INNOVATIVE AND EVIDENCE-BASED TEACHING IN HIGHER EDUCATION

PRACTICES FROM THE INTERNATIONAL BALKAN UNIVERSITY

Innovative and Evidence-Based Teaching in Higher Education: Practices From the International Balkan University

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Contents

Preface

Technological growth and development require new methods and innovations in university-level education. In this context, innovation and digitalization are no longer optional but are becoming a necessity. The book *Innovative and Evidence-Based Teaching in Higher Education* brings together a variety of perspectives from scholars and shares a common commitment to reimagine how knowledge is taught, learned, and experienced. The chapters of this volume present both theoretical insights and practical applications. At its core, this book seeks to bridge the gap between research and practice. While the academic literature might identify student engagement and active learning, the methods by which this is put into practice vary quite significantly across disciplines and institutions. Each contribution in this book illustrates how innovation can be contextualized, how creativity can take form in law, engineering, architecture, design, language studies, and interdisciplinary education. The aim is not to prescribe a single model of innovation but to illustrate multiple

pathways that educators can adapt to their unique teaching contexts. From across disciplines and cultures, these contributions reflect the diversity and dynamism of higher education. Chapters address how innovative practices can be designed, implemented, and sustained in project-based learning, as well as the integration of artificial intelligence into teaching. Many topics in this book draw on that experience, illustrating how adversity can stimulate creativity and resilience in teaching practice. The challenge ahead will be to sustain and institutionalize these innovations to ensure that the gains in flexibility, accessibility, and student-centeredness remain part of higher education's future.

The book is organized to provide both theoretical grounding and practical application. The topics explore conceptual frameworks that inform innovative teaching. The book invites a mindset of curiosity and experimentation: the willingness to regard teaching not as a fixed craft but as an evolving, collaborative endeavor. I want to express my appreciation to the authors, whose work and reflections make this book possible. This book is intended to serve as both an inspiration and a guide for all those committed to advancing teaching and learning.

Ebru Ibish
Vice Rector
International Balkan University
November, 2025

INTRODUCTION

Ozlem Kurt, Editor

Enhancing the quality of teaching and learning in higher education is among the most fundamental priorities of contemporary universities. In today's dynamic and constantly evolving information society, the role of higher education institutions goes beyond just transferring knowledge. In this context, higher education institutions are held responsible for building learning environments that encourage critical and creative thinking, innovation, and sustainable interdisciplinary collaboration. In this framework, universities need to move beyond traditional teaching approaches and incorporate student-centered, technology-supported, collaborative, and evidence-based methods into their course processes. As a higher education institution that has prioritized innovative practices in education since its founding, International Balkan University has made this transformation an integral part of its institutional vision.

One concrete reflection of this vision is the *Best Teaching Strategy Exhibition* and *Best Practices Sharing Panel* events

organized by the Teaching and Learning Center. These events, held with the participation of academics from various faculties within the International Balkan University, provide faculty members with the opportunity to share, discuss, and make visible the good practices they implement in their courses. Academics had the opportunity to observe innovative approaches from both their own disciplines and other fields, and this process also strengthened the interaction between faculties.

This book was designed as an academic reflection of those two events. The innovative teaching practices presented in the *Best Teaching Strategy Exhibition* and *Best Practices Sharing Panel* were further elaborated by the authors with scientific literature, framed within a methodological framework, and transformed into book chapters in accordance with academic standards. Thus, transcending the limited scope of a short-term event, the book emerged as a holistic compilation of voices emerging from the various faculties of the International Balkan University.

The book's primary goal is to systematically document and share innovative methods, techniques, and practices used in higher education. The contributions reveal not only faculty diversity but also thematic commonalities. Examples such as case studies and applications aimed at increasing student engagement from the Faculty of Education, modules that develop rapid research skills from the Faculty of Dental Medicine, applied approaches to comparative legal education from the Faculty of Law, the integration of international competitions into courses from the Faculty of Engineering, and studio-based learning experiences from

the Faculty of Art and Design demonstrate that innovative teaching pursuits are actively pursued across all faculties at International Balkan University.

The chapter contents have been reorganized around common themes. The first theme encompasses pedagogical approaches aimed at increasing student engagement and motivation. This section explores methods such as video production, role-playing, case studies, and applied legal education that empower students to take active roles. The second theme explores the diversity of innovative teaching methods and their interdisciplinary applicability. Strategies used across disciplines, such as short-term research modules, studio-based teaching, and competition-based learning, are included. The third theme focuses on the integration of technology into teaching processes. Constructivist approaches that utilize digital tools and the incorporation of technology with a focus on growth are the key themes of this topic.

This thematic organization ensures that the book goes beyond simply being a collection of faculty contributions and becomes a holistic resource presenting current trends in higher education from an interdisciplinary perspective. For academics, this book offers directly applicable examples in course design, student engagement, and technology integration, while for researchers, it contains theoretical and methodological discussions that will inspire new research.

Furthermore, this book acts as the institutional memory for the development of the International Balkan University. The collaborative efforts of faculty members across

various departments at the university exemplify International Balkan University's dedication to enhancing the quality of education and aligning with the institutional vision of the Teaching and Learning Center. The book also serves the university's internationalization strategy and increases International Balkan University's visibility in regional and international higher education literature.

I extend my gratitude to the esteemed academics who contributed to the publication of this publication, to all faculties, to Balkan University Press, and to the university administration, who unwaveringly contributed throughout every stage of the process and made this work possible.

I believe this book will serve not only as a written record of an event but also as a foundation for future innovative teaching practices. I hope the experiences shared here will guide faculty members in their coursework and provide a resource that opens new horizons for researchers.

PART 1

STUDENT ENGAGEMENT AND MOTIVATION

INCREASING STUDENT ENGAGEMENT THROUGH SELF-CREATED VIDEOS

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Introduction

Increasing student engagement in language classes remains a challenge for teachers who seek effective ways to implement active learning strategies in their classes. In an era of digitalization, integrating technology into language education has become essential. One of the most creative and innovative strategies to enhance student involvement in the English as a foreign language (EFL) classroom is the use of student-created videos. This approach increases the level of cognitive engagement, as it requires students to be directly involved in the language production process through video creation, which is in line with the revised Bloom's taxonomy (Anderson & Krathwohl, 2001).

This strategy has several key objectives. Firstly, it aims to improve learners' linguistic competence, including

receptive and productive language skills, by encouraging authentic use of English in real-world contexts. Secondly, it combines the drama technique of roleplay with technology-assisted learning to develop students' collaborative and communication skills. Thirdly, it promotes learner autonomy by allowing students to control the pace and content of their videos, which leads to a more personalized learning experience. Finally, the creative aspect of making videos aims to increase student motivation and reduce classroom anxiety, as students can repeat the recording process without time pressure.

The rationale for using self-created videos is related to the principles of modern tertiary education. This pedagogical tool encourages multimodal learning by combining visual, auditory, and kinesthetic elements with digital literacy. It also motivates students to be more active both in and out of the language classroom.

In a university setting, the relevance of self-created videos lies in their alignment with contemporary teaching methods such as blended learning and the flipped classroom approach. These methods emphasize student-centered pedagogy and active learning by enabling students to engage in higher-order cognitive tasks (Annan et al., 2019).

Theoretical Framework

The technique of using self-created videos in EFL classes is based on the theoretical frameworks that focus on active and experiential learning. The main pedagogical foundation is the constructivist theory of learning of Vygotsky,

which supports the idea that learners are most successful when they interact socially and are engaged in self-directed, meaningful tasks (Vygotsky, 1987). Video-making aligns with the constructivist approach to language education, emphasizing the importance of experiential, individual, and autonomous learning that allows learners to fully realize their potential (Brydon-Miller & Maguire, 2009). The process of video creation involves planning, scripting, speaking, and editing, where students achieve success by taking responsibility for their learning, interacting with other students in the group, reflecting, and using their creativity to design a video (Stoller, 2016).

In addition to constructivism, the video creation strategy is grounded in Bloom's revised taxonomy, which highlights that this technique demands from students higher-order cognitive processes such as analysis, synthesis, evaluation, and creation (Anderson & Krathwohl, 2001).

The effectiveness of student-created videos in language classes is well supported by substantial empirical research. Previous studies have demonstrated that the process of creating videos increases student motivation, active participation, and retention compared to traditional teaching methods (Bobkina, 2025; Zayraey, 2025; Campbell et al., 2020; Campbell & Cox, 2018; Tai & Ting, 2016; Greene, 2014). Brydon-Miller & Maguire (2009) studied the effectiveness of EFL student-produced video learning materials at the tertiary level. Forty-seven students from the Translation Studies department were divided into two experimental groups (Group 1 – students who created videos, and Group 2 – those who learned from the videos) and one

control group (Group 3 – students who learned through a teacher-centered approach). Qualitative analysis showed that students from Group 1 showed the most significant progress in vocabulary acquisition and retention, followed by Group 2, while Group 3 demonstrated the least improvement. Interviews with the students showed that Group 1 students experienced greater involvement compared to the other groups.

A qualitative study with 107 pre-service teachers investigated the use of self-produced videos as an active learning tool in online STEM education (Campbell et al., 2020). The qualitative findings revealed that video creators enhanced 'their perceived STEM knowledge, self-efficacy, and engagement across behavioral, emotional, and cognitive areas' (Campbell et al., 2020, p.1145). The study recommends incorporating student-created videos to enhance learning and 21st-century skills, advising instructors to follow clear development models, allocate extra time for acquisition and revision, and include peer evaluations.

A crucial aspect of the video-making process is having a clear model to guide students through their video assignments. Campbell & Cox (2018) developed the ICSDR (Identify, Conceptualize/Connect, Storyboard, Develop, Review/Reflect /Revise) model for digital video creation. They instructed their graduate students in education to follow this model, which resulted in increased focus on content and greater motivation. Participants described creating a digital video as an authentic and individualized experience that encouraged personal choice, self-expression, and peer collaboration (Campbell & Cox, 2018). The

findings of this study emphasize the importance of providing students with a structured development framework for video creation.

In the EFL context, studies typically focus on students producing English videos with technology tools, both digital and AI tools (Alley-Young, 2017; Tai & Ting, 2016). A key advantage of student-created videos is that students themselves are recorded in the videos, rather than using purely digital content such as avatars or digitally created characters. This allows students to observe and reflect on their own speaking performance, providing a more authentic, personalized, and emotionally engaging experience (Fitriyani et al., 2020).

Methodology and Implementation

The strategy of self-created videos was implemented within the compulsory course English language 2, delivered face-to-face to first-year students from the Faculty of Law (n = 40) and the Faculty of Engineering (n = 20). The groups were mixed-ability classes, with English proficiency levels ranging from A2 to B2 according to the CEFR (Council of Europe, 2020).

The activity was integrated into unit 9, entitled "Digital World", from the course book used for this course—Gateway B2 (Spencer, 2016). The student-produced videos were used to develop students' speaking skills (expressing opinion, providing for- and against arguments), and help them acquire technology-related vocabulary, by focusing on the topic: Should smart phones be used in the EFL classroom?

Additionally, the writing assignment, originally an opinion essay, was replaced by the video-recording activity, thereby transforming an individual task with no social interaction into a collaborative one.

Students were organized into groups of four and asked to use their mobile phones and make high-quality videos. The interviewees responded to the question "Should smart phones be used in the EFL classroom?" Their answers were recorded in a three-minute video, which was subsequently presented in class.

The video-making activity consisted of the following steps:

Step 1 Group formation and role assignment: Students were divided into groups of four, with each member assigned a distinct role—IBU journalist, IBU student, IBU professor, and parent of an IBU student. The division into groups was done voluntarily by the students.

Step 2 Topic introduction and preparation: The course instructor introduced the groups to the debate question, "Should smartphones be used in the EFL classroom?" For- and against arguments were discussed in class. Students were allotted one week to plan their responses according to their assigned roles and to prepare their videos.

Step 3 Video production: Students used their mobile phones to record the three-minute interview-style video, with each member role-playing their part and answering the question.

Step 4 Editing and finalizing: Each group reviewed and edited their recordings as needed to create polished final videos suitable for classroom presentation.

Step 5 Class presentation and review: The completed videos are presented to the class, followed by discussion, feedback, and reflection on content and language use. At the end of each presentation, students were asked to reflect on their engagement in the video creation and provide feedback on the overall learning experience.

Findings and Discussion

Qualitative analysis of students' oral feedback showed that the implementation of student-created videos in the English Language 2 course significantly increased motivation, engagement, learner autonomy, and collaboration among the students. Additionally, it enhanced students' speaking skills.

Ten groups of four students from the Faculty of Law and five groups of four students from the Faculty of Engineering (Departments of Artificial Intelligence, Architecture, and Civil Engineering) created videos. However, only half of them were presented in class as some of the students did not feel comfortable having anyone other than their instructor watch these videos. This is an understandable and acceptable reaction, since this was their first experience recording themselves speaking in English.

The strategy notably increased student motivation and reduced anxiety associated with speaking tasks in class. In particular, introvert students were proactive and showcased their English language proficiency, which they might not be encouraged to do during regular classes. Higher participation and sustained interest corroborate

research evidence of enhanced student engagement compared to traditional teaching methods (Bobkina, 2025; Campbell et al., 2020; Tai & Ting, 2016). One particular student, who was absent during the video-recording period, was motivated enough to record the video himself. He took on all four roles, wearing different costumes for each. It is worth noting that the Faculties of Law and Engineering have more students than those who agreed to participate in making the videos. Therefore, it is crucial to explore ways of motivating all students to take part in future video-recording activities.

Next, learners developed their autonomy through the flexibility afforded by technology. They could control the pace and content of their videos by rehearsing and re-recording without classroom time pressure. This rendered the video project into a personalized learning experience since students had sufficient time to reflect and improve on their performances. This is consistent with findings by Fitriyani et al. (2020) on the self-efficacy and emotional engagement benefits of self-created videos. Collaboration skills were also essential for working in groups and designing the final product. While the focus was on the process itself, the outcome (the video) gave the students a sense of achievement and satisfaction with the efforts they had put into making the video.

Finally, the strategy enhanced learners' linguistic competence by encouraging the authentic use of English, including technology-related vocabulary and phrases for expressing their opinion in a realistic communicative context. Students engaged in searching for information

and planning the script, which helped develop both their receptive and productive language skills. This real-world application supports the constructivist principle that students learn best when they interact with other learners during meaningful tasks (Vygotsky, 1987).

To summarize, the self-created videos met their objectives effectively by improving students' language and collaborative skills, promoting learner autonomy, and enhancing motivation.

Recommendations for Broader Application

The technique of creating self-made videos holds potential for implementation across various university courses.

The following practical recommendations can guide educators:

1. Adaptation across disciplines: The strategy was applied in an EFL course but can be adapted to other courses by selecting video topics and roles to meet specific content objectives. This activity can be used in humanities, social sciences, or STEM fields in higher education.
2. Clear instructions: Educators should provide students with explicit guidelines regarding the framework model they are expected to follow. The ICSDR model can scaffold students' workflow and motivate them to engage with the task.
3. Group formation and assignment of roles: The number of groups and students per group may vary depending

on class size and students' proficiency levels. Roles can be customized to match course content and learning objectives.

4. Delivery mode: The strategy is suitable for all kinds of educational contexts, including face-to-face, hybrid, or online classes.
5. Learner autonomy and creativity: Allow students to choose in topic nuances and presentation style to increase motivation and engagement. Additionally, learners should have sufficient time to rehearse, record and revise to help reduce anxiety levels.
6. Reflective and peer feedback: Integrate self- and peer evaluation to reinforce critical thinking and social interaction, consistent with constructivist and Bloom's frameworks.

Conclusion

The study shows that the strategy of self-created videos is an effective pedagogical approach in EFL courses in tertiary education. The findings suggest that student-made videos not only enhance students' language skills but also develop 21st-century skills such as learner autonomy, collaboration, and creativity.

The implications for teaching and learning include incorporating self-created video projects to create more interactive, student-centered classrooms and to help reduce speaking anxiety.

Further research could include longitudinal studies investigating the long-term effects of student-made video creation on EFL proficiency. This includes retention of vocabulary, as well as improvements in sentence structure and fluency. Furthermore, the adaptation process of this strategy across various disciplines in higher education could be explored.

Pedagogical practice would benefit from exploring optimal scaffolding techniques, the use of the latest digital technology for video creation, and methods for assessment and self-assessment of video-based assignments. Further empirical studies will provide more insights into the successful implementation of innovative teaching practices in an increasingly digital learning environment.

