

EXPERIMENTAL PROJECT-BASED LEARNING IN HIGHER EDUCATION: LEARNING BY DOING IN THE FREIIA PROJECT

F.R. Johansen, G. Andersson, B.G. Hauge, E.A. Leister

Ostfold University College (NORWAY)

Abstract

This article explores experimental project-based learning (PjBL) in higher education through the FREIIA project (<https://www.linkedin.com/company/freiiia>), an international practice-based collaboration involving 14 organizations from six European countries. Students engage directly with real societal challenges in island communities facing issues such as youth migration, energy needs, and tourism pressure.

The learning model combines project-based teaching, PjBL, and action learning, allowing students to co-create development initiatives with local stakeholders. The teaching approach is designed to train students in real-world situations while promoting critical thinking, problem-solving in uncertain circumstances, and personal growth. PjBL was experimentally applied by assigning students the project management of the Norwegian part of the international project, with a key aspect involving leading other students in specific tasks. It also served as a training ground for other students involved in data collection, analyses, and workshops for developing solutions.

The FREIIA model provides final-year bachelor students with leadership roles as project managers under academic supervision. This internship-based setup offers insight into how students handle complex, multicultural projects and balance the dual roles of learner and leader. The students' experiences in project management were followed by interviews and discussions about their learning outcomes. These interviews reveal how the project environment provided real roles and contributed to the development of interpersonal skills that are hard to acquire in traditional education settings. Students highlighted how the project's unpredictability and lack of definitive answers required them to use and further develop their problem-solving skills in real situations. Furthermore, theoretical concepts, particularly within project management, innovation, and organizational development, were actively utilized to address concrete challenges within the project.

Other students participated in two field visits per island. Students from different countries were paired during data collection. Initially, they interviewed residents and tourists on the islands about challenges and opportunities in the island community. Based on this, they analysed the gap between the current situation and the desired future for the community. They then took part in a co-creative design thinking process aimed at generating locally grounded development ideas. The results indicate that several initiatives have proceeded to piloting or implementation in the six local communities.

The study contributes to the growing research literature on PjBL by providing empirical insights into student learning outcomes, stakeholder engagement, and leadership development. The project-based teaching approach also addresses the need for more experimental approaches to PjBL by involving students as project leaders in real international collaborative projects. Through the FREIIA example, it is argued that project-based and action-oriented education not only enhances student competencies but can also contribute to sustainable development in local communities.

Keywords: Project-based learning, action learning, international projects, project leadership.

1 INTRODUCTION

This paper is a working paper.

Project-based learning has been shown to enhance critical thinking, collaboration and motivation [1], [2], however, these conclusions are often based on small-scale, non-experimental studies. Husseins review [3] of the impact of PjBL shows it is diverse, inconclusive and with a lack of strong evidence. FREIIA offers a unique opportunity to implement a quasi-experimental research design to investigate learning gains more systematically.

Blumenfeld et al's study [cited in 1] define that project-based learning engages students in investigating authentic problems with real-life applicability, where student-initiated problem solving necessitates diverse educational activities, results in a final project, extends over time, and involves teachers in

advisory roles (Adderley et al., 1975), emphasises student-centred instruction [2], and fosters greater engagement when driven by a student's "I need to know" rather than a teacher's "because you should know" as shown by Lenz et al [cited in 3].

In this project, an experimental variant of project-based learning is being tested, with the purpose of exploring new learning approaches where students participate in large-scale projects. The students are given a high degree of trust in carrying out their tasks, while at the same time having continuous and direct access to faculty for guidance.

In this case, final-year bachelor students take on the role of project managers in the Norwegian part of the project. First- and second-year students participate in the project through data collection, analysis, and workshops for idea generation and development. The program's faculty serve as supervisors throughout the project, while one acts as the project owner.

The bachelor program *Innovation and Project Leadership (IPL)* at Østfold University College is located in south-east Norway, and is part of the Interreg project FREIIA [5]. Norway collaborates with the EU's Interreg initiative [6] on cross-border cooperation projects, but Norwegian partners have an independent budget separate from the EU partners. The overall project leadership is handled by an EU partner, while the Norwegian side has its own project owner at the University.

From all of this the question arises of what challenges occur and what is the learning effects for students participating as project lead in international projects?

2 METHODOLOGY

The bachelor program has over time adapted and developed PjBL as a pedagogical model. This is based on the understanding that students' desire to learn is best satisfied through a combination of theory and practice, where students themselves are active contributors. There is also trust in that the students are able to live up to high expectations.

Project-based teaching appears as the overarching method for structuring how student learning outcomes are to be achieved, in the form of facilitating projects in most subjects on the program. Project-based learning thus, is the active engagement of students in solving real-life problems through concrete project outcomes. And finally, students learn through action and reflection in a cycle of doing, learning and adapting in authentic contexts.

These three intertwined approaches – project-based teaching, project-based learning, and learning by doing (or action learning) – require a programme structure with strong connections to actors in the public, private, and voluntary sectors to ensure that a sufficient number of projects are available at all times. Likewise, it requires lecturers who welcome projects and are willing to devote time to building contacts and networks. Network-building thus becomes both an important element and a key activity within the programme.

Normally, projects are developed in three ways within the programme. One is that external actors propose a project; another is that the project is developed in collaboration with the actors; and a third is that students themselves establish contact with the actors and develop the project together with them. These projects can range from smaller student assignments to the final bachelor's thesis at the end of the semester. In addition, there are research and development projects in which students are included.

2.1 The case of FREIIA

The Interreg FREIIA (Facilitating Resilience Embracing Islands Innovation Approaches) project (2022–2025), examines sustainable entrepreneurship and innovation within small island communities across Northern Europe. FREIIA is designed to promote a participatory, bottom-up approach that engages young entrepreneurs, students, tourists, and residents in shaping resilient and sustainable development pathways. The project actively engages students in innovation and project management, employing a design thinking-based methodology to address place-based development challenges.

