Project-Based Learning as a Tool to Foster Research and Practice in EMI University Teaching

Elisabetta Pavan – University of Padova, IT

Abstract

Project-Based Learning (PBL) is a collection of students' works or a fully developed project in which participants actively and productively demonstrate their understanding of course materials and content. This study highlights how using Project-Based Learning as a course outcome improves content retention, promotes students' autonomous learning and fosters a more authentic experience of language use, while at the same time enhancing language proficiency. The study examines the characteristics of PBL and its role in promoting learner autonomy, reflective practice, engagement, interdisciplinary competencies, transferable skills, and deeper conceptual understanding. To investigate these benefits, a classroom-based study was conducted across two higher education institutions, involving university students enrolled in courses where final assessments were project-based. Data were collected through structured questionnaires administered to 450 participants in English-medium instruction (EMI) university courses. Participants provided self-reflection on their learning experiences, perceived skill acquisition, and the effectiveness of PBL in facilitating meaningful engagement with both course content and language use. Findings confirm that integrating PBL into EMI university courses enhances not only students' grasp of subject matter but also their linguistic competence by providing a more immersive and authentic language-learning experience. This study contributes to the growing body of research advocating for PBL as a transformative pedagogical approach in higher education.

Part of
Bonetto, E., Unterkofler, D., & Wimhurst, A. (Eds.). (2026). Teacher Researchers and Researcher Teachers: Bridging the Research–Practice Gap at University Language Centres. bu,press.
https://doi.org/10.13124/9788860462077

1. Innovative Teaching and PBL: Educational Theories, Lifelong Learning Policies

This study aims to integrate fundamental principles of education with relevant contemporary theories of language learning and European Union (EU) policies, in order to emphasise the potential of project-based learning (PBL) within English Medium Instruction (EMI) courses at the university level. Particular attention has been paid to the challenges this approach presents in relation to students' active engagement, interdisciplinarity, and collaborative learning, as well as to its role in promoting learners' full participation in a rapidly evolving society and their ability to adapt to complex professional environments.

English Medium Instruction (EMI), at university level, refers to the teaching of non-linguistic academic subjects, such as engineering, business, or medicine, through English, in contexts where the majority of students are not native speakers of the language (Macaro et al., 2019, p. 145). CLIL (Content and Language Integrated Learning) and ICLHE (Integrating Content and Language in Higher Education) are other acronyms used to describe the practice of teaching non-linguistic subjects through a foreign language. The former tends to be used in secondary education, the latter links CLIL to tertiary education (Briggs et al., 2018, p. 674). Within this educational context, several factors influence the learning process, including not only students' linguistic proficiency in English as a foreign language and their subject-specific knowledge, but also their degree of engagement, active participation, and involvement in academic tasks and school-related activities, such as task-based learning and PBL.

Project-based learning has long been employed in the teaching of both linguistic and non-linguistic subjects. It is not a new instructional method, and its foundations can be found in the constructivist approach, which draws upon the ideas of Vico, Dewey, Piaget (Wadsworth, 2004), Montessori (Ültanır, 2012, pp. 199–207), of Vygotsky and Bruner (Stapleton & Stefaniak, 2019). Furthermore, earlier references can also be made to Confucius (551–479 BCE), and his maxim "I hear and I forget, I see and I remember, I do and I understand"; to Socrates (470–399 BCE), as the Socratic method, which involves

questioning and critical thinking, is considered a fundamental element of constructivist learning; and to Aristotle (384–322 BCE), who stated[…]

> what we need to learn before doing, we learn by doing; for example, we become builders by building, and lyre-players by playing the lyre; so too we become just by doing just acts, temperate by doing temperate acts, brave by doing brave acts. (Aristotle & Crisp, 2004, p. 23)

which succinctly describes active knowledge construction. Later scholars, amongst others, John Amos Comenius (1592–1670) who believed that learning should be centred on the student, rather than on the teacher, and that it should be connected to everyday experience (Cerna & Miloslava, 2019, p. 53); Johann Heinrich Pestalozzi (1746–1827), who claimed that students should actively participate in the learning process "learning by head, hand, and heart" (Brühlmeier, 2010) and Maria Montessori who asserted "Education is not what the teacher gives; education is a natural process spontaneously carried out by the human individual, and is acquired not by listening to words, but by experiences upon the environment" (1946, pp. 3–4).