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EVIDENCE-BASED STRATEGIES FOR ENHANCING STUDENT ENGAGEMENT IN COMPUTER ENGINEERING

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Introduction

Teaching Computer Engineering can be challenging when it comes to sustaining student engagement levels in theory-heavy technical courses. The purpose of this chapter is to present a multifaceted approach to teaching that seeks to increase student engagement by linking theoretical ideas with relevant practice and a supportive learning context. The approach was developed, which started with an awareness of the divide between academic learning and in-context practice: many students were finishing their studies with little awareness of how their learning would be applied in real projects or careers. This approach is intended to better prepare students for industry by making learning visible, relevant, and empowering, ultimately garnering motivation and retention for learning. The

rationale for adopting this approach is based on observations that when students perceive content as relevant and an experience perceived as a psychologically safe place in which students can lean in and participate, they are better able to learn. Within higher education, and particularly within engineering education, relevance and lowering apprehension are two particular areas in which a teacher can enhance the effectiveness of teaching and learning outcomes. In the introductory part of this framework, we will outline the objectives of this approach: enhancing student confidence and curiosity, enhancing the linkage between coursework and industry experience, and, in summary, enhancing engagement in Computer Engineering programs.

Theoretical Framework

Student engagement is a complex concept represented in the literature as behavioral, emotional, and cognitive participation in the learning process (Kahu, 2013). A high level of engagement has positive links to better learning outcomes and retention in STEM areas (Dou et al., 2022; Graham & DeBoer, 2016). The strategies presented in this chapter borrow from multiple fields of educational theory and research. To begin with, self-efficacy and psychological safety have a very important part to play in engagement. Bandura's social cognitive theory (1997) indicates that students may be motivated, persistent, and gritty based fully on the belief they have in their own ability (self-efficacy). Student self-efficacy may increase as students' fear of failing is lowered, and three-dimensional

experiences through mistakes are normalized as learning. Increased self-efficacy leads to a greater willingness to take academic risks and higher levels of reciprocal participation. This connects to growth mindset principles of seeing challenges and failure as a form of learning/experience instead of as a threat (Dweck, 2006). The literature also discusses engagement and focuses on the need to create low-anxiety conditions for students, which are equally important: Zepke and Leach (2010) highlight that a student's own self-belief and well-being are one of the cornerstones of developing engaged learners.

Secondly, this approach is underpinned by research on teacher-student relationships and rapport. A respectful and approachable instructor who fosters trust can have a positive impact on student attitude and participation. The classic principles of good practice in higher education by Chickering and Gamson (1987) emphasized the value of student-faculty contact and collaborative learning. Further research supports the idea that instructor immediacy and a supportive learning environment are linked to greater engagement and inquisitiveness in students (Zepke & Leach, 2010). Therefore, being approachable and creating a sense of trust (while maintaining professional boundaries) provides students with a sense of safety to ask questions and actively participate without fear of embarrassment.

Third, the strategy utilizes relevance and authentic context, which is well-studied as an intrinsic motivator to support students. Keller's ARCS theoretical model of motivation indicates that Relevance, or connecting material to

learners' goals or interests, will enhance attention and engagement. This chapter's approach ties every theoretical concept to authentic or real-world applications, capturing the spirit of authentic learning. This authentic learning is consistent with Kolb's (1984) experiential learning theory, which posits that knowledge is created through concrete experiences. When educators help to make connections between material discussed in class and topics in the field, or the technology students use every day, students begin to understand the value of the concepts they are learning (Kahu, 2013), which can positively impact their motivation to engage in learning tasks. Previous research in engineering education has also indicated that providing students with context will positively affect student interest and understanding (Prince & Felder, 2006).

In addition, this approach is supported by research that supports active and project-based learning. Active learning approaches, such as projects and collaborative assessments, have been shown to enhance student performance and engagement in the STEM disciplines (Freeman et al., 2014). Project-based learning, in particular, promotes student ownership of learning and mimics professional practice, all of which could raise motivation and skill development. Prince (2004) reviewed a vast amount of literature that showed students in active learning scenarios achieved higher outcomes than students who learnt in traditional lecture settings. The approach of using active projects and team-based tasks aligns with these findings and engages students behaviorally (active engagement), cognitively (problem solving), and emotionally (personal investment in meaningful tasks).

Moreover, incorporating industry exposure and early professional experiences embraces a notion of "work-integrated learning". Hands-on experiences with industry- through guest speakers, site visits, and internships- can make the engineering profession less mysterious and assist students in developing an engineering identity. Such experiential encounters relate clearly to Kolb's (1984) cyclical learning model and have been shown to enhance student motivation by providing transparent pathways and engagements from higher education to the profession. Students tend to be more engaged and likely to persist when they see how the knowledge they gain in the classroom relates to actual practice (Zepke & Leach, 2010).

In conclusion, the ongoing consideration of emerging technology (AI tools) in the classroom stems from critiques of sustainability-oriented educational innovation. The utility of AI assistants such as the recently popularized ChatGPT could only ever be conceived as nascent; initial commentary (Kasneci et al., 2023) indicates that large language models, when used strategically, can facilitate learning as they provide instant feedback, clarification, and creativity. The activity presented here treats AI as a facilitator of learning while enhancing—rather than replacing—human thoughts. This reflects an evidence-based model: integrating technology in response to pedagogical objectives and learning to use it ethically and well together (Kasneci et al., 2023).

In conclusion, the underlying theoretical framework for this teaching approach, which is driven by engagement, is based on constructivist and learner-based principles.

It weaves together the research literature on motivation, such as confidence and relevance, social learning through mentorship and industry communities, and active learning. Prior studies provide a strong background for each aspect - decreasing fear and enhancing confidence (Bandura, 1997; Dweck, 2006), building rapport and trust (Chickering & Gamson, 1987), making relationships between theories and practices (Kolb, 1984; Zepke & Leach, 2010), utilizing project-based learning (Prince & Felder, 2006; Freeman et al., 2014), and utilizing modern tools (Kasneci et al., 2023).

Methodology and Implementation

This strategy for engaging students was embraced in an undergraduate Computer Engineering program at a private college through the junior and senior (3rd and 4th year) student participants, generally 20–23 years old, enrolled in the courses: Programming, Internet of Things (IoT), and Systems Design. The classes were small enough for about 20–30 students in size for any of the courses, thus allowing for interactive activities and discussion in their courses. The mode of delivery was face–to–face, although technology (online resources/tools) was incorporated as appropriate, generally for student assignments. At the end of one academic year, the instructor implement the following key components step–by–step through their course:

1. Building Confidence and Eliminating Fear: The instructor began with an acknowledgement of the fear of failure that is so pervasive among many of the students

in Engineering. The instructor emphasized that dealing with code or complicated systems will be difficult, and that is part of the process of learning. The instructor specifically told the students, "you're not supposed to know everything already - you are here to learn how to think, how to try, how to fail, and how to get better." The front of the room was conducive to questions, and the instructor apologized to any student in advance if their answers were unclear or lacked insight. The instructor took a stance that normalized mistakes, while every question was valued. The instructor basically positioned mistakes as opportunities to learn rather than something they did wrong or failed in. Ultimately, the instructor's impact was to seek to get the students to lower their anxiety level in order to initially take part and ultimately gain the confidence to take part.

2. Friendly Rapport with Maintained Respect: The educator focused on being approachable and amicable while factoring in professional academic expectations. He learned students' names, solicited feedback from them, and encouraged informal discussions in class. But, being friendly was only part of the educator's demeanor. The educator was also personable in his professionalism. Clear expectations for professionalism, deadlines, and integrity were established. The educator being available to help and genuinely expressing concern helped develop a rapport with students, and, eventually, they felt he was not an intimidating educator at the front of the room but, rather, a guide who was helping them through coursework. This respect began to move both ways and motivated more

interaction from students, which, in turn, prompted students to participate in course-related discussions and activities. Students felt free to express their ideas or experience difficulties that would prompt discussion, without fear of being chastised or judged.

3. Real-World Context in Every Lesson: The course's core premise was to always connect each theoretical topic with an authentic, concrete application in the world every week. Instead of simply teaching the students conceptual frameworks in isolation, the instructor regularly provided a context for the conceptual frameworks. For example, when he was introducing programming structures such as loops, he would explain how loops control temperature sensors in a smart greenhouse, or how a sorting algorithm is used in data processing for a popular app. For topics that included technologies like containerization, he referenced containers in practice in industry (i.e., "An example of a Docker container - and here's how it is being used in real DevOps pipelines in companies"). The instructor provided short case studies, shared job postings related to the skills being taught, or demonstrated real systems in industry that related to class topics. The links enabled students to understand and appreciate the relevance of the course material. Students could easily see why they were learning each of the concepts, which heightened interest and engagement in the class. Many students would ask additional questions about the topic and explore further on their own as they heard about the real-world application.

4. Industry Exposure and Guest Involvement: In addition to the traditional ways of bridging academia and practice, the instructor also provided opportunities for students to interact with the tech industry. Some activities included field trips to local companies, labs, or tech events, and guest practitioners (industry professionals and alumni) as speakers in class to talk or demonstrate their work. In fact, during the IoT course, students attended a tour of a modern smart factory facility where they observed IoT systems in the workplace and were able to speak with engineers. The following class period, the students were noticeably more engaged in class – they were asking thought-provoking questions that related to the practice of engineering. They started to think, "This is not just theory; this is what I could be doing in a year." Upon seeing actual workplaces and meeting practitioners, this was a real reminder to students about the engineering field and what their future could look like. This element of students experiencing the IoT systems and their practitioners was a major part of students' inspiration and their personal connection to the coursework and their career paths. Industry exposure again served as a motivational tool for students' motivation to participate and learn more.
5. Project-Based, Skill-Building Assignments: Rather than utilizing variations of exams and quizzes that functioned as assessments for students, the assessments for a course were designed around practical projects and hands-on tasks. Students completed small but meaningful projects that simulated work done by engineers: for instance, developing a simple

web application for analyzing a dataset, or designing a component of an embedded system. The projects often involved group work with a requirement to work as a team (simulating professional teamwork). Professional tools and workflows were incorporated - the students used version control (GitHub) to store their code, conducted code reviews, and wrote brief documentation (which is standard practice in high-tech employment). Because these students were participating in a project-based learning subject, they were more active than passive. Students were required to engage with concepts and apply them to solve problems, so they were able to deepen their understanding through completion of these reasonable project tasks. When students finished projects, they felt a sense of achievement and were able to point out an artifact (i.e., code or prototype) that could be applied to their student portfolio. The instructor provided input and check-in, but students were given freedom to make choices creatively. The best part was that project-based learning created the experience of having taken the course, as well as technically developing skills that would engage students at a reasonable pace, as students were able to continuously work on and improve their projects. Projects did take the place of some of the typical exams, on the basis that students could represent equally well learning while being actively engaged with materials rather than structured, timed tests, and it allowed students to experience some excitement about the project.

6. Integration of AI Tools (e.g., ChatGPT) for Learning: The pedagogical innovation in this project was the intentional use of AI assistance during coursework. As new AI tools emerged in engineering practice, the instructor permitted, and even wanted, students to make use of AI assistance in a manner that was both specific and constructive. For instance, students could enlist the help of AI to suggest debugging steps for programming assignments, request explanations for hard code snippets that they did not understand, or to brainstorm ideas for a system design project. There were parameters set out early regarding the use of AI, which prioritized engagement for learning purposes over allowing AI to do the work for students. The instructor also discussed ethical use of AI (e.g., avoiding plagiarism or accidentally generating unwarranted or incorrect information) and critical thinking (e.g., to cross-reference if the AI was generating accurate or usable information). Overall, the students learned how to use a modern tool that they could find in their workplace in a way that made their work more engaging, especially in an interactive back-and-forth manner with the AI, but also with each other to compare results and engage in a discussion. According to students, working with AI in this supported way expedited their problem-solving, improved their capacity to consider a range of options, and ultimately produced a deeper level of understanding. It contributed a novel aspect to class, which many found motivating – they appreciated the relevance of learning with a new technology as part of their education on a subject.

7. Encouraging Early Industry Involvement: In addition to in-class experiences, the professor encouraged students to "jump into the industry anytime" while in school. Instead of conceptualizing a degree as a barrier to doing real work, the professor supported students in seeking internships, hackathons, or coding competitions, to contribute to open-source projects, and to do freelance work alongside their classes. The professor shared opportunities (whether jobs or internships, contests) and sometimes allowed flexibility in deadlines for students who were doing substantial work outside of class. The professor mentored students on how to manage work outside of their coursework. The idea was to get students jumping into applying what they learned in real situations as soon as possible. This provided students with opportunities that positioned the university as a launching point rather than a waiting room. By the time students were finishing up their senior year, many were already beginning to accumulate some experience. Additionally, it enhanced their classroom engagement - students were now relating what they were doing in their internship and projects to what they were discussing in class, they began to formulate much better questions that were directly related to class content, and they began to understand and perceive the immediate application of class content to practice. This engagement and early experience as a professional contributed to their confidence and allowed the students to take on a more autonomous role: they began to see themselves as engineers, rather than students in training. It also

provided added motivation for coursework, as class became a resource to help solve the real problems they were trying to solve in practice.

Throughout the implementation process, various materials and resources were employed to enact these strategies. Learning Management Systems (LMS) were utilized to promote discussion and the sharing of articles and/or case studies about the real world. Communication tools (such as Slack or MS Teams) were used for some quick questions and answer opportunities, reinforcing a message that staff were approachable outside of class time. Most of the teaching was face-to-face, but in some instances, guest lectures were delivered via video conference instead, where possible, which demonstrates the greatest flexibility in providing students with learning that is informed by industry practices. A summary of participants' key strategies, with a pedagogical rationale, is presented in Table 1.

Table 1

Key Engagement Strategies Implemented and Their Rationale

Strategy	Description & Rationale
Building confidence (reducing fear of failure)	Normalization of errors and the promotion of questioning foster a low-stress and psychologically safe learning environment. This supports student self-efficacy and engagement (Bandura, 1997; Zepke & Leach, 2010).

Strategy	Description & Rationale
Friendly rapport with respect	Adopted an open and supportive instructor persona while maintaining academic integrity. This was relational and helped establish trust and communication, aligning with principles of good practice (Chickering & Gamson, 1987).
Real-world context for theory	Contextualized every concept with an example or application from industry. Emphasizing relevance can produce a higher level of intrinsic motivation and interest in the content (Kahu, 2013; Kolb, 1984).
Industry exposure	Organized company visits and speakers, and connected their work to the curriculum. Having students participate in experiential learning, such as these options, provides tangible connections to their study and provides a demonstration of application to build on engagement.

Strategy	Description & Rationale
Project-based learning	Replaced some exams with team project elements that simulate real work scenarios. Finding some common ground using professional applications (such as Git) helped students engage in active learning as well as develop other skills that demonstrate evidence of supporting value engagement and performance (Sivakumar, 2020).
Use of AI tools (ChatGPT)	Invited gently into using AI in a guided way to support their learning in relation to coding and generating better ideas. This was presented as a transformation, leveraging technology to support learning, which reflects modern practice (Kasneci et al., 2023).
Early industry involvement	Encouraged students to find internships, apply to competitions, and utilize their studies in various real projects. These experiences allow students to value their study early on when they are immediately applying knowledge in their industry, providing confirmation of the value of studying and sustaining engagement in outcomes.

Findings and Discussion

The previously shared strategies had markedly positive impacts on both the students' level of engagement and quality of learning. Although it wasn't sought, student feedback and end-of-course evaluations demonstrated that students exhibited more interest, intrinsic motivation, and confidence with this approach. Many students even suggested that for the first time in their education, they understood not just how to do some of the technical tasks, but also why they were important in a broader context. One of the more impactful pieces of learning for the students was also having a purpose around their learning - this led to students experiencing a more meaningful and liberating part of their education. Students became active agents of their learning rather than passive recipients of content.

A significant outcome was the decrease in student anxiety and reluctance to engage. The removal of the fear of asking a question and/or being wrong made for more open class discussion and questions being asked. Students who had been silent before joined in, having conversations about problem-solving during lectures and laboratories. This matched with literature that demonstrates the experience of psychological safety to greatly enhance student participation (Zepke & Leach, 2010). Some students specifically mentioned that knowing their errors would be viewed as a learning experience made them more willing to wrestle with challenging problems and offer opinions when asked. In many cases, this added engagement was a part of a positive feedback loop because the more a student participated, the more they were learning and

the more confidence they had to participate, and so they would participate more.

Both classroom dynamics and trust with the students improved. The instructor established a welcoming rapport with students and was perceived as approachable, establishing collegiality in the classroom. Rather than thinking of their instructor as a figure of authority who was unapproachable, students thought of him as a mentor and resource. For instance, more students were willing to ask for feedback during office hours or just after class, and students engaged in more candid conversations with the instructor about issues relating to the course. The trust that developed in the classroom dynamic carried over, and students experienced the freedom to not only share concerns about the course but also inquire about academic and career questions. This positive faculty-to-student dynamic is recognized as a contributor to student success (Chickering & Gamson, 1987) and helped sustain engagement in this case. When students feel that their instruction is respected and supported, they exhibit regular class attendance, engagement in class, and effort on assignments.