Work Package 4 (WP4) place particular emphasis on student-led processes, including qualitative interviews, analytical assessments, ideation, and prototyping. Across the six participating islands of Hvaler, Schiermonnikoog, Bornholm, Koster, Groix, and Ouessant, the project has identified a set of recurring challenges: youth outmigration, dependence on seasonal tourism, housing shortages, and limited cross-sectoral collaboration. To date, there has been 280 student visits to the islands, with them doing a total of 148 interviews with actors from various societal sectors on the six islands.

The decision to make students project lead for the Norwegian part of the project was based on an idea that this could benefit the students with real world experience, coupled with the academic framework of theory and methods, making an authentic “learning by doing” situation.

As project lead the students got trained in organizational and leadership skills, being responsible for logistics, planning and implementation of a number of activities at home and abroad. Throughout the year as project manager, the students also worked extensively with guidance and follow-up of local and international students from partner countries.

2.2 The interview

The study is based on an interview with the first two students who served as project managers in FREIA, focusing on their experiences and reflections on student learning outcomes, stakeholder engagement, and leadership development.

The interview lasted for approximately 50 minutes and was conducted at the school during the final phase of the students' term. The conversation was recorded and automatically transcribed by the Dictaphone tool, and the data was securely stored at the University of Oslo, which handles this for Norwegian universities and university colleges. A thematic analysis of the transcribed text was conducted and the themes that emerged were discussed.

Further, the researchers have been supervisors for the students and active part of the project. They bring with them knowledge from the faculty's experiences with organising and implementing the pedagogical setup, which includes integration with courses and extracurricular activities, acceptance from international partners, and participation in field research on the islands.

3 RESULTS

The pedagogical method used in FREIA departs from traditional classroom-based teaching in favour of an immersive, interdisciplinary and team-based approach. Teams are composed of first- and second-year undergraduate students in Innovation and Project Management, working under the leadership of two third-year students who are appointed as project managers through an internship-based contract. These student project managers are supported by academic staff acting as national coordinators. Through this model, students are embedded in a multi-layered learning experience combining theory, practice and leadership responsibilities.

Parts of this is an exploration of what students learn (skills, competencies, personal growth) when they are placed in real leadership roles within international, practice-based projects, how involving students in co-creative work with local stakeholders contributes both to education and to community development, and how experimental approaches to PjBL (e.g., students as project managers) compare to more traditional forms of teaching in preparing students for complex, uncertain, real-world challenges. To date, this has also resulted in two written bachelor theses from project lead students, coupling the work directly to the study plans of the university.

Through the interview, the students highlight three clear learning themes: leadership development, engagement with stakeholders, and direct learning outcomes. This conference paper showcase some preliminary results:

3.1 Student Leadership Challenges

Leadership development is clearly evident in the interviews. The students describe how they went from taking on too many tasks to learning to say no and delegate, which they experienced as a turning point: “It has been a learning process to say, ‘This is actually something we cannot do’... it took us a long time to dare to say no.”

They have been responsible for leading other students in demanding international settings and have reflected on the balance between being both a leader and a peer. Furthermore, they emphasize how the differences within their leadership team strengthened project management, as they could complement each other and communicate more effectively.

3.2 Stakeholder Engagement

As project leaders, the students played a central role in coordinating among many different stakeholders. They facilitated workshops with stakeholders in multiple countries, acted as contact points for other students, and established relationships with municipal representatives and partners.

At the same time, they faced challenges related to administrative systems and cultural differences: “There have been many... each country has its own project leader with their own agendas... creating an understanding of what all these different people want to achieve... we spent a lot of time on that.” Such experiences provide insight into how students can learn to navigate complex stakeholder landscapes in practice.

3.3 Student Learning Outcomes

The students report significant learning outcomes through their participation. They highlight how theoretical courses, such as Project development and Organizational development, were applied directly in practice: “We learned all of that from [teachers name] [in the Project development course]... and the mindset he tries to instill in students... we have really benefited greatly from that.”

They emphasize skills such as problem-solving, adaptability, and balancing theory and practice as essential to their development. The learning process was supported by reflection routines, including daily check-ins and recordings where they analysed their experiences afterward. This demonstrates a deliberate connection between action and reflection, a core element of PjBL.

4 CONCLUSIONS

The interview responses suggest that the students experienced important learning outcomes through the application of theory and the development of skills, both academic and in personal growth.

Coping with the challenges the students have not only acquired professional knowledge about leadership and project leadership, but also personal growth in the form of self-confidence, teamwork and social responsibility.

They also report engaging extensively with stakeholders across multiple countries and gained concrete experience in leadership development within complex, international projects. In this way, the students have acquired professional insight into stakeholder management and project leadership, while at the same time growing as individuals through cultural understanding, patience, and relational skills.

The learning outcomes show how the students have gained academic benefits by applying theory to practice and developing methodological skills, while experiencing human growth through reflection, adaptability, and enhanced self-confidence.

Concluded, international projects like the Interreg FREIIA-project can work well as training arenas for students in a setup with students as project lead, and with solid connection to supervision and the use of theory and methods.

4.1 Limitations and prospects for further research

This is a work in progress and also need further referencing to prior academic work. The study is based on a single project, the researchers' experiences during the project period 2022–2025, and one interview with students who served as project leaders. To strengthen the study, further work will include data from additional interviews. The same pedagogical approach is intended to be tested in new projects, both international and smaller-scale initiatives. More research into students as project lead in larger and/or international projects could further our understanding of how PjBL can prepare students for work life.

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