PBL is a student-centred method closely linked to the constructivist approach. Three core characteristics are commonly ascribed to both Constructivism and PBL. First, active knowledge construction: rather than passively absorbing information, learners actively engage in building understanding by linking new ideas to their existing experiences and cognitive structures. Second, contextual meaning-making, in which learning involves interpreting and making sense of information within the framework of the learner's own prior knowledge and personal worldview, rather than as the straightforward transmission of facts. Third, student-centred learning, wherein the educational process is shaped by the learner's unique perspective, interests, and cultural background, all of which significantly influence how learning unfolds (Beach, 2007; Krahenbuhl, 2016; Krajcik & Shin, 2014; Stapleton & Stefaniak, 2019; Wurdinger, 2016).

In the last few decades, innovative teaching has been widely discussed in educational contexts. In higher education, it typically refers to the implementation of advanced instructional strategies aimed at enhancing student learning outcomes and engagement. Among the most common key elements

of innovative teaching are: active learning, which directly involves students through discussions, projects, and hands-on activities; problem-based learning, in which students address real-world challenges to develop practical competencies; interdisciplinarity, or the integration of multiple disciplines to promote broader understanding; personalisation, which entails adapting instruction to meet individual student needs; collaboration, or the promotion of peer interaction and group work; the flipped classroom, where students engage with content at home and use class time for interactive learning; continuous assessment, which provides ongoing feedback in place of relying solely on final examinations; and, finally, the incorporation of digital technologies, such as online platforms, apps, and multimedia tools that support and enrich learning.

It is evident from these didactic approaches that innovative teaching tends to move away from the presentation–practice–production (PPP) model (Harmer, 1998, p. 31), in which the objective is to acquire either the structure (in linguistic subjects) or the content (in non-linguistic subjects). Although the PPP model is a reliable and valid framework, particularly for language instruction, which establishes the foundation for a series of classroom activities related to lexical areas and grammatical aspects, it fails to account for students' individual needs and differences. An alternative model to be pursued is learner-centred, in which the learners' needs are central to the lesson content, and the focus of the lesson is the task itself. This model is PBL.

Beyond these historical, theoretical, and pedagogical considerations, there are also political dimensions and educational policy frameworks, particularly those grounded in the *Recommendations on Key Competences for Lifelong Learning* (European Parliament and Council of the European Union, 2006; Council of the European Union, 2018). These policies reflect the earlier discussed emphasis on innovative teaching strategies, problem-solving, critical thinking, collaboration, creativity, and the cultivation of lifelong learning as a means for fostering new knowledge creation. Moreover, the *Recommendations* highlight the importance of language learning as a key competence, particularly relevant in EMI educational contexts, and point to the limitations of traditional instructionist approaches.

> The European Pillar of Social Rights states as its first principle that everyone has the right to quality and inclusive education, training and lifelong learning in order to maintain and acquire skills that allow full participation in society and successful transitions in the labour market. […]. In addition, new ways of learning need to be explored for a society that is becoming increasingly mobile and digital […] In the knowledge economy, memorisation of facts and procedures is key, but not enough for progress and success. Skills, such as problem solving, critical thinking, ability to cooperate, creativity, computational thinking, self-regulation are more essential than ever before in our quickly changing society. They are the tools to make what has been learned work in real time, in order to generate new ideas, new theories, new products, and new knowledge. […] The provision of language learning, which is increasingly important for modern societies, intercultural understanding and cooperation, profits from the Common European Framework of Reference for Languages (CEFR). (Council of the European Union, 2018, pp. 189/1–189/3)

2. From Instructionism to Project-Based Learning

Instructionism has long been a common approach in education; however, it is insufficient, inadequate, in the contemporary educational environment, in which more student-centred and innovative approaches to instruction are required, both in linguistic and non-linguistic courses, included EMI courses. EMI courses are well established in today's higher education ambient; in these contexts, PBL serves as an effective pedagogical approach for engaging students in authentic problem-solving tasks while simultaneously enhancing their English language proficiency. PBL necessitates the integration of language skills as a means for students to increase their fluency, which aligns closely with the principles of the communicative language teaching approach. Every time students engage in PBL, they develop skills aligned with those promoted by innovative teaching practices and listed in the *Key Competences* (Council of the European Union, 2018).

