

Fostering Global Collaboration and Innovation through Project-Based Learning

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ABSTRACT

This paper explores the effectiveness of global collaborative project-based learning (PBL) where students from four different global higher institutions worked together to develop an online game centred on internationalization linked to the Sustainable Development Goals (SDGs). This distinctive initiative took place over a short span of 24 hours where the students participated in the design thinking process with the different institutions transferring their ideas to the next after an 8-hour cycle. The aim of the global collaboration project was to raise awareness of global sustainability challenges while advocating global cultural awareness and understanding. Various significant findings were uncovered by means of qualitative inductive constant comparative analysis. Findings indicated the student's overall experience with the project including their perceived benefits and challenges, as well as suggestions on how the global collaborative project-based learning project can be improved. The findings offer insight into innovative learning approaches and do not only provide students with the essential skills such as including cross cultural awareness, time management, communication, problem solving, adaptability and resilience, but also fosters cultural awareness and sensitivity, which is fundamental in solving future global challenges. This paper emphasizes the impact of global collaboration in education in developing future leaders by equipping students for practical problem-solving in a more interconnected global environment.

Keywords: Design Thinking, Global Collaboration, Higher Education, Internationalization, Project-Based Learning (PBL), Skill Development, Sustainable Development Goals (SDG)

Cite this article as: Williams, C. C., & Mostert, C. L. (2026). Fostering Global Collaboration and Innovation through Project-Based Learning. *International Journal of Higher Education Pedagogies*, 7(1), 1-15. <https://doi.org/10.33422/ijhep.v7i1.1184>

1. Introduction

Higher learning institutions are tasked with ensuring that students possess relevant skills and competencies needed in an evolving job market (Thornhill-Miller et al., 2023). Thus, the traditional way of running higher education is changing into students being taught through innovative approaches such as project-based learning, design thinking, and collaboration (Børte et al., 2023; Owens & Hite, 2022). Many students in universities face a dilemma; they must demonstrate academic prowess with solid hard skills but at the same time, they must work on their soft skills to get into the professional realm (Indrawan et al., 2018). The major focus modernization of higher education has brought is more emphasis on the inclusion of project-based learning activities, which aim at developing students' abilities and competencies to handle more sophisticated projects (Veselov et al., 2019).

More recently, tertiary education institutions have noted the need to assist students in developing both soft skills such as problem solving, teamwork and hard skills like cognitive and professional skills (Vogler et al, 2018; Cong & Ironsi, 2025). It is clear that global

collaboration and Project Based Learning (PBL) has a positive impact on higher degree learning, more so when both are integrated. This teaching approach designs educational processes aimed at the acquisition of specific important skills such as problem solving, creativity, communication, teamwork, cross-cultural sensitivity, collaboration, and innovation among others. Moreover, it enables lecturers to reflect on existing teaching strategies and renew their approaches.

Thus, universities around the world are now starting to incorporate global project-based learning opportunities for their students.

2. Literature Review

2.1. Project-Based Learning (PBL)

Project based learning is a constructivist paradigm of learning which stems from the work of Dewey (1986), who proposes that learning entails active inquiry on the part of the learner, and therefore it is a process where knowledge is constructed from relevant experiences. Vygotsky (1978) boosted this perspective by stating that learning is more effective when it occurs in a social setting, where the students are stimulated to talk to their peers about everyday problems. Along with Barak and Usher (2019), Wu and Wu (2020) has also described Project-Based Learning (PBL) as one of the most PBL as one of the most accepted approaches in education as it provides opportunities for learners to have real experiences and reflects the depth of understanding of the theory. Students' motivation to share, discuss, critique, and reflect on the work done usually increases when they work in small groups (Uziak, 2016). During PBL students are placed at the centre of the learning experience which allows them to actively explore the challenges and develop solutions (Gallagher & Savage, 2024; Novalia et al., 2025), unlike traditional didactic teaching (Chen et al., 2019). Consequently, this aligns with cognitive load theory, as students engage in self-directed inquiry, problem solving and reflection (Sweller, 1004).

2.2. The Role of Design Thinking Process in PBL

Design thinking follows a structured process with various steps including empathize, define, ideate, prototype, test and implement and is rooted in the research done by Brown (2009). This process mirrors constructivist and experiential learning theories by motivating active student participation, iteration and real-world application (Guan-Quintanilla et al., 2023). By combining design thinking with project-based learning students get the optimum opportunity to strengthen teamwork and problem-solving skills (Yu et al., 2024) by aligning with social learning theory that highlights the importance of modelling and observational learning (Bandura, 1986).

