonymous Google Form survey to collect student feedback on the overall project implementation. The survey results were summarized in form of pie charts highlighting key aspects and challenges of the project.

Because of their dedication and collaborative effort, the participants successfully developed seven comprehensive WebQuests which can later be utilized as learning materials for undergraduate students in various projects. Each WebQuest was thoughtfully designed, beginning with an engaging introduction, presenting a creative well-structured task,

outlining the process, and providing resources for accomplishing the task assigned in the WebQuest.

Groups 1 and 3 selected the topic "Analyzing the Impact of Technology on Education" for their WebQuests. The tasks were formulated in a way that encouraged exploring diverse approaches to integrating modern technologies, including AI tools, into the educational process in a safe and responsible manner. Groups 2 and 6 addressed the theme "Global Hunger," designing tasks aimed at gathering statistics on the regions most affected by hunger and proposing strategies to mitigate the issue. Concentrating on another topic, Groups 4 and 5 designed WebQuests on "How to produce Energy without Harming Nature." They created tasks that required identifying sustainable and harmless energy production methods. Finally, Group 7 developed a WebQuest on "Data Security." The task focused on exploring secure methods for storing data and avoiding threats such as phishing and other cyberattacks.

Following the successful completion of the project, 22 Brazilian and 14 Armenian students were invited to participate in a comprehensive anonymous survey to assess the initiative. The survey included 24 questions addressing various aspects of COIL experience, organized into four sections: (1) positive aspects of the COIL project in general, (2) key areas where students observed notable improvement, (3) effectiveness of integrating WebQuest creation into the COIL project, and (4) the most challenging aspects encountered.

Figure 1 illustrates the positive aspects concerning the COIL project in general as reported by the participants.

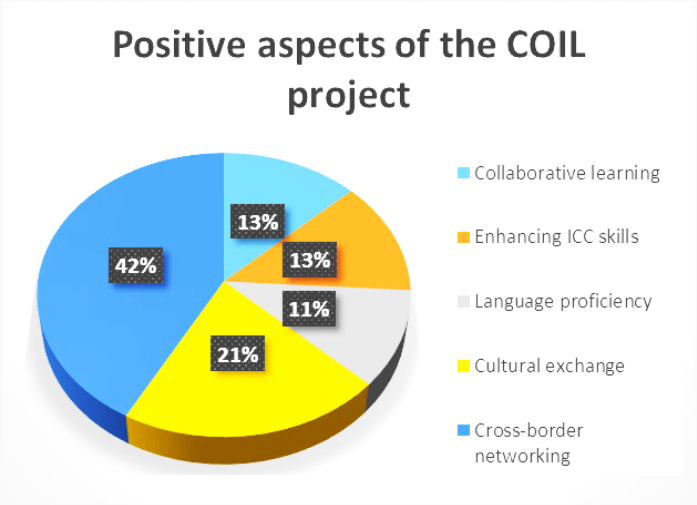

Figure 1. Perceived positive outcomes of the COIL project

As shown in the chart, an equal percentage of respondents (13%) identified improved intercultural communication skills and collaborative learning as the best outcomes of the project. While the majority of respondents (42%) highlighted cross-border networking, others mentioned language proficiency (11%) and cultural exchange (21%) as positive outcomes.

Figure 2 summarizes the main areas of improvement identified throughout the project.

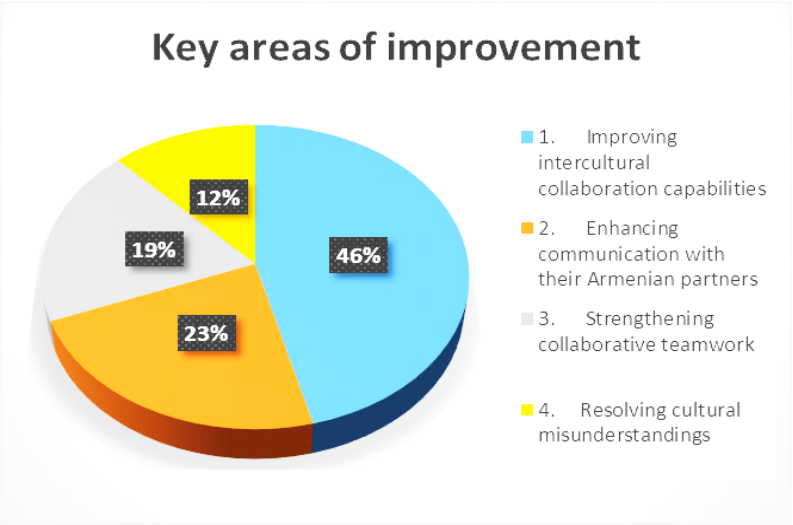

Figure 2. Priority areas for project improvement

Almost half of the respondents (46%) indicated that they improved their ability to collaborate in an intercultural group. Nearly a quarter of the respondents (23%) reported enhancing communication with their foreign partners, a slightly lesser percentage of respondents (19%) retorted strengthening cooperative skills within the team, and yet a number of respondents (12%) mentioned gaining skills to resolve cultural misunderstandings.

Figure 3 illustrates participant evaluations of the project's effectiveness in terms of integrating WebQuest creation as a PBL tool.