Sawyer (2014, p. 2) describes instructionism as the traditional form of schooling that prepared students for the industrialised economy of the early 20th century. However, in today's technologically advanced and economically competitive world, traditional instructionist approaches are proving increasingly inadequate in preparing students to engage effectively with the

demands of contemporary society; as a matter of fact, when learners passively receive information from external sources such as teachers, computers, or textbooks, the resulting learning tends to remain superficial (Sawyer, 2014, p. 2). Research indicates that a significant number of schools emphasise the transmission of superficial or disconnected knowledge, rather than promoting integrated understanding that enables students to apply their learning to problem-solving, decision-making, and the acquisition of new concepts (Krajcik & Shin, 2014, p. 275). In response to these findings, many scholars in the learning sciences are designing innovative curricular models aimed at enhancing student engagement and fostering deeper comprehension of key concepts, and PBL is a notable example of such an approach. Through this process, learners engage in tasks that closely mirror the work performed by professionals in scientific fields and the workplace. It is argued that PBL closely aligns with key attributes associated with lifelong learning and employability, including creativity and innovation, collaborative teamwork, effective task planning and distribution, as well as the development of leadership skills (Smith et al., 2013, p. 218).

Krajcik and Shin claim that developing a deep understanding is a gradual process that often occurs when students engage with meaningful tasks requiring them to integrate and synthesise information (2014, p. 277). Through in-depth exploration of core concepts, learners can identify relationships among key ideas and principles, enabling them to transfer their knowledge to novel and unfamiliar contexts, putting into practice the "learning to learn" competence highlighted in the *Key Competences* (Council of the European Union, 2018) and the transversal skills and competences listed in the *European Skills, Competences, Qualifications and Occupations* (ESCO) (European Commission, 2019). Learning sciences researchers (Nathan & Sawyer, 2014, p. 24) have shown that the most effective learning occurs when it is situated in an authentic, real-world context, similar to how scientists conduct experiments in laboratories within scientific disciplines.

Project-based learning has been defined as "a teaching method where teachers guide students through a problem-solving process [that] includes identifying a problem, developing a plan, testing the plan against reality, and reflecting on the plan while in the process of designing and completing a project" (Wurdinger, 2016, p. 29; Wurdinger et al., 2007, p.151). It involves stu-

dents in authentic and meaningful problems that are personally relevant and reflective of the types of tasks undertaken by professionals; a classroom structured around PBL encourages students to explore complex questions, formulate hypotheses and explanations, defend their reasoning, critically evaluate the perspectives of others, and experiment with new ideas. Furthermore, empirical studies have shown that learners in project-based environments tend to achieve higher academic outcomes compared to those in more traditional instructional settings (Smith et al., 2013, p. 222). PBL allows the introduction of employability skills into the curriculum and helps learners construct knowledge in contexts similar to real-world environments (Beach, 2007, p. 1498).

In consideration of these reflections, a methodology that can fulfil all the elements described so far in terms of active engagement, interdisciplinarity and collaborative learning is PBL. Project-based learning environments have six key features:

1. They start with a driving question, a problem to be solved.
2. They focus on learning goals that students are required to demonstrate mastery on key science standards and assessments.
3. Students explore the driving question by participating in scientific practices – processes of problem solving that are central to expert performance in the discipline. As students explore the driving question, they learn and apply important ideas in the discipline.
4. Students, teachers, and community members engage in collaborative activities to find solutions to the driving question. This mirrors the complex social situation of expert problem solving.
5. While engaged in the practices of science, students are scaffolded with learning technologies that help them participate in activities normally beyond their ability.
6. Students create a set of tangible products that address the driving question. These are shared artifacts, publicly accessible external representations of the class's learning. (Krajcik & Shin, 2014, p. 276)

With PBL students create and produce projects. For instance, in the courses described in the next sections of this paper, amongst the projects completed, students designed a brand or product campaign from scratch and the related

media coverage, or they organised an event and presented its promotional strategies, they designed a social media page or created a learning portfolio, as a project and final task for assessment. Students' learning becomes experiential when they begin to actively work on their project and then heck it to see if it works. Problem solving tends to be one of the fundamental life skills that students learn in the project-based learning process.

PBL is more teacher-directed when educators identify the projects for students, whereas it is more student-centred when educators allow students to create their own projects based on their own interests. From a classroom management point of view, it must be considered that solving problems to complete a project takes more time than passive methods of learning, because students will have to undergo multiple trial-and-error attempts before completing the project to their satisfaction (Wurdinger, 2016, p. 29).