The most noticeable impact was likely related to students' connection from theory to practice. The regular incorporation of real-world context occurred each week, keeping students consistently aware of why they were learning in the first place. The connection positively impacted students' engagement, as seen. For example, after the visit to the smart factory that was part of the IoT course, students returned to class excited and exploded with questions - questions that, often, we could have never predicted as

they demonstrated curiosity about the conceptual (e.g. 'How does that system really work?') while applying what they had learned as relevant (What is the social context involved with applying that technology? Conjectures about what they still needed to know or learn (e.g. 'What else do I need to know to build that system?')). This shift indicates that motivation shifted from extrinsic (one that is due to engagement for grades) to students becoming intrinsically motivated (one that is a result of interest in, and a perspective to be a professional). This correspondence signals, as per the theory, that authentic, contextual learning experiences raise the level of engagement (Kahu, 2013). Throughout the semester, students often referenced current events or technologies in conversation and course content, indicating that students were creating connections between course content and the outside world independently.

The project-based assignments produced visible improvements in learning outcomes. The students demonstrated greater creativity, deeper learning of the subject area, and significant proficiency with the practical skills inherent to the course in what they produced with their observed project work. The instructor indicated that, as they helped and observed students with their project work, students created more complex programs and offered more analysis than they had in previous iterations of the course (prior to using the structured assignment). The improvements in team-based skills were also notable as they learned to work together, breaking down projects into specific tasks, and reviewing each other's work, which was also evident in the practices in software development in the industry. These observations support the PBL literature on engineering

education research, leading to improvements in engagement along with higher-order thinking, and overall problem-solving skills (Prince & Felder, 2006). The students displayed pride of ownership in their projects, which was an important measure of engagement. Many students included their course projects as part of their own portfolio or discussed them in their job interviews as yet another outcome of the work, which further illustrated the value of the students' work. In interviews, students said that working on real-world-like projects was at times stressful, but "the good kind of stress" because it challenged them, kept them interested, and was better than preparing, memorizing, and then discarding the information tested, they felt. These findings correspond with the findings of Freeman et al. (2014), who found active and engaging pedagogies improved long-term retention of course content along with performance in STEM courses.

AI tools (like ChatGPT) were incorporated into learning with both good and mixed results. Some students were at first uncertain how to use AI properly, but with some clear prompts, students were able to use it as intended - for example, they used it to get a hint about how to debug a chunk of code, or to come up with various approaches to resolve a design problem that they could evaluate. The instructor saw that, in particular, weaker students were benefiting from using AI because it provided them with fast explanations and examples, increased their understanding of the concepts being worked on, and provided them with the confidence to go ahead and complete a task. More capable students used AI to justify their ideas or brainstorm next steps. It is evident from their responses

that an AI tool could act as a scaffold to boost potential learning, which was beneficial, as long as it was moderated. However, it was important that the instructor didn't use AI inappropriately; in a few instances, students just used AI (for example, wrote a code chunk and didn't even take the time to understand it), and that had to be managed. Overall, this AI learning experience does seem to align with the new ideas presented in the research (Kasneci et al., 2023) related to AI likely helping to learn in education, but there is consideration for use and repercussions. Related to student engagement, the experiment of AI certainly got students excited and indicated to students that this course was new and innovative. Motivating students to engage with industry in a more direct way resulted in long-lasting formative effects. By the end of the academic year, many more students had either obtained internships (in traditional non-remote ways) or had participated in hackathons or open-source projects. The instructor counted these co-curricular opportunities as success measures of the approach. The students who participated in these experiences would come back to class with a maturity and a context - they were able to link and articulate what they read about in textbooks with what they had experienced in practice; it often led to those students taking informal leadership roles when working in groups; they served primarily by bringing what they had learned or experienced as practitioners and communicating that value to other students. This peer-to-peer dynamic also increased engagement simply because students are reminding one another of what they have learned and/or want to learn. In this way, the instructor was able to effectively remove the

borders of the classroom and career, which often go unchallenged in traditional programming. A student shared the following regarding the experience, "it made it feel less like another hoop to jump through and more like another tool that I would be able to use immediately" - this idea is exactly the reframing the instructor was hoping for. Self-determination theory outlines (or at least suggests) that providing students with autonomy (the choice to engage in outside projects) and demonstrating competence through authentic experiences will only serve to deepen their intrinsic motivation, especially when abnormal classroom practices are put into effect. This was clearly articulated in this case.

It should be pointed out that these observations came from qualitative observation and student feedback, and some informal reference to a couple of previous cohorts, and not from a controlled experimental study. Still, there is some clear evidence of students being more engaged. Students' performance also slightly improved: for instance, the average project grades were higher than past offerings' exam grades, and a greater percentage of students completed optional enrichment activities (like coding challenges) compared to previous semesters. Additionally, students maintained high attendance rates all semester, which we think is a mark of engagement - students came to class because each class had at least one interactive part or a discussion concerning something relevant. These results are in line with the research literature that active, relevant, and supportive learning contributes to students' success (Freeman et al., 2014; Zepke & Leach, 2010).

During discussions amongst colleagues, the instructor pointed out a few challenges and lessons learned. The instructor mentioned that arranging industry visits and guest lectures required effort in organizing and scheduling, so coordination with industry partners was a strength. It's important to note, though, that not every class in every institution has access to companies that would allow for visits, so flexibility to substitute experience with something else (for example, by means of virtual tours, or projects that relate to some work, for example) may be something to keep in mind. The third potential challenge involved team projects in class, such as ensuring equitable distribution of workload and methods of assessing individual contributions; to circumvent this, peer evaluations were used, and projects were kept small in scope. The use of AI tools in class brought forward the academic integrity issue of ensuring that students learned and did not just replicate the work provided by an AI; this was mitigated by having students explain their work and having some oral check-ins. Looking forward to future iterations, the instructor commented he would like to add more experiential learning and engagement with industry if possible, and to explore project-based learning where students are solving a problem for a real, outside client stakeholder. This could extend the real-world engagement component; however, this would require more planning on the instructor's part. Overall, it did not seem that there were any overriding downsides to engaged students in the learning process - the strategy was discussed in a generally positive light and would have meant that any minor issues encountered were outweighed by the advantages.

Compared to available literature and pedagogical models, this case shows a good alignment with evidence-based practices for STEM education. Specifically, it combined multiple effective engagement strategies: sense of belonging and self-efficacy, relevance of content, active learning, and opportunities for real-world learning. All of these strategies were implemented together, creating a synergy around engagement. Several of the positive changes in students corresponded to previous documented studies; for instance, increased question-asking and student-student interactions are similar to reported outcomes in active-learning classrooms (Prince, 2004), while connection to real-world problems is a central finding in problem-based design outcomes (Hmelo-Silver, 2004; Prince & Felder, 2006). This discussion highlights that the practice is not the same as an intervention, but a transformative approach toward teaching practice underpinned by theories of education and engagement. The implementation findings represent a real-world validation of what the theoretical implications suggest: students engage deeply when they are confident, find meaning in their work, and participate in authentic tasks in a community of support.

Recommendations for Broader Application

Although this evidence-based engagement strategy was intended for the Computer Engineering field, it can be readily adapted to other courses, disciplines, and institutions. Our recommendations and practical tips for instructors who want to engage students by using a similar approach are shown below.:

1. Foster a Safe Learning Environment: Regardless of the topic, start by creating psychological safety. Let students know that mistakes are expected and inherent in the learning process. Emphasize the value of questions and effort, rather than the quality of answers only. In larger class sizes, this may mean using anonymous question polling, a discussion board, or any other technology that enables more reticent students to express themselves without fear. Psychological safety is a benefit to students across the board - whether they are literature majors, biology majors, or any other discipline, students are far more engaged and willing to participate when they feel safe.
2. Build Rapport and Trust: Make communication personable; learn student names when you can, hold open office hours, and show enthusiasm for helping them learn, while maintaining academic rigor so students don't mistake friendliness for a lack of academic expectations. For example, you may want to start every class with an informal chat or an interesting story relevant to the content, providing a human atmosphere before moving into the structured activities. In online or hybrid courses, this could involve video introductions and responsiveness on forums. Teacher-student connections can foster engagement in any situation, as students are more likely to attend and engage effort if they feel like the instructor cares about their success.
3. Connect Content to Real-World Contexts: Regardless of the discipline, find real-world examples, case

studies, or current events that illustrate and relate to your course material. As an example, a math professor might place the application of a formula in engineering or economics, a literature teacher might relate themes from a novel to current social issues, and a business teacher might bring in recent news relating to the markets to illustrate theory. This can be done even in highly theoretical courses by discussing past applications or thought experiments to illustrate abstract concepts. You can also dedicate a small segment of class every week to a relevance check by placing a "real-world spotlight," or providing an end-of-the-week assignment asking students to find a relevant application or example of a theory. If you do not have a direct example from industry, you could always use simulations or role-plays to reflect real-world-based instances of your subject matter. Ultimately, you want to be able to address the question all students have: "Why is this important?" If students understand that, along with intrinsic interest, then you will have achieved much of your objective.

4. Incorporate Active and Collaborative Learning: Replace or add active learning experiences for the students in place of passive lectures. This can look like in-class problem-solving, discussion, and case analysis in small groups or as a class, and then larger projects, as shown in the chapter. Even large lecture classes can incorporate think-pair-share, several live polling questions, or a short group activity to get students actively working with the materials. For courses that include projects, use small-scale projects that align with

the stated learning objectives. Provide students with guidelines and checkpoints to ensure teams remain on track. If time and resources allow, employ actual tools and practice from the profession (e.g., laboratory materials, software, or creative medium), as this will ultimately lead to an authentic experience for students. There is a broad literature base to indicate that active learning works; therefore, modification to active learning (logistically) is an important step in student engagement.

5. Engage with Industry or Community Partners: To expand the industry exposure aspect beyond engineering, consider who the appropriate "real-life" partners are within your area. If you are in health sciences, it could be hospitals or clinics. In education, local schools. In environmental science, NGOs, labs, etc. Get guest speakers, even if through Zoom, to provide an authentic context for your students. Try to arrange field trips or virtual tours as appropriate. For art history, it may be a museum tour in person or virtually. For an architecture class, it could be a construction site tour, etc. If site visits do not happen, integrate videos with documentary clips or other interviews with practitioners in the field. Another way is to use projects beyond coursework, simply based upon the collaboration with an external partner (an example being a non-profit needs data analysis for their project; a statistics class takes on the project to assist the nonprofit). Getting students in this space provides context for students and provides motivation for their career possibilities. Additionally, engagement is spent preparing

prior to the background information, and after reflecting on their engagement together to bridge the connection to the course content.

6. Use Technology and Innovative Tools Wisely: Today's students frequently respond positively to technology in the classroom, but it should be implemented with clear intentionality. If AI tools or educational software are manageable within your field, then such tools should be implemented with the appropriate instructional guidance. For instance, a language instructor may tap into their multilingual students through a translation tool to explore nuance and meaning, or a history instructor may explore online archives and digital tools to plan for robust research projects. More importantly, instructors should include technology as a support to deeper critical thinking, not as a crutch. Provide ethical orientation and stress a critical lens. If students use Wikipedia or AI to support their projects, then they require cross-verification of their information with scholarly sources. Use the technology that the students will use in their professions; this not only supports their skills but also positions the coursework as aligned with the work practices. Furthermore, the tool can also be something simple, such as discussion apps or collaborative document editors can be included to or increase engagement. More and more voices participate (if students are scared to speak up in class, they may be more willing to participate in an online space).
7. Adapt to Class Size and Mode: When dealing with larger classes, extend the strategies proportionately. If it

is challenging to establish personal rapport with more than 100 students, you can bring in teaching assistants, or you may distribute the class into breakout discussion sections so that everyone has their own community that is smaller. You can still do projects in big classes by having teams of 4-5 and utilizing peer evaluation to manage the grading tasks. For online courses, strategies for engaging students with the material may include weekly video updates about the connection of the content to current events, obligatory forum posts requiring students to connect theory to an event that happened in their lives, or some virtual group projects. Flexibility is important; however, nothing has to happen all at once. You can introduce any of these strategies gradually or at a steady pace. Generally, the instructor may start with one new element (such as a guest speaker or a small project) and build from there, as they become more comfortable and resourceful.

8. Ensure Institutional Support and Resource Management: Successful broader application may require certain conditions. Gaining support from your department or institution can help. For example, you might need approval for field trips, modest funding for project materials, or acknowledgment of the time needed to coordinate with industry. Share your plans with administrators to show the benefits for student engagement and learning outcomes. Often, universities want to improve these areas and will support you. They might connect you with industry liaison offices or teaching innovation centers. Additionally, manage your time and resources. Implementing several new

strategies at once can be demanding. It's okay to introduce them gradually. Focus on creating a safe classroom environment and one project first, then add more real-world integration and industry contacts in the next phase.

9. Encourage Student Initiative Beyond the Classroom: The concept of early involvement can be improved by directing students towards avenues where they can gain more knowledge and skills. In every area of study, there are extracurricular activities such as academic clubs, competitions (like case competitions, hackathons, moot courts), undergraduate research positions, volunteering, or part-time work that can be related to the discipline. Inform students about these opportunities and clarify how they are interlinked with academic learning. You may give students who participate in such activities bonus points or at least public recognition, or you may integrate a reflection assignment where they relate an outside experience to course concepts. By recognizing and appreciating the learning that occurs outside the boundaries of courses, the students are empowered to take control of their growth. This not only makes their education richer but also has a positive impact on the class as the students share their new insights and pose questions based on their external experiences.

Flexibility and reflection are the main components when introducing these recommendations. What is successful in one situation might have to be altered a little in another. Teachers should take the initiative of collecting student

responses and looking at what gets participation going or confusion, and then rework the method. Support among colleagues is also beneficial: teachers can swap their experiences and materials when they are trying these strategies. The main principle is to keep the students at the center – constantly think about how each component (it could be a project, a case study, or a field trip) is strengthening the students' connection with the subject and their intrinsic motivation to learn. With a well-thought-out adjustment, the main concepts of this strategy – build confidence, make learning relevant, actively engage students, and connect to the real world – can widen student engagement not just in one discipline but across all disciplines and institutions.

Conclusion

The chapter illustrated a concise case study of an evidence-based method that would help manage student Engagement in Computer Engineering Education. The major point is that not a single tactic works; a combination of the right mindset and methods can very well deepen student engagement. What is the difference if all existing and new pedagogic methods are combined? In the world of educational psychology, one way of reducing fear and generating trust in the class proper will change students' psychological readiness to engage with the teacher. If the theoretical and practical aspects of engineering are consistently made through real-life cases, students will know what they are learning and get a sense of being desired. Practicing project-based learning to the maximum

possible and exposing students to the industry to acquire knowledge as builders, not only as receivers. And finally, by incorporating the latest tools like AI and encouraging early professional exposure, teaching becomes active and future-oriented, thus constantly attracting students' interest.

The findings from this method suggest that an awareness of their education being the first step toward their possible career paths provides the necessary support conditions for pupils to expend more energy and to be more enthusiastic. Learning engagement is not an end in itself; it is a means to deep learning—indeed, in this case, their performance was better or more creative, and retention of knowledge improved or was even better. They also learned the soft skills (communication, teamwork, problem-solving) that will be necessary in their careers—this means the engaged learning experience prepares students for life after graduation. The results of this study confirm that the use of active and contextual learning strategies often has a notable payoff (Freeman et al., 2014; Prince, 2004). Furthermore, this conventional teaching method helps the students return to schooling as technically skilled and flexible, and even self-directed learners, as they will have experienced continuous learning and industry engagement.

In the wider implications for teaching and learning respect, this case advocates for teachers to be both innovative and sympathetic in their course designs. Innovative, by introducing projects, real-life examples, and technology to lectures and assessments, and breaking the traditional pattern. Empathetic, by recognizing student fears

and hopes and catering to them through a nurturing atmosphere and an up-to-date curriculum. Institutions that want to enhance student performance need to support the utilization of such research-based teaching methods and provision of the needed back-up (training, industry partnership networks, etc.) for the teachers to carry them out.

Few avenues for future research and pedagogical practice come to light. One is to quantify the effect of these combined strategies on student engagement and learning outcomes through experimental studies or broader data collection (e.g., comparing exam scores, retention rates, or engagement survey results before and after implementation). Another route is to investigate the long-term impact on students' careers: do the students who undergo such training enter the job market more easily, or do they receive early career success? Besides, it will be critical to find out the best methods for AI integration in teaching that will really be augmenting rather than detracting from learning as the tools become more advanced and widespread.

In conclusion, the aforementioned techniques—building confidence, establishing rapport, connecting with the real world, involving the industry, learning through projects, using AI under supervision, and engaging with the industry early—have together been able to raise the level of students' participation in Computer Engineering education immensely. The transformation of students' learning from a tedious routine academic exercise to an enriching personal growth and professional development journey is the main outcome of the mentioned strategies. If

teachers from different disciplines would only apply and adapt these techniques, they would also empower their students to be deeply involved, to learn in a real way, and to be ready for the challenges beyond the classroom. The saying that engaged students become lifelong learners has been almost universally accepted, and this is probably the ultimate goal of education.