2.3. Global Collaboration in Higher Education

Global collaboration in higher education is the process of working on a joint academic project with students from different cultural and geographical backgrounds with the potential to enhance global competency such as communication skills, cultural awareness and sensitivity (Deardorff, 2006; Naseer et al., 2025). Students can get diverse perspectives on global challenges and cultivate global citizenship and cultural sensitivity when global collaboration opportunities are integrated in PBL (Bennett, 1993; Hong et al., 2024; Sousa, 2025). Even though the advantages of global collaboration is clear, it is important to effectively manage academic expectations, as various challenges are likely to occur during the global project as a

result of language barriers, technological challenges and cultural differences (Børte *et al.*, 2023).

Students who are given the opportunity to participate in global collaboration PBL projects often demonstrate increased resilience, self-assurance and innovative problem-solving skills (Guaman-Quintanilla *et al.*, 2023). As such students can be better prepared to succeed in the currently employment landscape due to the hands-on learning experiences in global collaboration PBL projects (Leonard *et al.*, 2016; Naseer *et al.*, 2025).

The global collaboration PBL initiative known as WAW (Working Around the World), spanned over a period of 24-hours with students from four global higher education institutions including Binus University in Indonesia, InHolland University of Applied Sciences in the Netherlands, the North-West University in South Africa and Durham College in Canada. The design teaching process was presented to all the participating students before the project commenced to ensure that the students understood what role they would be responsible for. During the global collaboration PBL initiative the students were requested to develop an online playable game that demonstrated cultural diversity and internationalization linked to the Sustainable Development Goals. The aim of the initiative was the promote cultural awareness and comprehension through game development where students had the freedom to create any game, they could image, aiming to deliver a playable online demo game after the span of 24hours. Students collaborated in teams and transferred their concepts to the following groups based on the timeline provided.

The project was divided into three development stages, with each phase restricted to 8 hours. The participating universities had an identical number of student groups engaged in the online game development, enabling a smooth handover of tasks at scheduled times. Indonesia and Canada combined had 20 groups, South Africa had 13 groups, and the Netherlands had 7 groups. During the initial 8-hour phase, Indonesian students were assigned the responsibility of starting the ideation process, where they needed to develop ideas for online games focused on themes such as internalization, globalization, or cultural diversity. After completing their 8-hour brainstorming period, they shared their game development concepts ideas with student groups in the Netherlands and South Africa via Microsoft Teams. This transfer occurred simultaneously since both nations share a similar time zone. The South African and Netherlands student teams moved forward with the design thinking stage by choosing the most viable idea and developing it into a functioning online game prototype. At the end of the second 8-hour segment, the concepts from South African and the Netherlands were handed over to Canadian student groups via Microsoft Teams. The Canadian teams were tasked with finishing, testing, and polishing the online game prototype, along with creating a presentation video of the final product during the next 8-hour phase. After the project was completed, a reflection session was conducted 24 hours later through Microsoft Teams, allowing student groups to see the final products and think about the development process.

3. Research Questions

This study aimed to explore key aspects of the International PBL project by addressing the following questions:

- RQ1: How did participants experience the global PBL initiative?
- RQ2: What improvements could enhance the effectiveness of the global PBL initiative?
- RQ3: How did the global PBL initiative contribute to participant's professional skill development?

4. Research Methodology

A qualitative methodology was employed to gain insight into the various posed research questions based on the global collaboration PBL initiative. Data was gathered by means of an online questionnaire featuring open-ended questions that allowed participants to give honest anonymous feedback after the global collaboration PBL initiative was finished. The responses were analysed using established criteria for evaluating observational data and indicators as suggested by Braun and Clarke (2006).

4.1. Questionnaire design

The online questionnaire featuring open-ended questions was designed to allow participants to provide honest insights into their experiences with global collaboration. The open-ended questions included was derived from previous research conducted by Quintana and Fernández (2015). The questions ranged from asking participants to explain why they enjoyed the global collaboration PBL initiative, explaining why they did not enjoy the initiative, sharing their opinions on the different teams/countries involved in the initiative by specifically referring to the strengths and weaknesses of their performance, elaborating on the available resources to complete their part of the initiative, explaining why they think the activities completed in this initiative will or will not contribute to improving their professional performance, and to elaborate on the technological and other difficulties that emerged during the initiative.

4.2. Ethical Clearance

Ethical clearance for this study was obtained through the appropriate academic ethics review process at the higher education institution, as part of a broader staff development initiative. The research tool (online questionnaire) used in this study was submitted for ethical approval as an extension of the overarching project clearance. The ethics review body functioned as a gatekeeper, ensuring that the study met the necessary ethical standards. Engagements with gatekeepers were conducted respectfully, with clear communication of the research objectives and mutual benefits for both the academic community and student participants. The study prioritised the creation of a secure environment for voluntary student participation, safeguarding anonymity and personal information. Ongoing communication and feedback mechanisms were maintained to ensure the continued ethical integrity of the research process.