3. The Research Context

The research was conducted among master and bachelor's students enrolled in project-based courses at two universities in Padova between 2020 and 2023: the University of Padova and the Ciels Campus, both located in the city. While master's courses had a solid ground of attendees coming from international backgrounds, bachelor's and teacher training courses were mainly attended by students whose first language was Italian and whose level of English varied from B1/B2 of the CEFR to proficient. Indeed, in both universities, the formal requirement for attendance in EMI courses is a B2 level. In each course, the final project requirements were illustrated during the first lecture as a compulsory final group project for attending students to be presented in class towards the end of the semester/course.

3.1 The Courses

The master's courses in both universities were centred on communication and were single module for first-year students, sometimes with very little background in communication. All courses were held in English, therefore all of them were EMI. The length of the courses varied from a minimum of 16 hours to a maximum of 42, with an average of participants ranging from

20 to 60. The bachelor's courses were both focused on communication and English culture, with one course held online due to COVID-19 safety regulations. In all the above, attending students were asked to present a final project as part of a continuous assessment programme, which involved the students in small pair or group projects to be carried out during the course, which would then be added to their final group project performance and would contribute to either their final mark or to a pass or fail for the entire module. For attending students, where possible, the final project and presentation in class replaced the final exam, while non-attending students were asked to prepare an individual project as an exam prerequisite. They would then sit through an official written examination, in which they answer at least three questions that mainly test their ability to apply skills and knowledge acquired through self-study and the creation of the individual project. In one course, for instance, students taking the final exam might be asked to write a press release or analyse an advertising campaign, within the time given for the exam, which is ninety minutes. The final mark is then calculated based on their performance in the exam (60% of the overall mark) and the quality of their project (40% of the overall mark).

3.2 General Objectives

Most of the courses in which PBL was applied are still running, and they were designed since the creation of their course descriptions with the following primary objectives:

- to equip participants with strong communicative skills, that is, giving students attending the courses background knowledge, literature and real-life examples of the communicative structures they will encounter in their academic and professional career;
- for students to be able to decode these communicative structures by analysing them in and outside class, according to the theories and examples provided by the lecturer and through in-class pair or group projects;
- to complete the course with an autonomous and critical view of the content and to demonstrate their understanding of the strategies used in effective communication through a final group project, which, in some cases, replaces the final examination.

Indeed, despite most of the participants being non-native English speakers, and the courses being EMI university courses, none of the courses is focused on the teaching of English as a second language; on the contrary the courses themselves offer minimal grammar insights, which, when provided, have the ultimate goal of developing a critical understanding how grammar and linguistic strategies can be used to impact the effectiveness of communication. Therefore, even if language proficiency undoubtedly impacts students' performance in presenting their work, as stated above, evaluating students' proficiency in the language is not among the course's main objectives. Nevertheless, it is worth anticipating here that results from the survey, which will be analysed more deeply further down, have indicated that students attending courses where PBL was applied perceived that an improvement in language skills was achieved, too.

That aligns with the view of language acquisition that Krashen (1981, p. 10) advocates, namely that "the best language lessons may be those in which real communication takes place, in which an acquirer understands what the speaker is trying to say."

3.3 Course Mirroring Design

In real-life scenarios, students will face multiple challenges; therefore, the design of the courses mentioned above aims at modelling a wide range of situations within the educational settings of the university and amongst peers. The courses mirror authentic content-related situations with students acting as if they were professionals operating in specific fields. Participants themselves contribute to this in several different ways, the first being their diverse, multilingual, and multicultural backgrounds, which in turn transform the classroom environment in something resembling the world that awaits them outside university, a globalised world where English is often the official language used to communicate across cultures with people coming from different parts of the world, working for the same organisation (Smith, Duncan, and Cook, 2013, p. 218). Course content is therefore gradually delivered through small projects that students complete in class during the lesson, so that students can become more confident in their ability to produce meaningful responses to tasks while at the same time becoming more independent in their learning.

3.4 Project-Based Learning: An Autonomous Learning Path

Since day one, students are introduced to a method which leaves little room for non-active participation. The lesson is often divided into two separate parts:

- a first part where theory or sample cases are presented
- a second part where students practice what they have just learned by engaging in discussions with their peers and producing something similar to the ideas and content the professor has just introduced to them.