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TRUST-SCAFFOLTED PEDAGOGICAL NOVELTY EFFECT: RETHINKING ENGAGEMENT IN GENERATION Z CLASSROOMS

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Introduction

Generation Z students, born between 1997 and 2012, possess a distinctive psychological and educational profile shaped by constant digital exposure, cultural diversity, and a strong drive for authenticity and self-expression (Dong, 2021). Their learning tends to be influenced by shorter attention spans and a preference for content that feels immediately relevant, which often makes conventional teaching approaches less effective (Petrovski, 2012; Dong, 2021). To truly engage these students, instruction must be flexible, culturally sensitive, and capable of creating a psychologically safe space where exploration, creativity, and collaboration are encouraged (Lorenzo, 2025; Pikri et al., 2023). In this context, educators are most effective when they serve not merely as information transmitters but as

guides—scaffolding understanding, nurturing individual conceptualization, and fostering reflective thinking (Seemiller & Megan, 2017; Schwieger & Ladwig, 2018). This study was gathered from a cross-modal, Gen-Z-adapted teaching approach in the first laboratory session of a chemistry course. It integrates embodied cognition, constructivist scaffolding, dual coding multimedia learning, and culturally responsive pedagogy (Piaget, 1973; Clark & Paivio,1991; Gay, 2010; Mayer, 2021). By combining hands-on engagement, generationally attuned scaffolds, synchronized visual and verbal content, and culturally familiar cues, the session aimed to encourage curiosity, autonomy, and deeper conceptual understanding from the outset. We aimed to test a generational-friendly framework to known strategies from educational psychology to increase engagement, creative knowledge, reflective thinking, and instructor trust; while relying on quantitative indicators for comprehension, attention, and long-term memory.

Theoretical Framework and Literature Review

Gen Z Psychological and Educational Identity

As a generation born roughly between 1997 and 2012, Gen-Z has a unique psychological and educational profile; Dong (2021) draws attention to the fact that they value accuracy, self-expression, and social responsibility. In the view of Petrovski (2012), digital engagement has a broad impact on their identity, influencing how they interact with peers, educators, and their approach to learning.

However, echoing the argument of Dong (2021), many experience identity challenges as they navigate between online and offline selves, which can prompt reduced attention spans and quickly lose interest in content that does not immediately engage them. These factors affect their learning preferences, requiring environments that are flexible and responsive. Educators need to understand these traits to design teaching methods that provide accurate, engaging, and reengaging experiences for fluctuating interests. These traits form the foundation for designing trust-scaffolded and engaging pedagogical strategies. As suggested in Dong (2021) reflections**,** by aligning teaching methods with Gen-Z`s psychological and cognitive characteristics, educators can promote better engagement and knowledge retention.

Language, Multiculturalism, and Digital Influence on Gen Z

Language, multicultural global impact, and technology affect how Gen Z interprets learning. Building on the Lorenzo (2025) perspective, multicultural awareness, fostered through online interactions, influences their worldview and learning expectations; particularly, their use of contemporary vocabulary and slang impacts comprehension and communication in academic settings. Digital literacy may enable students to access and process information quickly; however, as Pikri et al. (2023) reminds us, it also promotes challenges based on excessive reliance on digital tools, such as distraction and sketchy skills, which, on the other hand, may erode deep reading and analytical skills.

These experiences create students, culturally and linguistically gathered under the same roof, with both highly adaptable and easily distractible identities, which also reflects on their learning expectations. Understanding these influences enables educators to incorporate novelty and culturally responsive elements into instruction.

As the Lorenzo (2025) and Pikri et al. (2023) emphasize, integrating digital tools fosters inclusivity and comprehension while minimizing distractions; simultaneously, real-world experiences enhance engagement and make learning more meaningful.

Shift in Learning Expectations of Gen Z

According to insights from Karki (2025), Gen Z expects learning to be interactive, relevant, and personalized; furthermore, they also expect content that reflects real-world issues and social impact. Even though motivation-driven instruction, supported by technology, aligns with their cognitive patterns and keeps them engaged, as referred to in Karki (2025), on the other hand, Noorda & Barners (2024), focuses attention on immediate relevance that can lead to impatience and slower, in-depth learning processes, also supported with the fact that reading habits and media consumption of Gen-Z favor digital, multimodal resources over traditional textbooks.

Active learning, collaborative projects, and adaptive assessments meet well with these expectations.

These changing expectations need pedagogical strategies that combine trust, novelty, and student-centered

approaches. Following Karki (2025) and Noorda & Barners (2024) reasoning, educators must understand this shift to create lessons that balance autonomy, engagement, and critical thinking, improving student satisfaction and learning outcomes.

Strategies for Educators: Implementing Trust-Scaffolded Pedagogical Novelty

Building Trust in Gen Z Classrooms

Building on Schwieger & Ladwig's (2018) and Seemiller & Grace's (2017) perspectives, effective teaching begins with establishing trust, which serves as the foundation for engagement, and aligns with the present study's approach; educators act as guides, providing clear expectations, supportive feedback, and consistent scaffolding to help students navigate learning tasks. Trust is further strengthened when educators demonstrate awareness of Gen Z's unique characteristics, including their preference for autonomy, digital fluency, and socially responsible engagement. Weaver (2024) supports our perspective that creating psychologically safe learning environments encourages students to participate actively, take intellectual risks, and remain receptive to new ideas.

Integrating Novelty to Sustain Engagement

Echoing the argument of Schwieger & Ladwig (2018) and Weaver (2024), that engagement is enhanced when instruction incorporates unexpected, stimulating elements that capture attention and foster curiosity; an approach consistent with the framework proposed in this paper, that

novelty can take the form of multimedia resources, interactive simulations, collaborative projects, or real-world problem-solving activities. Thoughtfully designed novelty supports attention spans common in Gen Z learners while maintaining focus on learning objectives. `Purposeful surprises` as Seemiller & Grace (2017) phrase the concept, whether through interactive technology, culturally relevant examples, or real-life applications—ensure engagement is meaningful rather than distracting.

Student-Centered Design and Flexibility

Digital tools provide immediate feedback, improved collaboration, and support differentiated instruction to address the diversity sought from the Z generation. Like Weaver (2024) and Seemiller & Grace (2017), who reasoned that a student-centered approach enables learners to co-create experiences, modify pacing, and select pathways aligned with their interests, the strategy in this study also emphasizes that flexibility is crucial, where instructors balance structure and independence, ensure tasks are meaningful, and accommodate different levels of engagement. When trust, novelty, and student-centered design are combined, classrooms become environments where motivation, participation, and deeper learning flourish, reflecting the principles of the Trust-Scaffolded Pedagogical Novelty Effect.

Methodology and implementation

This study demonstrates cross-modal Gen-Z–adapted teaching strategies in the first laboratory session of a medicine chemistry course, building on prior work (Samet &

Samet, 2025). The session introduced laboratory equipment, safety rules, personal protective equipment, chemical hazard pictograms, and first aid procedures, delivered through four enhanced pedagogical approaches.

Embodied cognition → enhanced with exploratory, tension-free engagement

This method enabled students to interact physically with the laboratory environment, fostering curiosity and sensorimotor-based learning in a safe, friendly context (Pouw et al., 2014; Shapiro, 2021). By modeling a relaxed, exploratory approach rather than a traditional adult-authority stance, students were encouraged to touch, manipulate, and investigate equipment, promoting sensorimotor learning and natural engagement.

Constructivist learning → enhanced with effective and generational scaffolds

This method encouraged students to actively construct knowledge, interpret concepts personally, and build understanding with the instructor as a guide rather than an authority (Bruner, 1961; Piaget, 1973; Vygotsky, 1978). Students were asked to create their own definitions of laboratory concepts, which fostered personal meaning-making and reflection. Humor, informal language, and culturally relevant cues supported engagement, reduced anxiety, and reinforced a psychologically safe, learner-centered environment.

Dual coding multimedia learning → enhanced with strategic attention modulation

This method addressed the fluctuating attention patterns of Gen Z learners (Clark & Paivio, 1991; Mayer, 2021). The instructional sequence moved from traditional definitions to visually engaging content and finally to interactive or emotionally impactful real-world examples. Deliberate cognitive resets were embedded within transitions to sustain attention while maintaining comprehension through dual verbal and visual channels.

Culturally responsive pedagogy → enhanced with implicit authority through familiar, engaging formats

This last method presented essential content in ways meaningful to Gen Z students, using humor, trends, and media (Ladson-Billings, 1994; Gay, 2010; Evans et al., 2020). Instruction progressed from playful engagement to culturally familiar visuals and concluded with reality-based consequences, such as images of lab injuries. This sequence-maintained student autonomy and engagement while conveying safety and responsibility naturally, without relying on authoritarian directives.

Data collection relies on observations and reflective feedback, pointing to cognitive and affective responses. This experiential, learner-centered approach situates theoretical principles in the laboratory, adapting methods to Gen-Z`s attention, cultural, and emotional characteristics. Collectively, these strategies illustrate the *Trust-Scaffolded Pedagogical Novelty Effect*, showing how structured guidance,

playful and surprising experiences, and student-centered design immediately engage Generation Z learners. By fostering psychological safety, promoting exploration, and integrating culturally relevant elements, instructors create environments where students are motivated to participate, experiment, and construct knowledge from the very first session. Each approach—embodied interaction, active knowledge construction, dual-channel multimedia learning, and culturally responsive pedagogy—operationalizes trust, novelty, and learner-centered engagement. This framework provides instructors with actionable methods to maximize attention, curiosity, and meaningful engagement, translating theoretical principles of Gen Z psychology into practical, impactful classroom strategies.

Findings and Discussion

This study aimed to explore the effectiveness of multimodal, Gen-Z–adapted teaching strategies in the first laboratory session of a chemistry course. The focus was on qualitative learning outcomes—student engagement, conceptual internalization, and pedagogical implications—while using select quantitative data from prior assessments to illustrate key points.

Embodied Cognition → Enhanced with Exploratory, Tension-Free Engagement

The laboratory environment and the comfortable body language were intentionally structured to initiate curiosity-driven, hands-on exploration. Students engaged physically with lab materials, promoting sensorimotor-based

learning. The approach deliberately modeled a relaxed, exploratory attitude, akin to inviting students into a safe playground rather than an intimidating, rule-bound lab. Aligning with the embodied cognition principle (Shapiro, 2021; Pouw et al., 2014), this strategy encouraged students to operate, manipulate, and investigate equipment. Observations from the session indicated very positive engagement. Students moved between stations, checked chemical labels, and, with pronounced curiosity, explored equipment. The learning environment activated natural inquiry, affirming sensory interaction, attentional focus, and memory encoding.

In addition, students appeared more open to asking questions and even engaging in light humor with the educator, a behavior that suggests an early sense of relational trust. This willingness to approach the instructor without fear of negative evaluation reflects the psychological safety built into the embodied, tension-free design.

Constructivist Learning → Enhanced with Affective and Generational Scaffolds

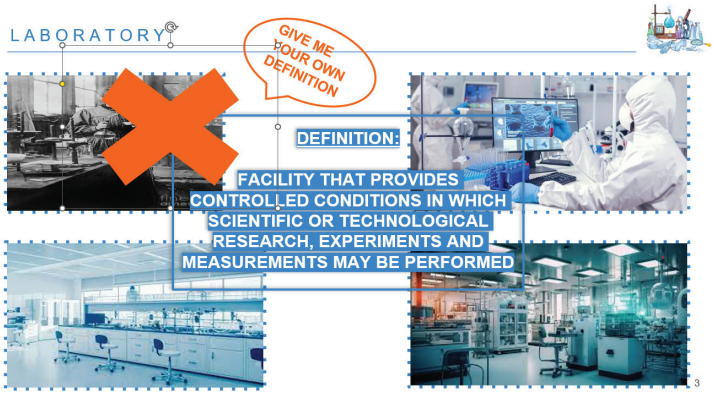
Students were guided to construct a personal understanding of laboratory principles within a psychologically safe context, where humor, culturally relevant cues, and informal language, as represented in Figure 1, both on ICT tools and live experiment explanations, minimized anxiety and reduced attentional focus. (Piaget, 1973; Vygotsky, 1978; Bruner, 1961). This scaffolded approach positioned the tutor in the role of a guide, encouraging students not merely to memorize, but to preserve a connection with creativity

and the distinctive ways in which their minds individually conceptualize ideas, allowing students to interpret concepts collaboratively - even in moments when they lacked confidence, certainty, or openness to articulate their ideas. The open-ended question assessing conceptual internalization ("What is a laboratory?") demonstrated that 105 of 120 students achieved full marks, with no student scoring below 3.0 points. Their responses revealed original, thoughtful reflections that integrated observed lab experiences with theoretical understanding, combined with their creativity and own palette of words for defining, indicating that students actively synthesized knowledge rather than relying on rote memorization. These results suggest that combining constructivist scaffolding with generationally attuned engagement techniques promotes deep conceptual learning.

Equally important, the absence of low scores implies that trust-based scaffolds encouraged even hesitant learners to attempt original answers. Rather than avoiding participation, students took intellectual risks in defining laboratory concepts in their own words, a sign that trust not only reduced anxiety but also elevated their willingness to engage in reflective thinking.

Figure 1

Laboratory principles within a psychologically safe context, where humor, culturally relevant cues, and informal language are presented in an ICT tool



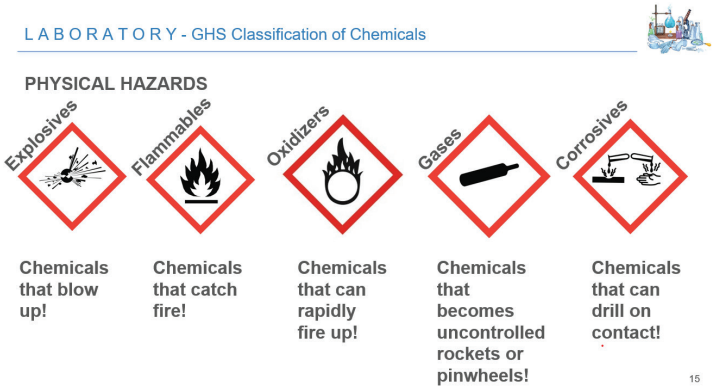
Dual Coding Multimedia Learning → Enhanced with Strategic Attention Modulation

To accommodate the characteristic attention fluctuations of Gen Z learners, instructional content combined short verbal explanations, visually engaging slides, and real-time demonstrations. The Method 3 findings—integrating minimalist verbal explanations, ICT visuals, and synchronized demonstrations—highlighted exceptional learning outcomes, with 98.3% correct responses on hazard classification tasks. By strategically modulating attention through multisensory channels and short, clear content sequences with incorporated generational scaffolds, as shown in Figure 2, students achieved near-universal comprehension. Incorporating culturally familiar visuals and concise language further strengthened engagement,

aligning with dual coding and multimedia learning theories (Clark & Paivio, 1991; Mayer, 2021). The accuracy of this cross-modal approach tends to underpin the pedagogical value of synchronizing verbal, visual, and kinesthetic information for proficiency in advanced concepts.

Figure 2

Dual coding multimedia learning supporting an ICT tool reflecting short, clear scaffolds, including sequences



Culturally Responsive Pedagogy → Enhanced with Implicit Authority through Familiar Formats

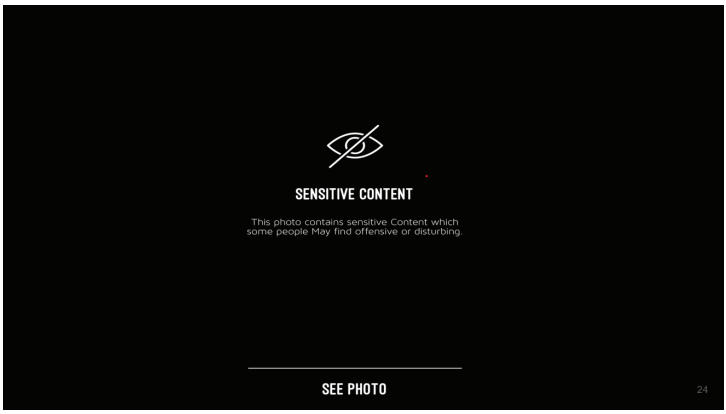
The session design leveraged Gen-Z–relevant humor, social media–style imagery, and culturally familiar cues to convey essential content. As shown in Figure 3, instruction progressed from playful engagement to trend-aware visuals and concluded with real-world consequences, such as images of laboratory injuries. This maintained student autonomy while naturally emphasizing safety and responsibility. By incorporating authority within familiar and

relatable formats, students were guided subtly rather than directed explicitly, allowing them to internalize rules and expectations while remaining fully engaged. The approach also supported peer discussion and collaborative interpretation, reinforcing the connection between cultural context, practical relevance, and conceptual understanding.

The Overall Performance Trends—showing no scores below 60% and over 75% scoring between 91–100%—demonstrated that combining all four pedagogical strategies from the first session effectively leveled the learning field. Students from diverse backgrounds, prior knowledge, and academic confidence achieved comparable mastery, illustrating the equity-enhancing potential of this approach.