4.3. Participants

A purposive sampling strategy was employed to select participants who had direct involvement in the international collaborative PBL project, ensuring that insights were drawn from those with relevant and recent experience. The participants were South African students who took part in the international collaborative PBL project. They comprised of 28, mixed gender 4th year postgraduate students who are registered for both BCOM Honours in Business Management and Marketing Management during 2024.

4.4. Data Analysis

Data analysis included an inductive constant comparative analysis to define, evaluate and establish shared themes from the responses of participants, as this method reduces data through constant recording (Glaser & Strauss, 1967). The process began with open coding to develop categories, followed by further reduction for core categories to emerge (Glaser & Strauss, 1967). Each participant's responses were independently coded using AtlasTi software

to minimise redundancy and enhance analytical consistency. Researchers carefully reviewed the dataset multiple times to identify recurring codes, which were then compared across responses to reveal similarities, differences, and patterns. Codes were grouped into broader categories based on conceptual similarities, and through iterative analysis, overarching themes were distilled that aligned with each of the study's research questions. This thematic framework enabled the researchers to interpret the data holistically while maintaining a close connection to participants' original expressions (Liu, 2016). The rigorous and transparent coding process ensured that the emergent themes accurately reflected the participants' lived experiences and perspectives within the international PBL project.

5. Findings and Discussion

The findings and discussions are constructed based on the specific research questions.

RQ1: How did participants experience the global PBL initiative?

The qualitative analysis revealed key themes related to the overall experience of students based on the positive experiences and challenges associated with the international PBL project. The themes and direct quotes are presented in Table 1 and 2.

Table 1. Positive experiences with the International PBL project

Theme Identified	Direct Quote
Cultural Collaboration	<p>"I talked to different kinds of people." "I had the opportunity to work with international students and observe how they understand the task." "It was an opportunity to do something I've never done before - communicate and collaborate with international students." "WAW is something different! You get the opportunity to work with other cultures and people from around the world." "It was fun interacting with international students." "It was great exposure to learning from students in other countries." "It was fun to learn about new people from different backgrounds and to see how they think and what their ideas were." "I enjoyed the opportunity to engage with students across the globe; it is interesting to understand how they work and learn about new cultural ways of doing tasks."</p>
Personal Growth	<p>"It challenged me to be outside my comfort zone and to work with new people." "It was an eye-opener to see that I was actually capable of interacting with people from other countries; it gave me more confidence." "I tend to be more introverted and shy, but with the international task at hand, I didn't once think about the fact that I was talking to complete strangers." "I was quite surprised that I actually enjoyed the project because I got to meet new people." "It was a great learning experience."</p>
Teamwork	<p>"Working towards a shared goal." "It was good to collaborate with other countries." "Working with diverse teams made the project interesting and challenging, which encouraged me." "I got to meet new people and build good friendships." "Working with different kinds of people." "It gave me the opportunity to be part of a fun and creative team effort where I got the chance to connect and work together with my fellow students."</p>
Confidence in abilities	<p>"I enjoyed seeing that we had nothing to stand back against other countries." "It gave us a chance to prove ourselves to other students from different parts of the world." "I got the opportunity to measure my educational institution against others worldwide,</p>

Theme Identified	Direct Quote
	<i>and the end result made me proud of the place that I am a part of." "This opportunity opened my eyes and made me grateful for not only my country but also my fellow students."</i>
Skill development	<i>"Gave me the ability to manage my time and get the task done on time." "It helped with research on certain topics of the project that improved our pitch." "I enjoyed setting out our ideas and getting feedback from the international parties involved, so that we could adjust our idea to align with their criticisms."</i>
Unique learning experience	<i>"Because me and my team decided to stick with our big detailed idea and then simplify it as we went along, and it was exciting working with people who are all as eager to learn as you are." "It was something different than usual." "It was something interesting and new."</i>

Source: Researchers' own construct

Table 1 demonstrates that students found value in collaborating with peers from different countries and gaining exposure to diverse cultural perspectives and work approaches. Numerous participants reported that the project challenged them to step outside their comfort zones, enhancing their self-assurance and ability to communicate, particularly for those of a more introverted nature. The collaborative aspect of the work was highly regarded, with students emphasising the importance of teamwork in their overall experience. Participants expressed appreciation for the opportunity to learn through practical, real-world projects that incorporated design thinking and sustainability challenges. The project encouraged creative problem-solving, innovative idea generation, and the refinement of work based on peer feedback.