The need for interaction springs from the assignment itself, which is always presented as a small pair or group project to be completed there and then. Since the first lesson, immediately after the introduction of a new concept, for example, the strategies behind the use of persuasive language in advertising, students are divided into pairs or small groups and are asked to complete a small assignment by finding current evidence of the use of persuasive strategies in the world of advertising. Students then report their findings on the course Moodle page, which is the official university learning platform. In this way, their answers to the assignment are available for each group to read. Moreover, often a random sample of the answers is discussed in the plenary session of the lesson. Therefore, PBL is introduced since the very beginning of the learning journey students will undergo together, with the explicit aim of accustoming participants to rely on their own elaboration of content as a form of content itself, of which not only the direct producer, but also their peers can benefit (Wurdinger, 2016, p. 29). Indeed, as stated above, most of the small projects are analysed together in class before the end of each lesson. Participation is spontaneous, never forced, nor assessed until the end of the course. This method often differs from the traditional one, still abundantly used in lectures, so for some learners, particularly those coming from more rigid academic backgrounds, it may come as a challenge, and it may take some time for them to adapt to it. However, the approach is integrated into the courses with the clear intention of pushing learners beyond their "learning" limits by placing the learner at the core of the learning process as an active part. By working with their colleagues, students contribute to the success not only of the tasks assigned by the teacher but also of the outcome of the entire course

itself. Individual abilities and content understanding naturally flow together with collective learning. Therefore, participants' capabilities and potential skills come alive. This is line with Vygotsky's theory on learning through social relationships in which he describes the learning process as something happening in two phases, one which can be called the actual which is determined by one's "independent problem solving" ability and the potential one, which is "determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). As the ultimate goal, the interactive method looks at students becoming autonomous in their learning path, taking full advantage of the course according to their own needs and different levels of understanding of the course content. Since day one, there has been a mutual trusting relationship between teachers and participants, with the former pushing learning boundaries further, project after project, aware that it is because of this that students will find the confidence in themselves to become masters of their own learning journey.

4. Data Collection and Analysis

The benefits of using PBL in university EMI courses have already been discussed in the first part of this paper. The previous chapters illustrate the course's design and the requirements students were asked to fulfil as part of PBL programmes and syllabi, which are similar in their requirements but not identical in content, as they cover different topics and Degree courses. Indeed, it is in the PBL nature of the courses themselves that the result below can be analysed and taken to further interpretation by considering that most of the participants were also attending non-project-based courses, which they completed before the survey was administered to them, which in turn implies that they were able to answer the questions with a complete experience of the two different scenarios.

The results presented here were derived from the contribution of almost 20% of all the attending students. A fraction of students from each different course took part in the survey, which widens the research angle, since their course experiences were similar but undoubtedly unique.

4.1 Results

This study's main focus is to establish a direct correlation between the application of PBL in course syllabi and students' perception of their learning achievements by the end of the course, by comparing the PBL courses they attended with courses where the approach was either more traditional, that is where content is delivered in class without participants active engagement, or where the final assessment isn't project-based, but carried out through a final written oral or written examination. In addition, since the courses were EMI delivered mainly to non-native speakers of English, this presented itself as an opportunity to also reflect on participants' perceived improvement in second language acquisition, which was therefore also investigated in terms of students' perception, without being tested.

Data were collected by administering a survey through a Google questionnaire to over 450 participants who enrolled on the project-based courses mentioned above. We received 75 responses

- 68 from students who actively attended the courses and completed the final group project as part of their final exam
- nine from students who enrolled on the course as non-attending students and completed the individual project as a prerequisite for the final exam, which they took, to obtain the final mark.

The research focuses on several core questions related to the PBL experience, specifically whether attending a project-based course can lead to an:

- increase in course content retention;
- increase in motivation;
- improvement in self-management and self-monitoring;
- increase in learner autonomy development;
- increase in knowledge application in real-world scenarios;
- improvement in English language skills;

4.2 Course Content Retention

As seen in Figure 1, to the question whether *"Considering your learning experience at university so far, do you feel that you have learnt more in courses where the final exam was standard (for example: written or oral final examination or Project/ portfolio/presentation-based (for example: an individual or group presentation)"* 45 students replied that they had learned more in project based courses, 25 chose the standard examination, while 5 stated they did not know.