Figure 3

Slide trilogy for playful engagement with trend-aware visuals and concluded with real-world consequences



Conclusion

The findings suggest that multimodal, Gen-Z–adapted strategies from the very first laboratory session can significantly enhance engagement, understanding, and equity. Tutors, acting as guides rather than authority figures, supported students in constructing their own conceptualization, connecting theory with practice, and exploring concepts both individually and collaboratively—even when

students felt unsure or hesitant to share their ideas (Piaget, 1973; Vygotsky, 1978; Bruner, 1961). The qualitative evidence supports that immersive, culturally responsive, and sensorimotor-rich instruction fosters curiosity, reflection, and active knowledge synthesis, helping students move beyond rote memorization.

Quantitative results corroborate these observations. Overall performance trends reveal no scoring below 60% on a post-session quiz, with over 75% achieving between 91–100%. This demonstrates that combining embodied cognition, constructivist scaffolds, dual coding multimedia learning, and culturally responsive pedagogy from the first session effectively levels the learning field for students from varied backgrounds and prior knowledge (Clark & Paivio, 1991; Gay, 2010; Evans, Turner, & Allen, 2020; Mayer, 2021).

Taken together, these results illustrate the Trust-Scaffolded Pedagogical Novelty Effect in practice: trust was built through safe, playful, and student-centered interactions; scaffolding guided students' thinking without diminishing independence; and novelty sustained attention while aligning content with Gen Z's multiculturalism. By foregrounding trust and novelty as dual anchors of pedagogy in education, this study emphasizes that Gen Z classrooms require more than multimodal strategies—they require carefully scaffolded experiences that reassure students while surprising them into deeper engagement. The observed equity across diverse learners further suggests that this combination of pedagogical education is not just an instructional strategy but a framework for inclusive and generationally attuned learning.

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BRIDGING SYSTEMS, BUILDING MINDS: ENHANCING ENGAGEMENT THROUGH COMPARATIVE, PRACTICE-ORIENTED LEGAL EDUCATION

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Introduction

It is indisputable that technological progress has an impact on education, especially on higher education, regarding traditional studies such as legal studies. These studies are under higher pressure to adapt to the (new) methods of conducting. The challenge in legal education is bridging abstract theoretical approaches with practical application in ways that make learning easier for students.

Based on my experience as both a practicing lawyer and academic, currently teaching diverse courses in legal studies, I have developed teaching strategies that have measurably improved student motivation, attendance, and performance. This article examines the impact of comparative and practice-oriented methods to enhance the engagement of the students. It marks concrete teaching

innovations, including real-time feedback, guest lectures, and collegial communication practices, all of which motivate students at the International Balkan University (IBU) to become analytical thinkers and practice-ready lawyers.

From Passive Learners to Comparative Analysts

Just as in many university programs of social sciences, law is being conducted in an *ex-cathedra* format, where students passively perceive the content.

In the Characteristics of Legal Systems course, students are not only introduced to civil and common law principles. Instead, they do comparative analysis, discuss similarities and differences between jurisdictions. Together, comparative charts are built, jurisdictional distinctions are analyzed, and practical implications are discussed.

This approach leads to intellectual exchange in the classroom. Students learn more to perceive law as a living system shaped by culture, history, and policy. Moreover, the awareness that law is an indivisible part of everyday life is being increased (e.g., even the simplest example—a chewing gum purchase as a binding contract). Comparative reasoning encourages them to take law seriously as a discipline, while also fostering deeper reflection on its contingent and evolving nature (van Hoecke, 2015; Zumbansen, 2020).

Practice-Oriented Simulations in Commercial Law

In Commercial Law, my professional legal background is applied to the teaching process. After introducing the basics of company and commercial law, case-based exercises are designed. In the lectures, for instance, students are required to advise a hypothetical client on merger transactions, draft simple bilingual articles of association, or simulate company registration in the trade registry.

These activities combine theoretical knowledge with problem-solving skills. They echo best practices from clinical legal education and have proven effective in transforming abstract doctrine into operational knowledge (Grimes et al., 2011; Burridge et al., 2017).

Real-Time Feedback and Formative Assessment

Any delivered project that the students are assigned to deliver before the exams (this includes choosing a particular topic and presenting it to other students in the classroom) is being dealt with, discussed, and revised at the same time. On behalf of this approach, the students benefit mostly when the assessment is dialogic and immediate.

In International Human Rights Law, for instance, students draft hypothetical applications to the European Court of Human Rights. These are presented in class, where I provide detailed feedback on admissibility, structure, and legal reasoning. Because the process is open and

collaborative, students learn not only from their own submissions but also from peer analysis and critique.

This type of formative assessment allows mistakes to be reframed as opportunities for growth—a pedagogical shift strongly supported by higher education research (Nicol & Macfarlane-Dick, 2006).

Guest Lectures for Bridging Theory and Practice

Organizing guest lectures and workshops by myself helps students to come closer to bridging the gap between theoretical knowledge and its practical application. In an Advanced EU Law course, for example, I invited a senior official from the national competition authority to discuss merger control in North Macedonia and compare it with EU and U.S. notification regimes.

Lectures of this kind lead to a clearer understanding of institutional functioning and, at the same time, familiarize the students with legal professional profiles — for instance, by showing which qualifications are required to pursue a career as a competition authority officer. According to European studies on legal education, practitioner involvement enhances both student motivation and awareness of employability skills (Johnstone & Vignaendra, 2003).

Treating Students as Colleagues

Communication style is a very important pedagogical tool. In all courses, I always address students as colleagues or

fellow jurists. It is a signal for trust, respect, and professional expectation.

Students respond to this approach by becoming more courageous in responding to questions. This kind of collegial communication supports motivation, especially in contexts where traditional hierarchies remain entrenched (Ryan & Deci, 2000).

Cultivating General Knowledge as a Legal Foundation

Legal training is not sufficient if the cultural, historical, and political contexts are not considered in the lectures. I always note in the lectures that general knowledge is very important component for developing good legal reasoning.

For example, in discussing company law, we also examine EU integration business processes, or we explore digital commerce, considering post-pandemic (political and economic) changes. On behalf of these examples, students see law not as static, but as a phenomenon constantly interacting with economics and politics. This interdisciplinary grounding prepares them for adaptability, critical thinking, and lifelong learning—competencies consistently highlighted in European education policy (Přibáň, 2002; Council of the EU, 2018).

Conclusion

Legal education should not be focused only on memorization of legal texts. Instead, it should include more interactive, comparative, and practice-based methods. My teaching experience can demonstrate that:

- Comparative analysis cultivates critical reflection.
- Simulations of hypothetical legal cases transform knowledge into practice-based skills and professional readiness;
- Real-time feedback re-shapes errors as constructive learning;
- Guest lectures provide good links between academic study and practice;
- Respectful, collegial communication strengthens confidence;
- General knowledge cultivation ensures that lawyers are not merely technicians, but socially aware professionals.

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INTERDISCIPLINARY APPROACH TO TEACHING: HOW TO ESTABLISH COMPLETE CONTROL OVER THE PROCESS OF LEARNING

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Introduction

The modern higher education system faces challenges that require redefining the role of teachers, students and institutions in the educational process. The dynamics of social change, digitalization and global competitiveness of higher education have led to the need to establish more precise and transparent mechanisms for controlling and evaluating the teaching process. The issue of "control" in higher education does not only refer to administrative supervision, but to the entire quality monitoring system - from teaching planning, through pedagogical methods, to the evaluation of student achievements.

Full control in teaching implies a harmony between teaching objectives, learning outcomes and evaluation procedures, but also the ability of the teacher to manage the

dynamics of the classroom through a combination of pedagogical, psychological and communication strategies. In this sense, control does not mean an authoritarian approach, but rather the establishment of an optimal structure and feedback loop between teachers and students.

Numerous studies in the field of didactics and higher education management (Biggs & Tang, 2011; Ramsden, 2003) emphasize the importance of a planned and measurable learning system that enables transparency, consistency and the development of academic responsibility. This paper analyzes the concept of total control in higher education from three aspects:

1. The pedagogical aspect, which refers to the methods of leading and structuring the teaching process;
2. The professor as a performer and visual communicator in the process of establishing control in teaching;
3. The psychological aspect, which considers the relationship between control and student autonomy in the learning process.

The aim of the paper is to determine how it is possible to establish effective and comprehensive control in teaching at higher education institutions without violating the creative and research freedom that is the essence of academic education. The paper starts from the assumption that total control is not a repressive mechanism, but a systemic support that enables consistency, fairness and quality in the higher education process. I would like to note that this work is based on my own experience teaching at numerous universities in Europe and that my personal experiences

with research have produced an entire system of work in the approach to teaching and lectures.

The Pedagogical Aspect - Methods of Leading and Structuring the Teaching Process

A Pre-Preparatory Period That Ensures Knowledge Security and Designs the Pedagogical Approach Procedure

The pre-preparatory period in the teaching process represents a fundamental phase in which the teacher builds the knowledge structure, the strategy of action and the methodological framework for achieving pedagogical efficiency. This phase, although often invisible in the everyday teaching process, crucially determines the quality and coherence of the educational process. Its purpose is not only to prepare the content, but also to ensure the security of knowledge — both among the teacher and the students — and to define the way in which this knowledge will be transmitted, acquired and interpreted.

During this period, the teacher analyzes the teaching objectives, the structure of the subject, the level of prior knowledge of the students and the context in which the learning process will take place. He develops a strategy that connects theoretical content with practical experiences, choosing pedagogical methods that will enable maximum student engagement. Through such preparation, the teacher not only ensures authority in knowledge,

but also clarity in communication – because the security of knowledge is not only a matter of being informed, but also of the ability to interpret, adapt and transmit knowledge in accordance with the different cognitive and emotional profiles of the students.

The educator, more than the member of any other profession, is concerned to have a long look ahead. The physician may feel his job done when he has restored a patient to health. He undoubtedly has the obligation to advise him on how to live to avoid similar troubles in the future. But, after all, the conduct of his life is his own affair, not the physician's; and what is more important for the present point is that as far as the physician does occupy himself with instruction and advice as to the future of his patient, he takes upon himself the function of an educator. The lawyer is occupied with winning a suit for his client or getting the latter out of some complication into which he has gotten himself. If it goes beyond the case presented to him, he too becomes an educator. The educator by the very nature of his work is obliged to see his present work in terms of what it accomplishes, or fails to accomplish, for a future whose objects are linked with those of the present (Dewey, 1938, p.32).

Designing a pedagogical approach at this stage also includes an aesthetic and psychological dimension: the way the teacher positions himself in the classroom, the tone of voice he uses, the rhythm of the presentation, and the visual materials that accompany the teaching process. This is where the construction of the teacher's performative authority begins - the ability not only to explain knowledge,

but also to "perform", to create an environment in which knowledge is experienced, not just remembered, through presence and style of communication.

The pre-preparatory period, therefore, functions as a laboratory in which the teacher projects the pedagogical dramaturgy of teaching. He designs the course of the lesson as a narrative with a clear introduction, culmination, and conclusion, anticipates possible student reactions, and prepares ways to include them in the dialogue. In this way, pedagogical control is established based on anticipation and understanding, not repression. In this way, the teacher becomes the architect of the educational experience, and therefore, we estimate that the pre-preparatory period is the most important phase of creation.

Active Teaching – Between Control and Freedom

Active teaching is a central stage of the educational process, in which the teacher moves from the role of planner and strategist to that of performer, interpreter and guide. This stage is a kind of stage on which what was conceived in the pre-preparatory period is realized, but also a space for unpredictability, improvisation, and dialogue. In this sense, teaching can be understood as a dynamic performance in which the teacher balances between control and freedom, between structured knowledge and spontaneous dialogue.

A careful analysis of the teacher-student relationship at any level, inside or outside the school, reveals its fundamentally narrative character. This relationship involves a

narrating Subject (the teacher) and patient, listening objects (the students). The contents, whether values or empirical dimensions of reality, tend in the process of being narrated to become lifeless and petrified. Education is suffering from narration sickness. The teacher talks about reality as if it were motionless, static, compartmentalized, and predictable. Or else he expounds on a topic completely alien to the existential experience of the students. His task is to "fill" the students with the contents of his narration— contents which are detached from reality, disconnected from the totality that engendered them and could give them significance. Words are emptied of their concreteness and become a hollow, alienating, and alienating verbosity (Freire, 2005, p.70).

Control in this context does not imply authoritarianism, but the ability to direct the energy and attention of students, to manage the rhythm of the lesson and maintain focus on essential issues. The teacher as a performer must know when to increase the intensity and when to withdraw and leave the space for students to express their own thoughts. This creates a space for active participation – a key element of modern university education.

In modern pedagogical theories, especially those that rely on performativity (Erving Goffman, Judith Butler, Richard Schechner), the teacher is not only a transmitter of knowledge but also an actor who creates an educational event. His ability to communicate visually, gesturally and verbally makes the learning process multi-layered: knowledge is transmitted not only through words, but also through tone, rhythm, space and body relations in the classroom.

Here, visual strategies play a crucial role – the use of images, projections, diagrams, gestures and movements enables multi-channel learning and a stronger emotional connection between lecturers and students.

The balance between control and freedom is also reflected in the dynamics of authority. The teacher must establish credibility, but without stifling students' creativity. A successful teacher knows how to create an atmosphere in which students are simultaneously confident and challenged – confident to express an opinion, and challenged to argue for it. This pedagogy opens up space for the creation of shared knowledge, which is not only the result of a lecture, but also a process of dialogue and interaction. On the other hand, the visual and spatial components of teaching contribute to shaping "stage" control. The professor must be aware of his own spatial presence - how he stands, how he moves, how he uses gestures. These elements influence the perception of authority and student engagement. For example, a change of location within the classroom or movement among students can break down the hierarchical relationship and open up space for more active dialogue.

Active teaching is therefore an act of artistic and intellectual balance. It requires a combination of pedagogical precision and aesthetic sensibility, rational planning and intuitive improvisation. A professor who masters this balance does not lose control - on the contrary, he turns it into an instrument of dialogue and joint learning. In such a process, control and freedom cease to be opposing concepts and become complementary forces that maintain the rhythm and meaning of the educational act.

Methods of Leading and Structuring the Teaching Process

The pedagogical aspect in the context of university teaching involves systematic reflection on the ways in which the learning process is organized, led and structured. It not only refers to the technical planning of teaching units, but also includes the strategic and communicative management of the educational space. In this sense, the professor appears as a key figure who simultaneously leads, motivates and moderates the process of cognition.

Contemporary pedagogy emphasizes the need for the teacher to move from the role of a "lecturer" to the role of a knowledge facilitator – one who directs the learning process through the active participation of students. Such an approach requires a high level of reflexivity, emotional intelligence and a willingness to improvise. Teaching becomes a process of dynamic interaction, where the methodology is adapted to the context, group and current atmosphere in the classroom.

Structuring the teaching process includes three key dimensions:

1. Didactic structure, which defines the goals, content and forms of work (lectures, workshops, discussions, presentations).
2. Interactive structure, which refers to the way in which communication is built between professors and students, and among students themselves.

3. A reflective structure, in which the effect of teaching methods is examined through evaluation, feedback and self-assessment.

Quality teaching is not only the result of planning, but also of the teacher's ability to recognize the dynamics of the group and to react in real time. This implies active listening, emotional sensitivity and a willingness to change approaches. In this sense, the pedagogical aspect becomes a living organism that is constantly changing and adapting.

In addition, within the pedagogical aspect, the rhythm of the lecture plays a special role – the pace at which the teacher manages the attention of students. Rhythm, together with the structure and manner of presentation, creates a sense of continuity and predictability that are necessary for achieving control. A teacher who knows when to increase the pace, when to pause, and when to allow silence, has a stage sense similar to that of the performing arts.

Ultimately, the pedagogical aspect in modern education is no longer just a framework for transmitting knowledge, but a strategy for constructing meaning. A successful teacher does not only strive for his students to memorize information, but to actively participate in its discovery. Such pedagogical practice requires a balance between authority and dialogue, between structure and spontaneity – precisely the kind of balance that allows for true control over the teaching process without stifling creativity and freedom of thought.

The Professor as a Performer and Visual Communicator in the Process of Establishing Control in Teaching

Performance is a broad spectrum of actions ranging from play, games, sports, popular entertainments, and rituals to the performing arts, professional roles, political personae, media, and the constructions of race, gender, and identity in everyday life. To perform is to act in a play, to dance, to make music; to play your life roles as friend, child, parent, student, and so on; to pretend or make believe; to engage in sports and games; to enact sacred and secular rituals; to argue a case in court or present a PowerPoint in class . . . and many more activities, too. PS is the academic discipline whose topic is the broad spectrum (Schechner, 2020, p.1).

Control in education has traditionally been understood as a manifestation of power – the ability of a professor to direct the behavior and attention of students. However, in the contemporary university context, where forms of communication are multi-layered and visually mediated, the notion of control grows into a complex dynamic between authority, interpretation, and stage presence. In such a space, the professor can no longer be a passive speaker. He must become a performer – aware of himself, his appearance, his movements, and the symbolism of his presence.