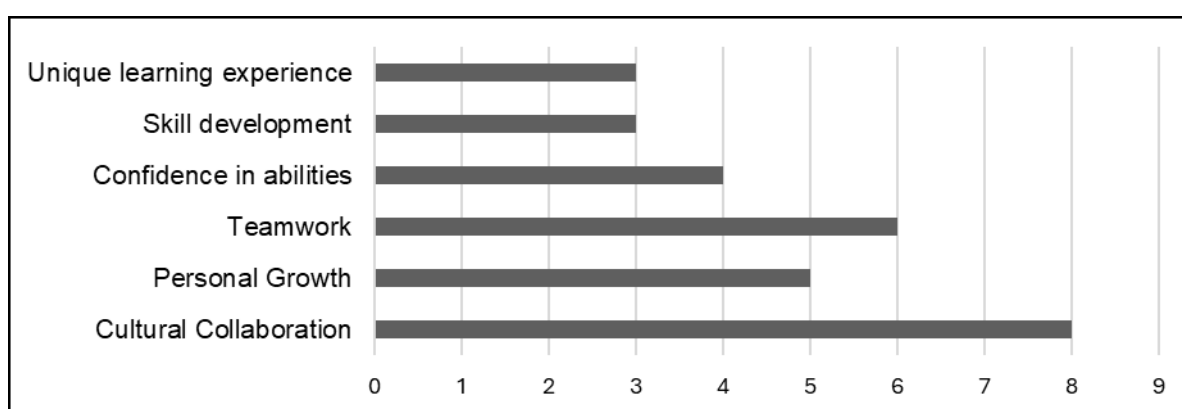


Figure 1. Number of responses regarding students' positive experiences with the International PBL project

Source: Researchers' own construct

From Figure 1 it can be concluded that the majority of the students indicated that cultural collaboration, teamwork and personal growth was positive experiences from the international PBL project.

These findings suggest that global PBL initiatives not only support academic growth but also function as transformative learning experiences that foster personal development. Moreover, the integration of design thinking within a culturally diverse setting appears to amplify students' engagement and deepen their sense of agency in tackling complex, real-world problems.

The qualitative analysis further revealed key themes related to the challenges faced during the international PBL project. The themes and direct quotes are presented in Table 2.

Table 2. Challenges faced

Theme identified	Supporting quote
Technology issues	<p>"We couldn't make contact with the Canadian students during the WAW project." "The Wi-Fi signal was not strong enough." "The other team had to switch to another computer for better audio." "We had to disconnect the HDMI cable for audio use." "We had to send a Teams link to each other that we created because the other teams didn't work." "MICROSOFT TEAMS. I have experienced not being able to connect or join due to 'you are not connected' before - and not from a lack of internet - but I had a sense that the Teams group had not been planned and executed correctly." "Internet connection was not always as good which makes hearing and seeing the other parties difficult as the signal comes and goes." "We struggled to get in contact with our teams, all the teams were in the same 'room' and not separate." "The lack of plugs available to charge our devices." "We struggled at first with connecting to the Netherlands team and after several trial and error we had to use a WhatsApp video call to communicate." "We also struggled with connecting with the Canadian team because we didn't receive any responses to emails which led to us not being able to do our pitch." "We as a team struggled a little bit with MS Teams and to screen share our presentation . "Wi-fi and loadshedding." "Connecting to the meetings." "We were struggling with MS Teams to communicate with other teams."</p>
Unequal Team Contributions	<p>"I didn't feel that our team from the Netherlands did much effort in coming up with an idea." "When we asked for feedback on our ideas, it seemed like the other team weren't paying attention to what we were saying." "The Netherlands students' communication skills were not very good and also not very formal." "Our group met with the Netherlands team, and they didn't seem to listen to our ideas." "The Netherlands team did not seem well prepared, it seemed like they had received a different brief from us." "The other countries did not actively listen to our ideas, they spoke while we were presenting and made jokes." "The Netherlands team seemed laid back and somewhat unprofessional."</p>
Scheduling Issues	<p>"The second meeting was not scheduled correctly." "The teams meeting with Canada wasn't successful." "We struggled to get the initial connection with our team with the links on Google Meets but after that, we were properly set up."</p>
Coordination issues	<p>"Doing the exchange on the same day as the brainstorming day." "We had a misunderstanding about the amount of ideas needing to be pitched which caused our team to be the ones talking a lot more and they had to listen more." "They were misled, because they thought they are going to put ideas together."</p>
Limited Resources	<p>"There were not enough plugs and our laptops and device batteries died." "Teams had to organize their own communication equipment and technology to establish communication with international teammates." "Teams were in an enclosed and small working environment." "We had to organize alternative working spaces." "We did not get a prior lecture about the SDGs, which meant not enough time to research them."</p>
Time Management	<p>"Time management, our team struggled to be timely for the meetings because of the</p>