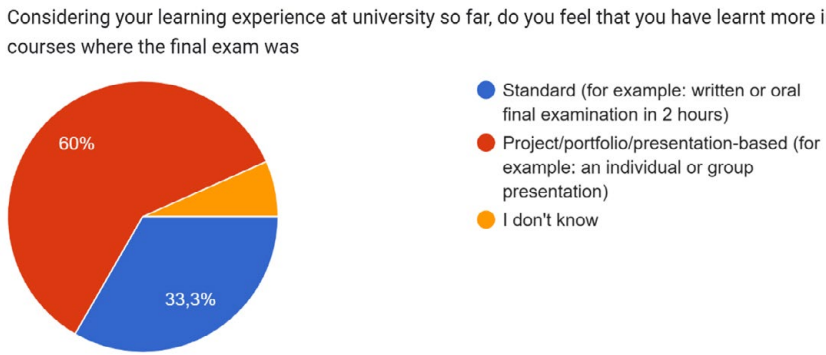

Fig. 1 – Increase in course content retention (75 replies). Source: Independent Google questionnaire.

This result is therefore in line with the research expectation and finds even more evidence, and consistency in a subsequent, more content-related question, *"Do you feel your final mark was closer to your real course content knowledge when you were examined according to standard or project based exam?"* students seem to not doubt their preference with 50 students choosing project-based exam and 25 the standard one, as seen in Figure 1a.

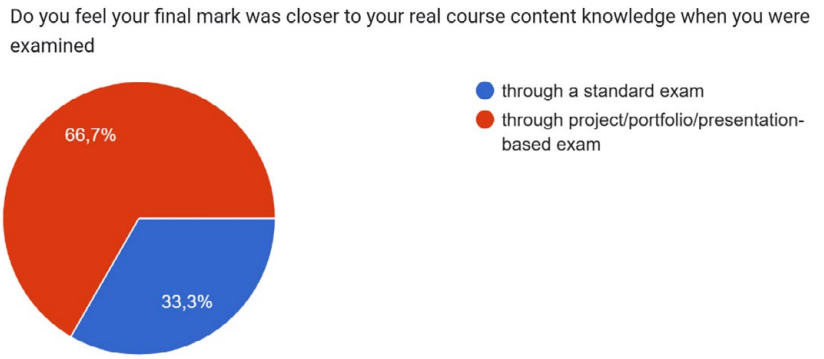

Fig. 1a – Real course content knowledge (75 replies). Source: Independent Google questionnaire.

As discussed in previous chapters, it is undoubtedly not only the project-based nature of the final exam that can make participants feel so confident about course content retention, but also their active participation in small content-related projects carried out in the classroom during the course. This reinforces the findings illustrated above that when properly applied, PBL can indeed increase course content retention.

4.3 Motivation

A major benefit of attending courses where the final exam is project-based can also be tracked in students' increased level of motivation. Indeed, as seen in Figure 2, to the question *"Referring to the course you attended, do you feel that knowing that your final exam was project/portfolio/presentation-based was more motivating than preparing for a standard exam,"* answers were allotted according to a degree of total disagreement or total agreement on a scale from 1 to 5. In reply to the question above, only 2 students out of 75 disagreed, while more than 50 selected 4 or 5 (where 1= totally disagree and 5= totally agree, while 2, 3 and 4 were left in the middle) in the scale, reinforcing the research assumption that PBL can boost students' motivation. Moreover, as illustrated above, the project-based exam came as the final phase of several projects students completed during the course, so it can be assumed that the quantitative results can also be interpreted by considering a wider time frame than the final assignment. Indeed, as Blumenfeld and colleagues suggest,

> To benefit from project-based instruction, students need to be cognitively engaged with subject matter over an extended period of time. Advocates of a focus on complex tasks as an important component of classroom instruction assume that students will be motivated to test their ideas and deepen their understanding when confronted by authentic problems in a situation that is similar to how learning occurs in out-of-school settings. (Blumenfeld, 1991, p. 374)

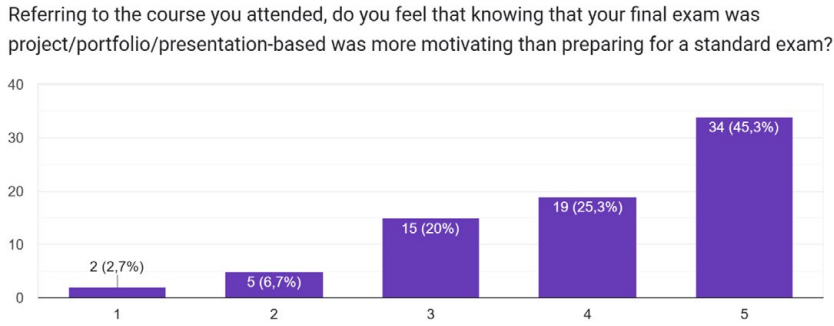

Fig. 2 – Increase in motivation (75 replies). Source: Independent Google questionnaire.