This idea starts from the thesis that complete control in teaching is not the result of disciplinary power, but of the professor's ability to establish strong visual and personal

communication with students. Through the theoretical framework of performative and pedagogical studies, we analyze the ways in which visual and emotional strategies contribute to the establishment of stable but open communication in the academic space.

Richard Schechner establishes the concept of performance as a broader cultural phenomenon that encompasses all forms of public action. A university lecture, according to this understanding, is not simply the transmission of knowledge, but a social ritual that has its own dramaturgy, rhythm, and audience. The professor, like an actor, enters into a certain role – not to "act", but to achieve emotional and intellectual resonance with the students. Goffman (1959) in his work *The Presentation of Self in Everyday Life* emphasizes that every social encounter has a stage structure – there is a "front stage" (*publica*) and a "back stage" (*preparation*). In the context of teaching, the professor's body, voice, movement, and pace of presentation become the medium through which meaning is conveyed. A good professor knows how to take control of the "stage" – not with force, but with attention, rhythm, and charisma.

In the second part of this interaction, visual communication plays a crucial role in building pedagogical authority. The way the professor uses space, light, visual aids, and his own gestures creates a "visual narrative" that supports the content of the lecture. Control is thus achieved not by command, but by careful orchestration of perception. A professor who understands the visual culture of education knows that every gesture – body position, hand movement, gaze – carries semantic value. Such awareness

allows students' attention to not be scattered, but to remain directed towards the professor's expressive focus. In the digital age, this visual control also gains new dimensions through interactive platforms, presentations, projections, and performative forms of teaching. The persona of a teacher is not a random construct. It is the result of a combination of knowledge, attitude, experience, and awareness of one's own role. This symbolic persona allows teachers to create continuity between the intellectual and emotional fields of communication.

Students do not only respond to knowledge, but also to the way it is presented. When a teacher possesses an authentic and consistent stage persona, students feel stability and security. This achieves "soft control" – one that stems from trust, not fear. The teacher as a persona is therefore not a figure of power, but a figure of presence.

Contemporary psychological studies (Goleman, 1995) show that emotional intelligence is crucial for successful group management. In the context of teaching, this means that the professor must be able to read the students' emotional signals and adjust his performance accordingly. Control here is not achieved through rigidity, but through flexibility. Non-verbal communication - gaze, intonation, body position - often has a greater impact than the verbal content itself. A professor who understands this complexity can both calm and motivate students with his presence. Such control is organic, fluid and sustainable.

Introducing performative methods into teaching allows students to understand content more deeply through experience and interaction. Methods such as "visual

argumentation", "situational performance," and "drama simulation" show that students learn more effectively when knowledge is connected to emotion and image.

The professor in this context becomes the director of the educational process. He structures the space, rhythm and atmosphere of the lecture in a way that allows for maximum concentration and involvement. In this way, the visual strategy becomes a form of control – not coercive, but inspiring. Here, we would rather focus on explaining these concepts and how they are practically implemented, and what effects they produce on students.

Visual Argumentation

The term "visual argumentation" comes from contemporary theories of communication, visual culture and pedagogy, and denotes a way of constructing, conveying and proving ideas through visual means, and not (only) through verbal language. Visual argumentation is the process in which images, diagrams, maps, videos, performances, spatial settings, or other visual elements serve as carriers of logical and emotional meaning — that is, they argue, prove, or persuade viewers in a similar way to words or text. Rather than explaining an idea through speech alone, the teacher uses visual structures that have their own logic and persuasiveness.

When speaking in the context of university teaching, visual argumentation involves using pictorial models (e.g. mind maps, sketches, infographics) to show connections between concepts; using artistic or architectural examples as a means of interpreting complex ideas; performing

visual performances or simulations where students not only listen, but also see and participate in the process of proof and reasoning; designing teaching presentations and materials that are not for decoration, but are constructed to guide the logic of the lecture — the visual form becomes the argument.

For example, in art, communication, philosophy, or psychology courses, a professor might: use comparative images to show the development of an idea through different eras (e.g., representing the human figure from ancient to contemporary art); set up a visual experiment where students analyze images instead of texts and draw conclusions from them; model the classroom space (seating arrangements, light, movement) as part of an argument about perception and power.

Situational Performance

The term "situational performances" originates from performative studies, psychology and pedagogy, and refers to behaviors, gestures or performances that take place within a specific context (situation) and are adapted to the audience, space and purpose of the interaction. In other words — these are intentionally or spontaneously performed actions that have meaning because they occur in a specific situation.

In the definition, situational performance refers to the performance of (verbal, nonverbal, or visual) acts that are not just spontaneous behaviors, but have a structure, a message, and a pedagogical or communicative function, adapted to a specific context. In an educational context,

this means that the teacher uses a stage-based approach to the classroom situation — being aware of the space, the energy of the students, the current mood, and the goal of the lesson — and shaping his or her behavior, tone, and gesture to create maximum impact.

In pedagogy and university teaching, *situational performances are key in the modern model of the "classroom as a stage"*. Then the Professor acts as a performer who reacts to the situation: he uses humor, silence, movement, and change of intonation to maintain attention. In this context, teaching becomes an interactive event, not just a transfer of knowledge. A smart professor can turn any situation — a student's question, a mistake, a technical problem, a moment of boredom — into a pedagogical performance. To note one example: if a student asks an unusual question, the professor can, instead of a direct answer, make a mini "experiment" or a visual demonstration. In this way, the situation turns into a performance that transfers knowledge through experience.

There is certainly a psychological dimension here, activating the emotional and cognitive dynamics in the group using the situational method. In this way, the teacher shows authenticity and presence in the moment (which strengthens the trust of the students), and the distance between the teacher and the students is reduced. As a result, a collective rhythm and emotional resonance are created, which improve the learning and memory process.

Finally, in art and performance theory, this concept has its roots in the works of Richard Schechner and Erving Goffman, who argued that all social behavior has a

performative aspect — from everyday conversation to ritual or lecture. In this sense, teaching becomes a form of artistic performance, in which the situation is always unique, unrepeatable, and requires interpretation.

Drama Simulation

The term "dramatic simulation" (or drama-based simulation) is one of the contemporary experimental pedagogical methods that connect the art of drama, psychology and education. This method uses the principles of dramatic play, improvisation, and role-playing to help students better understand certain concepts, social processes, or ethical dilemmas through experience and emotion. Participants (students, sometimes also a professor) enter roles, act within an imagined context and through the game of situations explore real phenomena.

Unlike classical dramatization, the goal here is not an aesthetic result, but rather cognition and reflection. For example: In art history classes, a dialogue between a Renaissance artist and a client can be simulated or in ethics or philosophy subjects – the trial of Socrates. Through such a dramatic simulation, students do not learn passively but become actors in the process of knowledge.

Using this method, the following pedagogical goals are simultaneously achieved: active learning, empathic understanding, critical thinking, developing communication skills and visual-kinetic memory. Drama simulation is also a visual method – the classroom space is transformed into a "stage", symbolic objects, light, projections, sound are used. This activates visual perception and creates a

memorable experience that the student associates with the concept he is learning. In this sense, the method is very close to the concept of visual argumentation – because the scene itself becomes the argument. And finally, this drama simulation method in university teaching has a special place because it breaks the monotony of the academic format, combines theoretical and practical knowledge, enables an interdisciplinary approach (a combination of art, communication and psychology) and builds a sense of community and participation in the group. When a professor uses drama simulation as part of his teaching, he actually introduces an artistic dimension into the process of cognition. Knowledge is not transmitted "from above", but is created in the interaction between the participants, the space and the imagined situation.

Psychological Aspect: The Relationship Between Control and Autonomy of Students in the Learning Process

The psychological aspect of the relationship between professors and students in higher education represents one of the most complex areas of pedagogical practice, as it concerns the balance between control and autonomy – between the need to structure and direct knowledge, and the need for the student to be free in thought and creative expression. This relationship is dynamic, changing, and always contextual, and in the modern academic environment, it becomes a key issue for effective and humane education. Such teachers approach students with the will and desire to respond to our unique beings, even if the

situation does not allow the full emergence of a relationship based on mutual recognition. Yet, the possibility of such recognition is always present. (Hooks, 1994, p.13)

Control, in the psychological sense, does not mean repression, but the organized management of the learning process. The professor as a leader must have a clear pedagogical intention: to create a framework of security and clarity, within which students can develop independence. This "structural control" provides rhythm and continuity, while at the same time allowing students to shape their own learning strategies, interpretations and creative responses within these boundaries.

On the other hand, autonomy is a psychological prerequisite for the development of self-regulation and intrinsic motivation. When a student feels in control of his or her own learning — that he or she can choose, interpret, experiment — his or her knowledge becomes permanent and his or her engagement becomes authentic. Numerous studies in educational psychology, we emphasize the work of Ryan and Deci (2017) about self-determination theory, show that intrinsic motivation is strongest when three needs are met:

1. autonomy (freedom to make decisions),
2. competence (a sense of ability), and
3. relatedness (a sense of belonging).

In this sense, the role of the teacher is not to dominate, but to facilitate psychological safety — to create an environment in which students have the courage to ask questions, make mistakes, and develop their own interpretations.

Control then becomes invisible, woven into the dynamics of the lesson, while the focus shifts from disciplining to guiding. In practice, this means that control in the learning process must be flexible and emotionally intelligent. Strict discipline and mechanical evaluation can cause resistance and anxiety, while too much freedom without structure leads to confusion and superficiality. The ideal state is what we can call "dynamic control" – a situation in which the teacher uses psychological sensitivity to assess when to intervene, and when to step back and let students take the initiative themselves.

This approach also implies a high level of emotional competence on the part of the teacher. He must understand how group energy, tone of communication, gesture and visual elements affect the students' sense of security and openness. Every interaction becomes a psychological space of negotiation between authority and freedom, between expectations and spontaneity. Ultimately, the psychological aspect of control in education is not a question of power, but of relationship. A professor who understands the psychological dynamics of learning does not strive for total control, but rather establishes a creative balance- he directs without restricting, structures without constraining, and inspires without imposing. Such a pedagogy allows students to develop not only knowledge, but also an awareness of their own role in the educational process, which represents the highest form of academic autonomy.

Conclusion

Contemporary higher education requires professors to abandon the traditional role of authority and transmitter of knowledge and to take on the function of facilitator, mentor and interpreter of meaning. The key challenge of university pedagogy is no longer only in the structure of the curriculum, but in the way in which knowledge is produced, communicated and experienced. In this process, visual and performative methods, psychological approaches and awareness of the power dynamics between professors and students become essential.

Through visual argumentation, situational performances and drama simulation, the educational process is transformed from a linear transmission of information to a dialogue-based experiment. The student is no longer a passive recipient of knowledge, but an active participant in its production, while the professor becomes the creator of the framework in which this production takes place. Such an approach requires a high degree of reflexivity, emotional intelligence and pedagogical sensitivity from the professor, because he manages not only intellectual processes, but also the psychological and affective atmosphere in the classroom.

The balance between control and autonomy proves to be the most delicate, but also the most important element of educational practice. Control without autonomy leads to disciplining, while autonomy without control leads to fragmentation and loss of meaning. The essence of modern didactics lies precisely in the dynamic balance between these two poles — in creating a space where the

student feels free to take the initiative, but also secure in the structure and support provided by the professor.

The performativity of the educational process, visual thinking and situational learning enable theory to be transformed into experience. They make visible what is often neglected in traditional teaching: the body, space, movement, silence, rhythm and emotion as carriers of meaning. Such a pedagogy is interdisciplinary and sensitive – it seeks not only knowledge, but also presence, not only reproduction, but also interpretation.

Ultimately, the professor in the contemporary academic context is not the custodian of knowledge, but a mediator in its creation. His power is not measured by the amount of control, but by the ability to create conditions in which students can develop their own voice and intellectual autonomy. Control, visual strategy and performativity then become pedagogical tools of reflection, not domination. Such an approach leads to a university that is no longer a closed institution, but an open laboratory of thought and action, in which the boundaries between theory and practice, professor and student, knowledge and experience are constantly renegotiated. In this process, education becomes what it essentially is – an act of co-creation of meaning.

The psychological aspect of this relationship reveals that knowledge is inseparable from emotional and social context. The learning process is not only a cognitive act, but also a dialogue of identity, confidence and motivation. A professor who understands the psychological dynamics of a group can use control not as a means of power, but as an

instrument of aligning energy and focus. Students' autonomy then becomes a product of joint work, rather than the mere absence of supervision.

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PART 2

INNOVATIVE TEACHING METHODS AND PEDAGOGICAL APPROACHES

IMPLEMENTING INTERNATIONAL ARCHITECTURAL COMPETITIONS AS AN INNOVATIVE TEACHING METHOD

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Introduction

One of the most important roles of each professor is to guide the students through the lectures using complex teaching methods in a way that will motivate and inspire them. On the other hand, the learning process cannot be without serious interaction between the lecturer and the students in order to facilitate their feedback. As future professionals and future architects, the students' responsibility needs to be enhanced by additional activities that will make students much more competitive in the worldwide market. One of those activities that could be completely incorporated in the lecturing process is the International Student Competitions for architecture.

Theoretical Framework & Literature Review

The theoretical framework of this study is grounded in project-based learning theories, which emphasize integrating real-world architectural practice into academic environments. Within this framework, international architectural competitions act as pedagogical tools bridging theoretical instruction and professional application. Previous studies highlight that competitions encourage students to confront authentic design problems under realistic constraints of time, program, and representation (Salama, 2015; Nicol & Pilling, 2000). Research in architectural pedagogy confirms that competitions enhance reflective learning, creativity, and collaborative engagement (Pak & Verbeke, 2015), while also fostering experiential learning grounded in real-world design conditions (Khorshidifard, 2011). Competitions additionally expose students to diverse global tendencies and contemporary architectural issues, aligning with current educational demands (Ghonim, 2019; Smatanová, 2021). The inclusion of competition-based projects within lectures transforms the academic studio into an active design laboratory that connects conceptual frameworks, design research, and creative experimentation (Butt et al., 2025).

Methodology and Implementation

Besides our previous participations in architectural competitions as students, but also as professionals, the implementation of this unique teaching method still represents a significant challenge in order to be applicable to the

appropriate course. The context of the competition has to be incorporated in the course respecting several important factors and implementation possibilities:

1. Matching the course syllabus and the competition project brief- The competitions have to correspond with the nature of the course (Ghonim, 2019).
2. Teamwork: There should be two options regarding the implementation of the chosen competition. The first option is to implement the competition in a corresponding course that will present a semester assignment only for the students with the highest GPA, and the second option is to open the competition to all registered students for the particular course.
3. The students work on the concrete project in groups of 3-5 people or individually.
4. The deadlines for the competition have to be compatible with the academic calendar
5. Communications: Besides the weekly consultations with the appointed mentor during the course's exercises, the students are also doing: personal research, brainstorming in the group, additional online or onsite consultation with the mentors, etc.

One of the most valuable examples of the international architectural competition that we have implemented in our course Urban Planning was the open call for redevelopment of Rasadnik, Kisela Voda in Skopje. This case study of City Quarter J14 was practically chosen in 2023 from the Municipality of Kisela Voda in order to respond to all negative detailed urban plans from the previous period that put

in serious jeopardy this sensitive green oasis in the Macedonian capital. The density of built space proposed by those plans were much higher than the parameters included in the General Urban Plan for Skopje. In other words, the human and green character of this part of the town could have disappeared if those plans were implemented. The contemporary tendency of smart cities and urban development defined by encouraging and increasing the pedestrian's public space and defocusing the car-centric towns represents one of the pillars of the course Urban Planning. This contemporary approach of the course also reflects the frequent topics of nowadays competitions that facilitates the task of choosing the adequate project for the students. Namely, the matching the course syllabus and the competition project brief has to be the priority when we are choosing between the proposed competitions from all parts of the world and from different architectural associations and affiliations.

Regarding working in groups for the project of Rasadnik, we selected all the students that registered the course Urban Planning. That gave the opportunity for the students not only to compete with the students from around the world but also with their colleagues from the same faculty. That provoked and inspired more students during the process to improve the quality of the project. Collaborative work is essential for reducing individual ego, since architects often risk becoming confined within their own subjective viewpoints, perceiving their ideas as the only or superior solutions. Collaboration also stimulates creativity—when students with diverse skills and backgrounds share ideas, the design process becomes more dynamic

and innovative. Team projects help students divide complex tasks, manage time efficiently, and develop collective responsibility for the final outcome, which is crucial in architectural production. Moreover, working in groups fosters peer learning: students can observe and learn from each other's strengths in design, technical drawing, model-making, or digital representation.

Regarding the deadline of the selected competition, it has to be also aligned with the academic calendar of the university that will avoid the risk of the completion of the whole process. Sometimes the deadline of the competition could be later than the deadline accorded with the academic calendar which is not a real issue because the students can use that extra time to improve their project. In our example for the project of Rasadnik the students were much more engaged after the submission the project for the course. They had three months extra for improvements and adaptations of the project according to the competition rules for its presentation and submission.