Theme identified	Supporting quote
difficulties	<i>difference in time zones."</i> <i>"To make it in shorter time to have higher pressures."</i> <i>"It was given to us on a short time span which caused us to have to rush, giving us limited time to think and prepare our final work."</i>
Heavy Workload	<i>"The amount of administrative labour required to execute one task is exhausting."</i> <i>"I did not, not enjoy it, it was just a bit overwhelming at first."</i>
Unclear project expectations	<i>"We as a team had technical difficulties when we had to connect to Canada, so we could not present our idea to them."</i> <i>"I love planning and having all necessary information at hand before starting a task, but since our lecturers needed to teach us that sometimes we would need to figure some aspects out for ourselves, I felt confused at times since I didn't have the 'planning time' that I'm used to."</i> <i>"Understanding their concept of how they viewed the project."</i>
Unclear instructions	<i>"The information was quite vague and everyone seemed to be confused."</i> <i>"I really did not enjoy the fact that the communication was a bit disorganized as it sometimes felt as though nobody knew what was happening and I feel like we would have gotten more out of the assignment had the first few days been more clear."</i> <i>"Lots of confusion."</i> <i>"We were a little confused on what to do and how to do it."</i>
Fatigue	<i>"I was very tired by the end of the day, my performance probably declined because of the exhaustion."</i> <i>"It took a big toll on us, and drained us for the rest of the week."</i>
Stress	<i>"The last meeting was not successful to my liking."</i> <i>"The day was really busy and we were really rushed."</i>

Source: Researchers own construct

As evident from Table 2, participants encountered communication challenges stemming from unreliable technology, poor coordination, and difficulties interacting with international colleagues. Some groups displayed a lack of preparation or engagement, causing frustration amongst participants. Limited resources, including insufficient power outlets, absence of pre-established communication channels, and ambiguous guidelines, impeded productivity. The project's rapid pace, coupled with time zone disparities, made it challenging for participants to maintain momentum. Divergent approaches to the project amongst teams resulted in confusion, necessitating extensive clarification. Participants perceived the project as disorganised, which hampered their ability to work efficiently. The project's demanding nature left some students feeling exhausted, impacting their overall experience negatively.

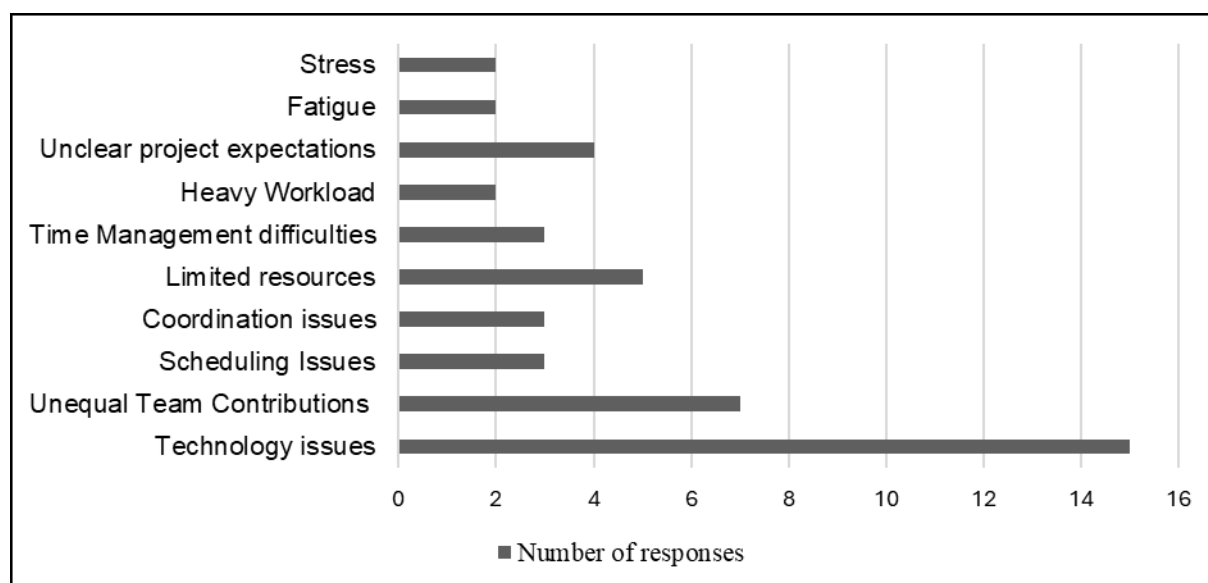


Figure 2. Challenges faced by students during the International PBL project
Source: Researchers' own construct

From Figure 2 it can be concluded that the majority of the students experienced challenges with technology, unequal team contribution, limited resources and unclear project expectations. These challenges highlight the critical need for structured planning, clear communication protocols, and technological preparedness in international collaborative projects. Without adequate logistical and pedagogical scaffolding, even well-intentioned global PBL initiatives risk undermining student engagement and learning outcomes.