4.4 Self-Management and Self-Monitoring

Students reported a similar improvement in their self-management and self-monitoring skills. This question was more specific, as it was not a comparison between the project-based and standard exam courses. Instead, it asked students for their views on the benefits derived from attending a project-based course in enhancing the above-mentioned skills, without mentioning other types of courses. So, the question addresses *"The portfolio-based course you have attended"* and investigates whether this *"has improved your self-management/monitoring skills (for example: managing your time)"*, respondents confirmed a perceived improvement in both self-management and monitoring skills, with more than 50 students selecting 4 or 5 (totally agree) in the agreement scale, as seen in Figure 3.

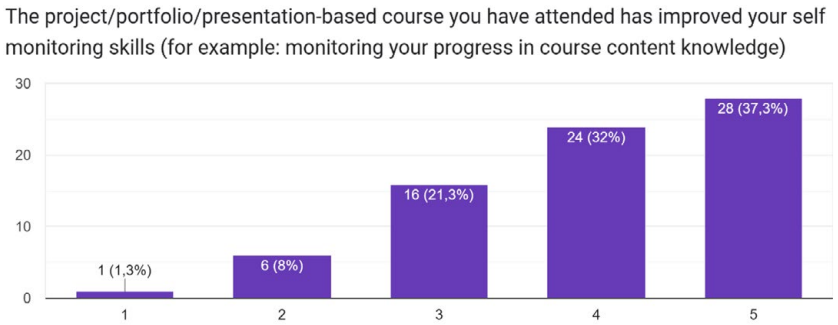

Fig. 3 – Improvement in self-management and self-monitoring (75 replies). Source: Independent Google questionnaire.

4.5 Learner Autonomy

After delineating their increase in content retention, improved self-management abilities and motivation, students who responded to the questionnaire also indicated a perceived advancement in their ability to be more autonomous in their studying and learning path. Once more, the question was specifically looking at the benefits coming from attending the project-based course, with no comparison with other types of courses. In line with the findings illustrated above, more than 50% of the students selected 4 or 5 (totally agree) in the agreement scale, hence confirming that attending the project-based course promoted and expanded their autonomy in studying and learning, as seen in Figure 4.

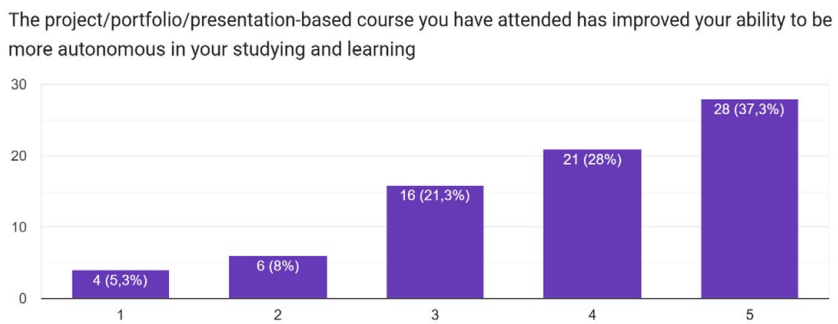

Fig. 4 – Increase in learner autonomy development (75 replies). Source: Independent Google questionnaire.

There are several factors in the course that may have determined these results, one of which is interaction complementing and supporting independence (Vygotsky, 1978). As stated above, participation in class activities is neither compulsory nor assessed during the course. However, by constantly asking students to engage in projects with their peers, they very rarely refuse to complete class activities; those who do often end up being non-attending students.

4.6 Knowledge Application in Real-World Scenario

An additional impressive result can be seen in response to the question about the application of course-acquired knowledge in real real-world context. Indeed, more than 70% of the project-based course participants feel that they can better apply that knowledge in the real world by attending courses where the final exam is project-based, as seen in Figure 5.