Other significant element of the process is the communication. First type of communication is within each group of students when they do weekly brain storming, exchange different points of view about the project, select the best options, divide different tasks during the process etc. Second type of communication is between the appointed mentor and the group of students during the exercises of the course (Salama, 2013). In this dialogue, the project can be not just improved, but it can be put in a proper direction in its development. The third type of communication is between the student's group and the person appointed

from the competition organizer that answers to all possible issues that are not particularly clear in the project brief or other ongoing challenges. All three types of communications have to be part of the process because these dialogues are the catalyst that enables the whole workflow.

The time-table or schedule for the course and the workflow for the competition has to be aligned as well. Regarding the selected example of competition, the time was some of the most important elements that needs to be taken in consideration. The deadline defined from the competition and the academic calendar was matching but it doesn't mean that the course was not adapted in order to response to all the challenges during the process. In normal cases, when the course proposes a case study or an urban project that has deadlines connected to the midterm exams or final exams, the assignments has to be envisaged to be applicable for the specific level of knowledge of the students that supposed to have gained before they register that particular course. But, when we implement a project brief from the international competition with the time schedule that has to be specifically adapted to the limited twelve academic weeks than we have to be very sensitive and rational regarding its applicability. For example, if the competition has bigger period for project realization (9 months for example) and it requires more elaborate drawings, than the course brief could be modified in order to facilitate the technical representation of the students for that same project.

Findings and Discussion

The participation in the architectural competition is a very stimulating, unique, and creative process that remains a valuable student experience regardless of the result of this process. The process itself rests independent and represents a work in progress spent in quality time that every student need for his/her personal growth. Due to the fact that the time provided for official consultation during the classes was not the only time focused for thinking and working for the project, the students has strengthened their social skills working after classes. The social benefits from this creative process is extremely valuable for every member of the working groups because this unique experience for this particular project gives an inevitable opportunity of introducing their character between each other in a different context. By working in stress and under pressure the students can also find out their own character in that particular moment. There are positive and negative possible outcomes from this experience. Some of them can find the stress as a blocking environment that can disable some skills of the students. But in general, this new environment based by strict rules and fixed deadlines improved and build up the professional character of every member of the working groups.

Knowing the fact that the students are competing not only with their colleagues from their faculty but also with the students of architecture from all around the world, the students cannot have the same approach and motivation compared to the standard project with a case study implemented from the regular course syllabuses (Gunagama &

Pratiwi, 2020). The transparency of the awarded projects from the competition organizers presented in public exhibition gives an opportunity to see closely the results of the jury. Being presented together with all participants in a public event is very important because the students are open to see and to be seen, and also it gives an opportunity to be easily compared with the other participants. Comparing with the others means that the student can see his/her personal growth in the real context that can boost the self-confidence which is one of the most significant outcomes from one international architectural competition. The awards, which are the inevitable part of any competition for the best projects, are also one of the most concrete and advanced methods of encouragement and motivation for the students. The financial aspect is not the only thing that motivates the winners of the competition. The public exhibition for all architectural projects represets a pedestal that can boost up the student's future career which is even more important than the financial support.

At the end of the process itself, the students have the sensation of emptiness because the competition has finished, and they have delivered their finished architectural product. This emotional element is part of the end of every process, present not only in architecture but in all creative professions. This expected, but sudden end of a very dynamic process is often provokes a nostalgic effect in the authors about the process itself and about the product of the process, which becomes not only the property of the author but the project becomes accessible to the public, especially if it is realized.

Recommendations for Broader Application

The strength of this teaching method lies in its flexibility and multidimensional relevance. International architectural competitions cover a wide range of topics—from urban design, design of dwelling buildings, to sustainability, heritage preservation, and landscape architecture. Because of this thematic variety, competitions can be aligned with different course objectives, offering students the opportunity to engage with real design problems that complement their theoretical knowledge (Ortiz, 2020; Yahiau, 2023). For example, a competition focused on sustainable housing could serve as the semester project for courses such as Architectural Design IV, Integrative Studio, or Architectural Structures. In another case, a competition centered on public space regeneration could simultaneously support learning outcomes in the courses: Urban Planning, and Landscape Architecture and Urban Design. This cross-disciplinary integration reinforces the holistic nature of architectural education, demonstrating how design, theory, technology, and social context are interconnected.

Furthermore, when multiple courses adopt the same competition brief as a shared assignment, it fosters interdisciplinary collaboration and promotes a more cohesive learning environment. Students can approach the same design challenge from different academic angles, such as environmental performance, cultural identity, or spatial innovation, and then synthesize these perspectives into a unified architectural proposal. Such collaboration reflects real professional practice, where architects, engineers,

and urban planners must work together to achieve a balanced solution. Professors can thus use the competition format as a joint pedagogical platform that encourages communication, teamwork, and integration of diverse expertise.

From a broader institutional perspective, the frequent use of international competitions as a teaching tool can significantly enhance the visibility and reputation of the department of architecture. When students regularly participate and achieve recognition in international arenas, they serve as ambassadors of their academic institution, demonstrating the quality of its education and the creativity of its students. This global engagement not only motivates current students but also attracts new ones, fostering a culture of excellence, ambition, and innovation.

Participation in international architectural competitions helps students to build a professional portfolio from the early phases of their studies. Having competition projects as part of their portfolio provides perceptible evidence of their design skills, conceptual thinking, and ability to work within real-world constraints. This experience becomes particularly appreciated when applying for internships, master programs, or professional positions, as it distinguishes them from other students who have only completed standard academic assignments.

Professors, on the other hand, can use these competitions in order to continuously update and improve their teaching practices. They can select competitions that illustrate modern and complex issues in architecture—such as sustainability, adaptive reuse, social inclusion,

or technological innovation in order to ensure that their courses remain aligned with the existing global trends. Competitions also provide opportunities for academic networking because educators can collaborate with organizers, jury members, and other institutions involved in the process.

Finally, the wider implementation of international architectural competitions in teaching represents an innovative and dynamic pedagogical approach that bridges academia and practice. It cultivates student motivation, enhances critical and creative thinking, and builds professional competence with experiential learning. By integrating this model across various courses and academic levels, department of architecture can encourage the development of a new generation of architects who are not only skilled designers but also globally aware, adaptable, and ready to meet the complex challenges of contemporary architectural profession.

Conclusion

The integration of international student competitions into architectural education consistently shows a range of positive effects on students' academic and professional growth. Taking part in these competitions offers an experience that reaches far beyond the limits of regular coursework, giving students the chance to test their theoretical knowledge in a setting that feels closer to real practice—fast-paced, demanding, and openly competitive. One of the clearest benefits is the development of self-discipline. Strict deadlines, ambitious expectations, and the

pressure to deliver coherent work force students to plan their time carefully, prioritize their tasks more consciously, and maintain steady productivity throughout the design process. Many students later recognize that this discipline becomes a long-term habit, influencing both their studies and their early professional life.

Another meaningful advantage comes from the exposure to rigorous evaluation standards. Competition briefs are usually designed and reviewed by international juries made up of respected architects and professionals with diverse backgrounds. Their critiques are precise and often challenging, pushing students to rethink their design logic, sharpen the clarity of their drawings, and communicate their ideas with more confidence and precision. This type of assessment encourages deeper reflection and helps students question their decisions in a constructive way, grounding their choices in stronger arguments and contextual awareness.

Moreover, knowing that their work will be judged not only by familiar professors but also by professionals from abroad often raises students' motivation. It gives the process a sense of seriousness and encourages them to invest more effort in both the conceptual and technical aspects of the project. Such external evaluation helps them move outside the comfort of the academic environment and to perceive their work through a more professional lens. Feedback from experienced practitioners—sometimes different from what they usually hear in their local studio—offers fresh perspectives and contributes to a richer learning experience.

These experiences have a lasting impact on students' professional formation. They start to see architecture not only as a local or academic concern, but as an international discipline that requires flexibility, openness to critique, and awareness of cultural and contextual differences. Engaging with global standards exposes them to new design approaches and contemporary tendencies, widening their creative outlook. At the same time, working within a competitive framework strengthens resilience and perseverance, qualities that are indispensable in the architectural field, where ideas are constantly being questioned, revised, or completely reworked.

In the end, incorporating international competitions into the curriculum enriches architectural education by connecting theoretical learning with authentic, practice-oriented challenges. It enhances students' creative and technical capabilities while also shaping essential professional qualities such as responsibility, collaboration, and respect for deadlines and quality standards. Through this process, students develop a clearer understanding of what is expected within the global architectural community and become better equipped to enter the profession with confidence, competence, and a stronger sense of direction.

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COMPETITION BASED LEARNING IN THE EFL CLASSROOM

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Introduction

Competition-Based Learning (CBL) is a teaching strategy that combines elements of project-based learning and competitions, creating a student-focused environment (Burguillo, 2010, p. 566). This approach utilizes team-based learning and problem-based learning. Students work in teams on open-ended assignments that mirror real-world problems, with performance evaluated against other groups upon project completion. The goal is to motivate students to produce the best possible project, with learning reinforced through a reward system. Competition Based Learning, CBL is generally combined with project-based learning (PBL), problem-based learning (PBL), or cooperative learning (CL) (Burguillo, 2010, p. 566).

A reward system is implemented after the task is completed to reinforce desired behaviors in learning environments. Many educators claim that CBL enhances student motivation and learning results because students are more enthusiastic about the project and potential rewards. Competition discourages complacency and raises students' awareness of the value of good outcomes. The keener the competition, the higher the output among students, which is manifested in high individual and overall class averages. Other benefits of CBL include enhanced problem-solving, creative thinking, and teamwork skills.

According to Hosseini, Competitive Team-Based Learning (CTBL) is a comprehensive, contextualized approach to teaching and learning that reflects real-world holism. Particularly, it foregrounds the significance of effective teamwork amidst competitive environments not only to foster academic progress of students but also to more effectively contribute to their future success, both academically and socially (Hosseini, 2010, p. 229).

There are several articles in which results of the usage of the Competition Based Learning in the EFL Classroom have been presented. This paper will analyze three articles on this topic. Chung, in his article Learning through Competitions – Competition Based Learning (CBL)," explains that observation shows that students had higher motivation through class competitions. They asked more questions of the instructor. Students took responsibility for their own learning. Students worked more seriously. In some cases, students worked beyond the class topics. Students had a sense of ownership of their own learning.

Students spent more time on the problems than on traditional assignments. In general, class competitions enhanced the learning objectives in the class (Chung, 2008, p. 5). Based on the search results, Chan-Jin "CJ" Chung presented "Learning through Competitions – Competition Based Learning (CBL)" at the LTU CTL Center for Teaching & Learning) Conference in April 2008.

Chung's presentation highlighted that active learning is important in classes and that classroom competitions can motivate and promote students to work harder. When competition problems are assigned, students ask more questions and may even try to learn beyond the normal classroom curriculum. Chung's study also noted that students take responsibility for their own learning, work more seriously, and have a sense of ownership for their learning when CBL is implemented. Students also generally spend more time on competition problems compared to traditional assignments, which enhances the learning objectives in the class. However, a drawback observed was less cooperation between teams, which can be partially solved by requiring presentations to share ideas and solutions after the competition. Prizes for the competitions were not the major factor for the motivations, but they certainly helped.

According to Chung, CBL can enhance students' motivation and excitement about projects and potential rewards. Competition discourages complacency and makes students more aware of the value of good outcomes. CBL can improve problem-solving, creative thinking, and teamwork skills. It also promotes active application of

knowledge, pushing learners to analyze problems and find practical solutions. In terms of knowledge retention, he concluded that, recurring competitions can help embed spaced repetition, which is a research-backed strategy for boosting knowledge retention. Also, Competition Team-Based Learning emphasizes the importance of Piagetian cognitive disequilibrium, promoting changes in cognition, reasoning, and critical thinking abilities.

Some considerations for the effective implementation of the CBL are the group size and the supportive environment. In terms of group size, Chung noted that motivation can be affected by the size of the competition group. Smaller groups can ensure participants feel their chances of success are good. In terms of a supportive environment, Chung states that building a learning culture where competition is friendly and learners celebrate each other's successes is important (Chung, 2008, p. 5).

Iván Cantador and José M. Conde conducted a study analyzing the effects of competition in education, identifying both the benefits and drawbacks of competitive learning. Their research, titled "Effects of Competition in Education: A Case Study in an E-Learning Environment," explored how to motivate students and improve their academic performance through competitive learning activities. The study involved a web system-based competition with 77 students and showed that a balance between competition and cooperation could be achieved. They also presented an e-learning system based on online forms that allows teachers to easily organize competitions in a classroom (Cantador & Conde, 2010, p. 11).

Juan Carlos Burguillo's 2010 publication, "Using game theory and Competition-based Learning to stimulate student motivation and performance," explores the use of game theory tournaments to support Competition-based Learning (CBL). Burguillo's study showed that competition can increase student motivation. He combines game theory with other learning methodologies, such as Competition-Based Learning (CBL), Project-Based Learning (PBL), or Project-based Learning (PjBL), to motivate students and improve their performance.

Burguillo found that the percentage of students passing courses using competition-based learning was higher (96.56% on average) compared to those without it (90% on average). Additionally, the average mark obtained using competitions was higher (8.6 out of 10) than without it (7.8 out of 10). Student surveys indicated that the competition approach was highly valued and motivated them to improve their lab work. Burguillo's research interests include intelligent agents, multi-agent systems, game theory, and evolutionary algorithms applied to optimization (Burguillo, 2010).

CTBL highlights the importance of Piagetian cognitive disequilibrium as a vehicle for change in cognition, reasoning styles, attitudes, ideas, and even the world. Educators try to problematize the learning context and encourage students to discuss problem-solving activities in diverse teams within competitive environments. This encourages students to listen to a variety of ideas, develop their cognition, cognitive reasoning, and critical thinking abilities, and cultivate objectivity of mind, leading to more effective

learning and development. Classroom competitions can motivate and promote students to work harder (Chung, 2008, p. 5).

Methodology and Implementation

In implementing Competition-Based Learning (CBL) in the classroom, I combine elements of project-based and problem-based learning with interactive competitions to increase student engagement and motivation. I divide the students into small teams and they are assigned open-ended projects or problem-solving tasks that mirror real-world scenarios. Throughout the whole process, they collaborate, research, and present their findings or solutions. To incorporate friendly competition, I use tools such as *Kahoot* and other online quiz platforms to assess understanding of key concepts in a fun and interactive way. These quizzes serve both as formative assessments and motivational challenges, where students or teams compete for top scores, while collaborating together. The projects are evaluated not only on accuracy and creativity, but also on teamwork and presentation skills. This structured and dynamic environment encourages students to strive for excellence while learning collaboratively. The students not only work together, but they share knowledge and enthusiasm while competing in the EFL classroom.

The CBL can be implemented through team-based language projects and interactive quizzes that encourage active use of English. For instance, students can work in teams to create a dialogue, or a digital poster on a given

topic, such as "Planning a Vacation" or "Cultural Traditions." Through the CBL the students are practicing reading, speaking, writing, vocabulary or grammar, depending on their needs. Throughout the whole project, I use *Kahoot* or other quiz platforms to run vocabulary, grammar, or comprehension competitions, awarding points to the teams based on accuracy and speed. In addition, I include mini challenges which can contain timed sentence-building exercises, idiom identification games, or short debates on familiar topics, where teams compete to score the highest points. By combining collaborative projects with gamified assessments, students are motivated to practice English actively, improve their communication skills, and apply language knowledge in realistic, engaging scenarios. To further support their learning, I provide clear rubrics and progress checklists so teams can monitor their own development throughout each project. I also incorporate peer-feedback sessions, allowing students to evaluate one another's contributions and refine their work collaboratively. The peer sessions are very helpful and beneficial, because the students are free to express their opinions and ideas for improvement. Additionally, I always rotate the groups, to ensure that every student actively participates and develops a wide range of skills. I also integrate reflection activities at the end of each competition or project, encouraging students to discuss what strategies helped them succeed and what they can improve next time. To keep the experience fresh and engaging, I frequently introduce new challenge formats or surprise bonus rounds that reward creativity, teamwork, and quick thinking.

Benefits

Competition-Based Learning offers several educational benefits, including increased student motivation, engagement, and participation. The competitive element stimulates intrinsic motivation and encourages students to put forth their best effort. It promotes active learning and helps develop critical thinking, communication, and problem-solving skills. Through teamwork, students learn collaboration, leadership, and time management. The integration of digital tools like Kahoot adds an element of gamification, making the learning experience more enjoyable and interactive. Additionally, CBL fosters a sense of achievement and self-confidence as students see the tangible outcomes of their hard work and compare their progress with peers in a healthy, constructive manner. CBL usage in the English as a Foreign Classroom is beneficial, because the students are more participative and active. I have also noticed that it increases academic performance, because the students' desire to win or to have a good score motivates them to learn more. From personal experience, I can say that CBL encourages students to take greater ownership of their learning, as they become more responsible for preparing, practicing, and contributing to their teams' success. Moreover, it nurtures resilience and a growth mindset, since students learn to view mistakes as opportunities to improve and perform better in future challenges.