RQ2: What improvements could enhance the effectiveness of the global PBL initiative?

The qualitative analysis revealed key themes related to the participants' perceptions on how the international PBL project can be improved in the future. The themes and direct quotes are presented in Table 3.

Table 3. What improvements could enhance the effectiveness of the global PBL initiative

Theme identified	Suggested improvements
Better Preparation	<p>"Meet with the international students before starting the assignment as well (maybe the previous day) - it may ensure that all parties know what is expected of them and to aid in the understanding of the project scope."</p> <p>"To contact the international students a day before the assignment to make contact with them easier."</p> <p>"A meet and greet with the international team before starting."</p> <p>"A fun icebreaker in the beginning to know your team a bit better."</p> <p>"Letting people get to know each other before working with them."</p> <p>"I think that the groups should have more time to communicate with the international teams."</p>
More Engagement	<p>"Maybe interacting more with the other students, more online meetings."</p> <p>"Not an activity, but a video call via WhatsApp will be easier than a Teams meeting. Communication via WhatsApp is also better than email in my opinion."</p> <p>"Exchange of each country's beliefs and social states."</p> <p>"When all is done, I would allow the NWU students to present their ideas to each other and let the class pick which group ultimately had the best idea."</p> <p>"A group session with all the groups in the class to share their ideas."</p> <p>"I would add more steps to the project."</p>
Improved Communication	<p>"Not an activity, but a video call via WhatsApp will be easier than a Teams meeting. Communication via WhatsApp is also better than email in my opinion."</p>

Theme identified	Suggested improvements
	<i>"To contact the international students a day before the assignment to make contact with them easier."</i>
Clearer Project Guidelines	<i>"Discussing concepts/ideas with the SA teams first BEFORE discussing it with the Netherlands team to see where the idea/team could improve." "Create a visualized concept of the game so that the students from the other universities have a better understanding of our idea." "Following along with the development of the game." "Seeing the end result of the project."</i>
More Opportunities for Presentation	<i>"I would add the chance for each of the teams to introduce their ideas to the whole group with a presentation." "Presenting ideas to the class and assigning a winner."</i>

Source: Researchers' own construct

Numerous participants indicated that enhanced communication channels and more precise coordination would enhance the project experience. Inadequate internet connectivity and technical issues impeded communication and teamwork. Participants expressed a desire for more organised interactions to establish stronger working relationships with their international colleagues. Some individuals felt the project was conducted in haste, making it challenging to prepare and deliver a final outcome. Several participants perceived a lack of structure in the project regarding idea development and cross-disciplinary collaboration. Several respondents expressed disappointment at being unable to view the final product or receive feedback on their contributions. The addition of a competitive element was suggested by some participants to increase the project's appeal.

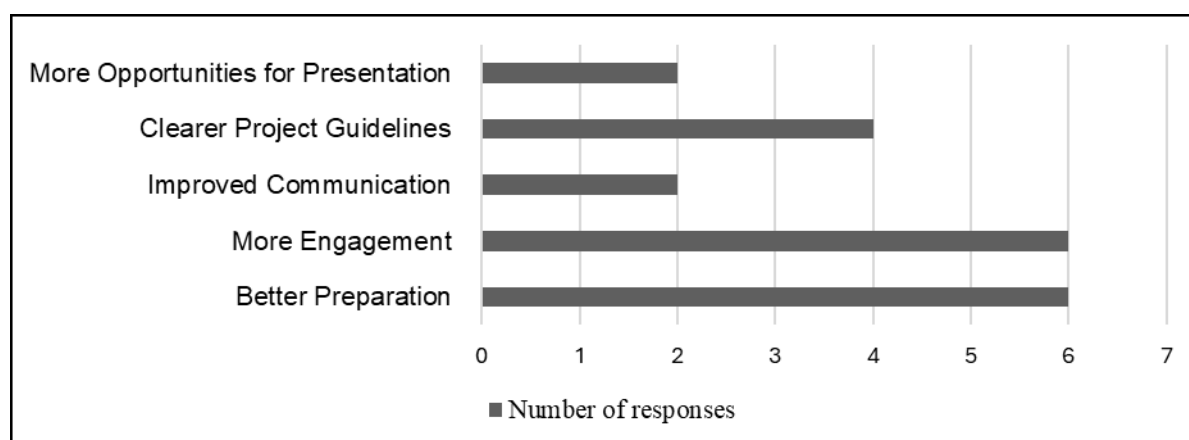


Figure 3 .Number of responses regarding improvements that can be made to the International PBL project

Source: Researchers' own construct

From Figure 3 it can be concluded that the majority of the students indicated that the International PBL project can be improved by providing them with more engagement opportunities and to spend more time in preparing them for the project before the time. These insights point to the importance of pre-project orientation and scaffolding to ensure all participants have a shared understanding of expectations, roles, and deliverables. Introducing structured checkpoints, clearer communication tools, and opportunities for formative feedback could significantly enhance student ownership, motivation, and the overall effectiveness of global PBL initiatives.