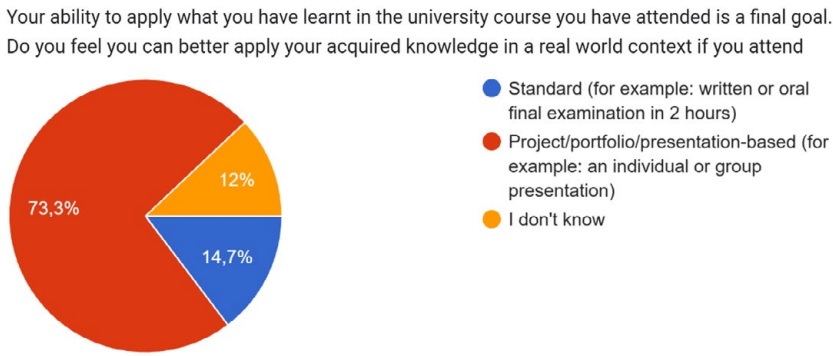

Fig. 5 – Increase in knowledge application in real-world scenarios (75 replies). Source: Independent Google questionnaire.

4.7 English Language Improvements

Of all the responses collected through the questionnaire, participants overwhelmingly reported heightened confidence in their English language skills. It is worth noticing here that 84% of the respondents are non native English speakers. The questionnaire specifically addresses participants' perception of language improvement by comparing courses with standard exams with

courses where the exam is project-based. A striking 74,7% of participants selected project-based, as seen in Figure 6.

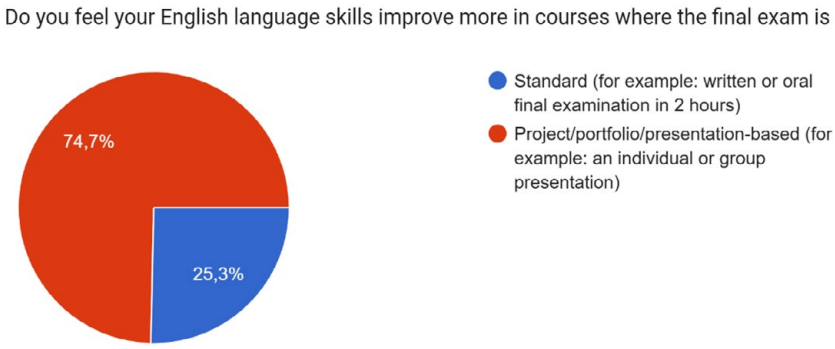

Fig. 6 – Improvement in English language skills (75 replies). Source: Independent Google questionnaire.

5. Conclusion

In line with the Recommendations (Council of the European Union, 2018, 189/1–189/3), PBL fosters lifelong learning (Alt, 2020, p. 370), since it enables people to deal with a variety of often unpredictable situations, supports the development of key competences (Smith et al., 2013, p. 220), overtakes instructionism (Sawyer, 2014, p. 2), developing the skills that are required in modern societies. Language learning and language competences, such as communicative competence, multilingualism and plurilingualism, are embedded in PBL, as students must interact with peers and educators, and, to successfully do so, they are encouraged to reflect on their communicative performances.

Constructivism, one of the dominant approaches in modern educational theory, highlights the importance of placing the learner at the centre of the educational process and it is closely connected to constructivist learning theory. Proponents of this theory argue that learning is an active, experiential process whereby new understanding is constructed upon existing knowl-

edge, emphasising the crucial role of prior experiences and ideas in shaping what is learned (Krahenbuhl, 2016, p. 97).

Teacher education programs have faced criticism for failing to effectively address emerging educational challenges, as they often continue to rely on conventional lecture-based methods focused on the transmission of knowledge. As a result, there is a need for educators who adopt innovative teaching methods and pedagogical approaches that implement PBL, applying these strategies in their classrooms, and ultimately prepare their future students for lifelong learning competencies essential for success in their professional lives (Alt & Raichell, 2022, pp. 370–371).

Empirical studies have shown that learners in project-based environments tend to achieve higher academic outcomes (Smith et al., 2013, p. 222). The findings presented in this study suggest that PBL was highly effective in promoting the development of participants' confidence, knowledge and skills, and it was highly appreciated. Both participants' expectations for the course and the course objectives were met. The use of innovative methods contributed to the positive outcomes of the courses and fostered more authentic experiences in language use and content retention, promoting learner autonomy, reflective practice, engagement, interdisciplinarity, and transferrable skills.

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