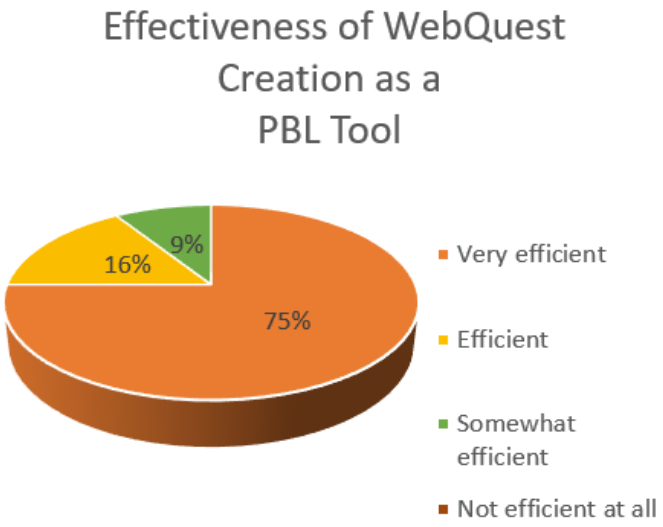

Figure 3. Participant perceptions of integrating WebQuest creation as a PBL tool

As shown on the pie chart, only a tiny percentage of participants (9%) regarded the initiative as "somewhat efficient," while the vast majority rated it as either "very efficient" (75%) or "efficient" (16%). Notably, no student gave the project a "not efficient" rating, suggesting that everyone agreed it was an effective tool for project implementation. The success of PBL in general was endorsed by the relevance of the task. It required that students critically engage with real-world issues.

Figure 4 illustrates several challenges that students encountered while implementing the COIL project.

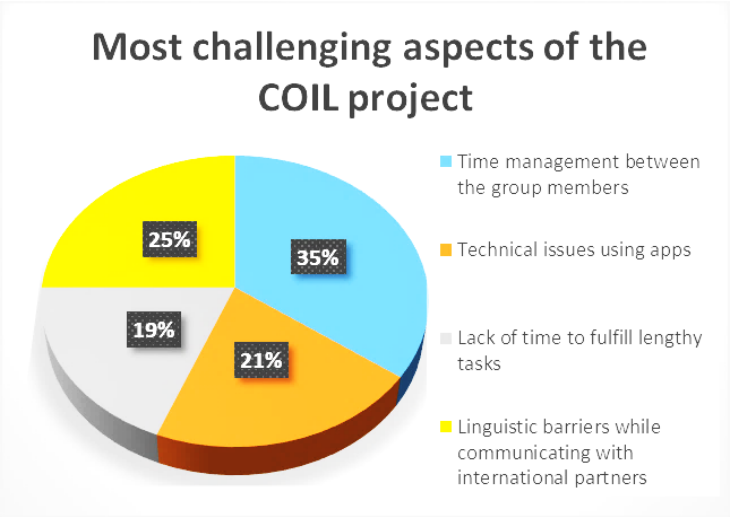

Figure 4. Key challenges encountered in the COIL project

According to the survey results, the majority of the respondents (35%) identified time management to be the most challenging issue. Others indicated technical issues (21%) and lack of time allocated for completing the tasks (19%) to be a challenging aspect. Yet for another proportion of respondents (25%), linguistic barriers were a challenging issue.

Overall, despite some challenges encountered during the project the survey indicated a generally positive experience with the COIL project procedures and organization. In general, participants reported satisfaction with cross-border networking, collaborative learning, and enhancing language skills. Respondents also commented positively concerning the effectiveness of WebQuest creation as PBL tool. Commitment of the group members to the project tasks was highly rated, reflecting overall satisfaction with the project's

execution and support. The survey data indicates that the students were generally dedicated to the COIL project, with the majority of respondents making significant efforts to interact with each other.

To sum up, in today's globalized world, internationalization of higher institutions is of vital importance. Hence, virtual exchange projects, which foster the process of internationalization, have been gaining popularity in recent years. Implementing COIL projects gives the participants the chance not only to improve their knowledge of online tools and platforms but also to develop cross-cultural competences, which are an important component for interacting and work together. During this COIL project, students improved their ability to collaborate in intercultural groups, enhanced their communication skills with foreign partners, strengthened cooperative skills, and learned how to resolve cultural misunderstandings. Project-Based Learning is considered as one of the most effective methods for teaching foreign languages as it incorporates problem solving and critical thinking skills, as well as promotes collaborative learning. The primary objective of the Fatec-YSU COIL project was to create WebQuests collaboratively in intercultural teams within PBL framework. Integration of WebQuest creation into PBL allowed students to do constructive investigations while reflecting over real-world issues and inspired them to think critically and creatively outside of the classroom. Students demonstrated outstanding teamwork and, as a result, developed several comprehensive WebQuests, which can later serve as valuable learning resources.

According to the analysis of the post-project survey, the COIL project was, in general, a positive experience. Both personal and group dedication to the project tasks were highly rated, reflecting overall satisfaction with the project's execution and support. Overall, participants typically expressed delight with improving their language skills, international networking, and collaborative learning abilities. The usefulness of WebQuest creation as a PBL tool was praised highly by the respondents.

Analyzing the challenges encountered during the project as reported by the participants we recommend that in the future COIL projects more attention be allocated to the issues of time management. Taking into account that the perception of time varies across cultures, coordinators should give clear instructions on time management matters to the groups prior to the start of the actual project.

To avoid linguistic barriers, it is recommended to ensure that the English language level of the participants is approximately the same. Therefore, conducting placement tests determining the level of students while sampling participants is advisable. This will eliminate the emergence of linguistic barriers among project participants.

In general, since COIL projects are becoming a vital component of university education across the world, we recommend that they be implemented more often.

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