RQ3: How did the global PBL initiative contribute to participant's professional skill development?

The qualitative analysis revealed key themes related to how perception of professional development during the International PBL project. The themes and direct quotes are presented in Table 4.

Table 4. How students perceived their professional skills developed during the international PBL project

Theme identified	Suggested improvements
Communication	<p><i>"It helped me with my communication skills."</i></p> <p><i>"It improved my communication and listening skills."</i></p> <p><i>"I now feel like I am less shy and more eager to talk to people."</i></p> <p><i>"I also think that I learned a lot in terms of how to properly communicate within my team and how a team should communicate as a front to others."</i></p> <p><i>"To communicate internationally and cross-culturally."</i></p> <p><i>"Communicating in English."</i></p>
Time Management	<p><i>"I learned to manage and delegate work and also how to work effectively to complete the tasks on time."</i></p> <p><i>"I also learned not to work too fast in the beginning otherwise I might burn out faster and become tired without the project being finished."</i></p> <p><i>"It gave me the ability to manage my time and to complete a project in a short period of time."</i></p> <p><i>"The team had to work under pressure to come up with a completed idea within a short time frame."</i></p> <p><i>"It taught me to work with diverse teams, to communicate better, to think creatively, keeping with strict time management and deal with stress."</i></p> <p><i>"I will reconsider how to manage time and pressure."</i></p>
Resilience	<p><i>"We learned to work under pressure and with new people."</i></p> <p><i>"The team had to work under pressure to come up with a completed idea within a short time frame."</i></p> <p><i>"I will be able to work under pressure."</i></p> <p><i>"It took a big toll on us and drained us for the rest of the week."</i></p>
Adaptability	<p><i>"It is a team working lesson where you can learn how to work with other people's strengths and weaknesses and where you can contribute."</i></p> <p><i>"It teaches you how to be adaptable and flexible."</i></p> <p><i>"I learned that the other parties involved in my projects in the future will not always be as prepared as I expect them to be."</i></p>
Problem solving	<p><i>"It exposed me to challenges I've never had to face before and taught me how to do a lot with fewer (vague) instructions."</i></p> <p><i>"With this, we really were thrown in the deep end without knowing how to swim."</i></p> <p><i>"It gave me the opportunity to interact with other people on an international level, which means I get to hear how they speak, understand how they think and talk to them, combining my ideas and their ideas to get the best possible solution."</i></p> <p><i>"It contributes in a way that it let you think outside of the box within a small amount of time."</i></p>
Cross cultural awareness	<p><i>"I will keep an open mind when working with international counterparts."</i></p> <p><i>"It learns you how to work in different work environments and to work with people from different backgrounds and how to communicate and also to listen to one another."</i></p> <p><i>"This project is giving me workplace exposure, which will go a long way in terms of working in teams internationally and nationally."</i></p> <p><i>"I learned about the economic state of international countries."</i></p>
Teamwork	<p><i>"This forced us to work as a team and with limited time. I think this is what will happen when we start to work, so it was nice to see that it is something that I am able to do."</i></p> <p><i>"Working within a team is always going to contribute towards professional performance as</i></p>

Theme identified	Suggested improvements
	<i>it helps us learn how to accommodate opinions."</i> <i>"They will help in the gaining of working as a team and working with a team and the necessary mindset to have when working with teams."</i> <i>"We learned to brainstorm as a group and to give feedback and build on each other's ideas."</i> <i>"It will certainly help collaborating with other professionals."</i>
Leadership skills	<i>"I learned to manage and delegate work."</i> <i>"I learned how to give constructive criticism in regard to their performance."</i> <i>"Being confident in what I chose to do."</i>
Critical thinking	<i>"I think we now know that our perceptions of people are just that, perceptions. We will only know how people act and communicate when we are in a practical situation with them."</i> <i>"I feel that with my professional performance, I will be able to rely a bit more on my own ideas and not waste time to have to explain them, which will give me more time for finer details."</i> <i>"It will help me in future reference to do more in a short time and still deliver quality results."</i>
Creativity	<i>"It contributes in a way that it let you think outside of the box within a small amount of time."</i> <i>"We learned to brainstorm as a group and to give feedback and build on each other's ideas."</i> <i>"It taught me to work with diverse teams, to communicate better, to think creatively, keeping with strict time management and dealing with stress."</i>

Source: Researchers' own construct

According to Table 4, respondents emphasised that the project enhanced their communication abilities, especially in multinational and intercultural contexts. Numerous students reported that the project aided in improving their time management skills and ability to work efficiently under strict time constraints.

Participants valued the opportunity to work with limited guidance and adapt to unforeseen circumstances. The project afforded students the chance to collaborate with peers from other countries, expanding their knowledge of diverse work environments and standards. Participants gained valuable insights into teamwork, offering constructive criticism, and embracing varied viewpoints. The challenge motivated students to employ creative thinking and refine their concepts through collaborative efforts.

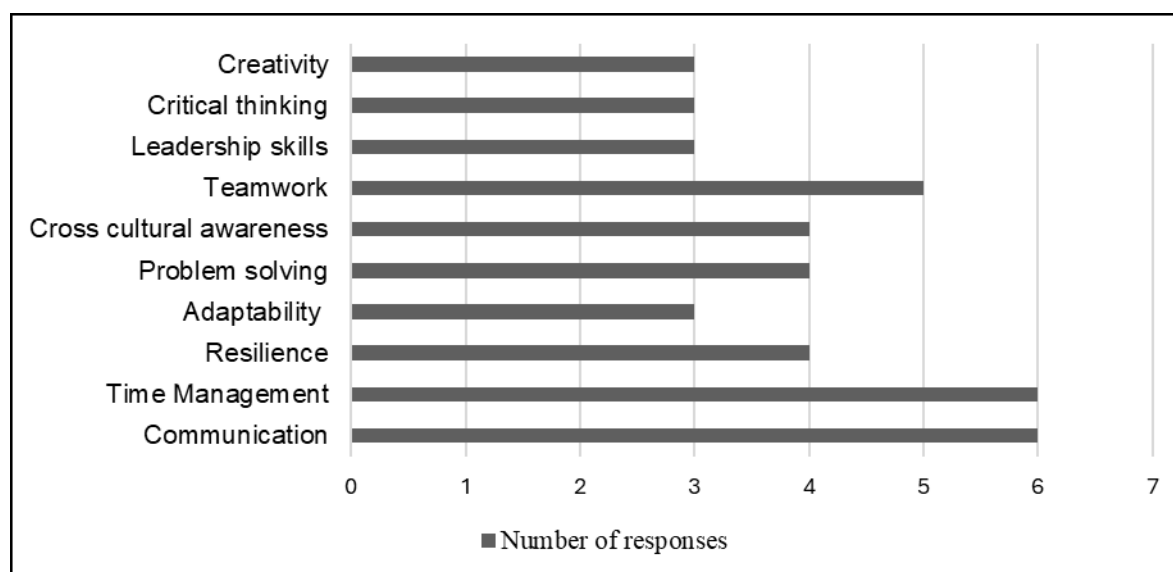


Figure 4. Number of responses regarding perception of professional skills acquired by students during the International PBL project

Source: Researchers' own construct

From Figure 4 it can be concluded that the majority of the students perceived that they have developed communication skills, time management skills, cross cultural awareness, teamwork, resilience and problem solving. These findings suggest that global PBL environments serve as authentic platforms for cultivating essential 21st-century competencies that are transferable to real-world professional settings. The unstructured and dynamic nature of the project appears to have reinforced students' capacity for self-directed learning, adaptability, and collaborative problem-solving—skills increasingly valued in globalized work contexts.

6. Conclusion

The global collaboration PBL initiative offered students the opportunity to work together across borders, with different cultures which enhanced their teamwork abilities, and allowed participants to acquire practical learning experiences. Although the project effectively improved professional development, it also highlighted issues that must be managed in upcoming global initiatives. This included technology issues, unequal team contributions and coordination issues, to name a few. This is in line with the literature by Børte et al. (2023) who explained that various challenges are likely to occur during global collaboration initiatives as a result of cultural differences, language barriers and technological challenges. Despite the challenges students demonstrated resilience by learning to adapt to these unforeseen challenges and cultivated professional skills like communication, adaptability, and time-management.

This is also in line with literature by Guaman-Quintanilla *et al.* (2023). Valuable insights on how the initiative can be improved was also found including enhancing communication tools, clarifying the initiative directives and promoting equal involvement amongst participating teams to foster a fulfilling collaborative experience for all participants involved.

Further research can focus on gathering data from all participating teams across the different global higher education institutions to gain a holistic overview of student experience of the global collaboration PBL initiative. Similarly future studies can aim to examine the long-term effects of students and the way they experience the employability landscape after graduating.

Enhanced methods for developing international collaboration efforts and different global PBL initiative in higher education can also be explored.

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