Recommendations

For effective use of Competition-Based Learning in the classroom, it is important to balance competition with cooperation to maintain a positive learning environment. Teachers should design clear, achievable goals and establish fair assessment criteria that value both effort and results. Using digital platforms such as Kahoot, Quizizz, or Google Forms can enhance engagement while providing instant feedback. It is also recommended to rotate team roles and responsibilities to ensure equitable participation among all students. Lastly, teachers should emphasize learning over winning, using post-competition reflections to help students analyze their performance, celebrate successes, and identify areas for improvement, ensuring the approach remains inclusive and educationally meaningful. CBL in my context has been used with different English level groups, starting with A1 to C2 and I can state that it is suitable for all levels of English. I have found that adapting the difficulty of tasks and competition formats to each group's proficiency level ensures that all students feel both challenged and supported. Incorporating visual aids, sentence starters, or vocabulary lists for lower-level learners helps them participate confidently, while higher-level groups can handle more complex debates, presentations, and problem-solving tasks. By tailoring activities in this way, CBL remains flexible and effective across diverse learning needs and classroom contexts.

Conclusion

Competition Based Learning encourages students to ask more questions compared to when they do regular homework assignments and try to learn beyond the normal classroom curriculum in order to win the competition. The classroom becomes a learner-centered or student-centered environment, and students take responsibility for their own learning. Students also have a sense of ownership for their own learning and spend more time on the problems than traditional assignments, generally enhancing the learning objectives in the class. The Competition based Learning enhances the students' motivation and they are more participative in class. In addition to that, the level of interaction is increased and the classes are very engaging. Critical thinking skills are developed and the motivation to learn is on a high level. The students are motivated to think and to show and share their knowledge. This approach helps students to build confidence as they see the direct impact of their learning efforts on their performance in each activity. The competitive and supportive atmosphere encourages them to present their ideas more clearly and to defend their viewpoints with stronger reasoning. Over all, by using the Competition Based Learning in the EFL students become more independent, proactive learners who approach challenges with enthusiasm and persistence.

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A 15-MINUTE RESEARCH METHOD MODULE: RAPID RESEARCH SKILLS DEVELOPMENT AS AN INNOVATIVE TEACHING PRACTICE IN HIGHER EDUCATION

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Introduction

Effective teaching in higher education is more and more reliant on active learning methods that engage the students and enhance their practical proficiency. Design and execution of a 15-minute research technique module for dental students at the International Balkan University (IBU) is presented below as an instance of an innovative higher education practice. The module is intended to introduce students to essential research skills in a highly active learning and time-efficient format at exercise or practice classes. By evidence-informed pedagogy, students actively construct research questions, operationalize variables, and discuss methodological solutions within small groups. Initial feedback indicates increased student participation, improved understanding of research principles, and positive attitudes. This approach demonstrates

that brief, focused learning interventions can significantly enhance student learning outcomes and establish a culture of evidence-based practice in health sciences education. The outcomes point toward the potential for adopting short, active learning modules as part of higher education curricula to cultivate research literacy and hands-on skills.

The primary goal of the research is to conduct and evaluate a 15-minute research method module as a novel methodology for teaching aimed at enhancing the engagement and research skills of university students. The module focuses on active learning principles that encourage students to become directly engaged in developing research questions, defining variables, and arguing over methodological approaches.

The objectives of the approach are, to provide a concise, systematic way of introducing basic research skills in time-efficient form; to empower students themselves to take an active role in learning by taking part in peer activities and problem-solving exercises; to foster an understanding of evidence-based practice and its application in health sciences education; to promote student confidence in designing straightforward research strategies supportive of their scholarship and professional development; to demonstrate the feasibility and effectiveness of concise-format, active learning interventions in the curriculum of higher education.

Selection of a brief, 15-minute interactive module is based on pedagogic evidence studies indicating that active learning strategies—even in brief interventions—can significantly increase student engagement, retention,

and learning of practical skills. Traditional lecture-based methods often fail to provide students with hands-on experience or an opportunity to immediately apply, particularly in complex fields like medicine and dentistry.

In the higher education arena, and in the case of health sciences particularly, the ability to understand and apply research methodology is crucial for academic success as well as professional expertise. The inclusion of a brief, focused module will allow teachers to add on to existing courses without creating excessive time burdens, while still maximizing critical thinking and evidence-based decision-making.

Through active involvement of students in research-based activities, the approach enhances deeper learning, facilitates teamwork, and increases motivation. Hands-on experience with research procedures refines students' research methodology knowledge, enabling them to critically assess scientific literature and translate findings into clinical or academic practice. The approach also responds to education trends revolving around student-oriented, evidence-based learning, and therefore advances general teaching effectiveness and improved learning outcomes.

Theoretical Framework & Literature Review

The evolution of pedagogy within higher education across the last few decades has prioritized the necessity for creative, student-centered approaches that inspire active learning and the development of key skills relevant to professional practice. Traditional lecture-based methods, while as effective at transmitting content to large numbers

as they are, have increasingly been faulted for promoting passive learning and superficial retention, especially in those fields defined by complexity, e.g., science, medical and dental education (Prince, 2004; Samet, 2025). Thus, active learning strategies have come to the forefront, focusing on participation, collaboration, and experiential construction of knowledge. Active learning has been broadly termed as any instructional technique that involves students in active engagement in meaningful activities rather than listening passively (Freeman et al., 2014; Sahito et al., 2025). All the studies have determined that these strategies improve student understanding, retention, and critical thinking skills (Michael, 2006).

One theoretical foundation core to active learning is Constructivism, which posits that knowledge is actively constructed by the learner via experience with the environment, reflection of experience, and application of social and cognitive tools. Constructivism can be aptly summarized by the phrase of Confucius, "I hear and I forget. I see and I remember. I do and I understand". (Priyamvada, 2018). Constructivist approaches in health sciences education allow the embedding of short, focused modules, enabling students to immediately apply concepts to practice. For instance, in a 15-minute research methods exercise, students may refine research questions, choose variables, and discuss methodological decisions, thus internalizing key research concepts via immediate use.

Complementing constructivist theory, Kolb's Experiential Learning Theory (1984) stresses learning as a cyclical process of concrete experience, reflective observation, abstract conceptualization, and active experimentation.

In practice, it means students learn best when they are actually involved in problem-solving and reflection themselves, precisely the very ingredients within the 15-minute module. This experience-based strategy allows learners to quickly convert theoretical knowledge into practical skills, an essential requirement for health sciences graduates who must integrate evidence-based decision-making into practice.

Prior research is evidence of the effectiveness of concise, well-directed, active learning interventions in higher education. Research indicates that even brief sessions, when designed correctly, have the potential to significantly improve student enthusiasm, understanding, and utilization of knowledge (Freeman et al., 2014). For example, small-group problem-solving activities, time-limited design tasks, and discussant-led discussions have been shown to improve the research literacy and critical appraisal capabilities of science and dental students (Devraj et al., 2010; Allen et al., 2013; Samet & Ademi, 2025). Other evidence-based pedagogies, which integrate empirical evidence in teaching design, increase student motivation and learning accomplishment.

The incorporation of evidence-based education techniques is particularly relevant in health sciences education, where learners must acquire theoretical knowledge and practical skills. (Samet et al., 2025; Allen et al., 2013). The inclusion of research literacy and methodological competence in the curriculum enables students to critically evaluate scientific literature, design simple studies, and transfer evidence-based practice to laboratory settings (Samet et al., 2025; Samet, 2021). The 15-minute research methodology

module is an excellent example of this approach in practice by a very focused, experiential learning experience that can be readily integrated into existing coursework without requiring substantial instruction time.

Key principles and terminologies employed in this study are (1) active learning, which is a student-centered pedagogy that engages students in activities that challenge them to think and collaborate on meaningful tasks (Prince, 2004). Evidence-Based Teaching (2): Instructional practices supported by empirical research to improve their effectiveness and learning results. Constructivism (3): A Learning theory that emphasizes students building knowledge through interaction, reflection, and with their environment. Experiential Learning (4): An experience cycle model of concrete experience, reflection, conceptualization, and active experimentation (Kolb, 1984; Mutanga, 2024). Research Literacy (5): The ability to read, analyse, and apply research findings in academic or professional environments. Literature clearly suggests that active, evidence-based, and experience-based pedagogies are prevalent in the higher education sector, particularly in natural and health sciences disciplines. The 15-minute module on research methods outlined here is aligned with these pedagogical values in that it is an interactive, brief, and practice-based learning experience that invites critical thinking, collaboration, and research literacy. It is grounded in constructivist and experiential learning theory and guided by empirical evidence from research on the positive effect of short, active learning interventions for student motivation and accomplishment. Through the incorporation of such progressive pedagogy, instructors

can build learning spaces that not only convey knowledge but also build habits and skills of lifelong learning and evidence-based practice professionalism.

The 15-Minute Research Method Module is derived from best-evidence practice and tried pedagogic theory for first-year higher education active learning, experiential learning, and constructivist pedagogies. The model combines these theories in such a way that the module not only teaches content but also facilitates critical thinking, research literacy, and application skills in medical and dental students.

Constructivism (Priyamvada, 2018) emphasizes the notion that students actively construct knowledge from experience, reflection, and social interaction. The students in this study are not passive learners of research concepts but are being encouraged to actively participate in building research questions, identifying variables, and thinking up methodology strategies. The 15-minute module is constructed to introduce small, bite-sized learning activities congruent with the constructivist principle, which is best practiced when students actively construct meaning rather than memorize facts.

Kolb's Experiential Learning Theory (1984) supports the necessity of learning as a cycle of four processes: concrete experience, reflective observation, abstract conceptualization, and active experimentation.

The module makes this cycle real through the introduction of an actual scenario (e.g., testing a new oral hygiene intervention), followed by student reflection and discussion, followed by research methodology conceptualization, and

ending in experimentation with a mini-design of a study. This process ensures that theoretical ideas are not just acquired, but also the skills to implement them in real research environments.

Active learning strategies like problem-based learning and collaborative work have been consistently shown to enhance student interest, critical thinking, and academic performance (Freeman et al., 2014; Michael, 2006). The 15-minute module is leveraging these strategies by seating students into small groups, providing them with a research scenario, and setting them up with an interactive discussion.

Empirical instruction employs empirically supported methods that are used to integrate into instruction for the enhancement of the highest possible learning outcomes. The 15-minute module employs empirical research findings that even extremely brief, targeted interventions can completely enhance comprehension and active engagement in difficult subjects such as research methodology. By embedding the module in existing curricula, teachers can provide a rich, engaging experience that fosters research literacy with little additional class time. This process ensures that students develop real-world competencies for professional and academic development through a focus on the requirement for evidence-based decision-making (Balleisen et al., 2025; Crespí et al., 2022). In dental and science education, it is necessary that students attain both theoretical and practical knowledge so that they can critically analyse research and translate evidence-based practice in the clinical area. In this manner, students achieve

research literacy, which constitutes one of the core competencies of health sciences education, as well as enabling active learning and motivation. Peer learning and collaborative problem-solving, encouraged through the module, have also been shown to enhance retention and understanding of complex ideas (Devraj et al., 2010).

Contemporary higher education has emphasized quick, interactive, and student-centred learning experiences, especially in the disciplines that require knowledge as well as making use of it. The 15-minute module is an excellent illustration of the trend because it is a concise, systematic, and applied learning intervention that is consistent with the requirements of the contemporary curriculum. It combines active learning, constructivist philosophy, spirals of experiential learning, and evidence-based practice to capture an integrative paradigm for offering research method education in concise but highly effective terms.

The conceptual framework anticipates that students' engagement with the module will result in: Higher student motivation and engagement; Higher understanding of research methodology and ability to design research questions; Higher critical thinking and collaborative problem-solving competencies; Higher research literacy and consciousness of evidence-based practice; Favourable attitude towards brief, focused, and interactive learning interventions as instructional tools.

In brief, the theoretical context states that the 15-Minute Research Method Module is not only an educational exercise but a research and reflective pedagogy. Through the application of constructivist and experiential learning

theories within an active learning environment, the module addresses not only the dual goals of knowledge building and skills development required in the training of competent and research-conscious health sciences professionals.

The theoretical rationale anticipates that interaction with the module will result in: Increased student motivation and involvement; Increased understanding of research strategies and capacity for asking research questions; Increased critical thinking and collaborative problem-solving skills; Increased research literacy and comprehension of evidence-based practice; Increased awareness of short, intense, and interactive learning interventions as potent pedagogical resources.

In summary, the theoretical foundation demonstrates that the 15-Minute Research Method Module is not merely a learning exercise but an expertly crafted, evidence-based pedagogical strategy. By leveraging constructivist and experiential learning principles within an active learning format, the module addresses the dual goals of knowledge acquisition and skill development, which are essential for preparing competent and research-literate health sciences professionals.

Methodology and Implementation

This study employed a 15-minute rapid research activity designed to integrate project-based, team-based, and experiential learning strategies into higher education practical classes. The activity was implemented during the

2023/2024 and 2024/2025 academic years in the Medical Chemistry with Biochemistry and Dental Materials courses. Students of the Faculty of Dental Medicine enrolled in the above courses participated in teams of 5–7 members. The total number of participants across both academic years was approximately 450 students.

Research Design

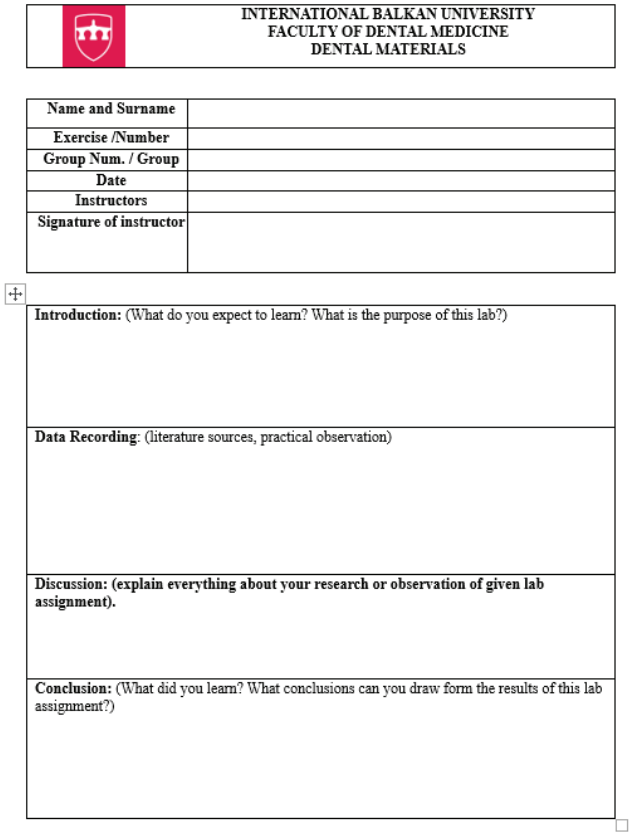
The investigative activity is structured into three consecutive 15-minute periods within a single practical period class, allowing students to properly collect, analyze, and report data.

Quick Information Gathering (Phase 1; Table 1)- Students identify, collect, and categorize relevant information on the course subject distributed by the instructor. The first phase of activities is: (1) Students are divided into small groups (5–7) members; (2) Each group is given a specific topic or research question related to the course content; (3) Through textbooks, scientific articles, and online academic resources, students quickly gather major information. Students employed electronic devices (cell phones, tablets, and laptops) to conduct rapid literature searches, access online scientific databases, and retrieve associated information and (4) Students note down points on a worksheet (Figure 1) or rough paper to arrange their findings. Analysis and Presentation Preparation (Phase 2; Table 1)-Students synthesize collected information and develop a structured presentation. In the second phase the planned activities are: (1) Teams discuss, sort through, and review information collected in Phase 1. (2) Key points are

summarized and organized logically; (3) A PowerPoint or Word document presentation is prepared with the inclusion of visuals, data, and concise text; (4) Students ensure that the material is accurate, complete, and ready for presentation.

Figure 1

A sample of a lab report assessment includes the parts of introduction, data recording, discussion, and conclusion.



INTERNATIONAL BALKAN UNIVERSITY
FACULTY OF DENTAL MEDICINE
DENTAL MATERIALS

Name and Surname	
Exercise /Number	
Group Num. / Group	
Date	
Instructors	
Signature of instructor	

Introduction: (What do you expect to learn? What is the purpose of this lab?)

Data Recording: (literature sources, practical observation)

Discussion: (explain everything about your research or observation of given lab assignment).

Conclusion: (What did you learn? What conclusions can you draw form the results of this lab assignment?)

Presentation and Peer Sharing (Phase 3; Table 1)-Students present to peers and discuss. At the third stage, the activities carried out are: (1) Each group presents their task for approximately 5–10 minutes, based on class size; (2) Peer students ask questions, provide feedback, and discuss the topic further; (3) Instructors provide brief feedback on content accuracy, presentation skills, and critical analysis.

Table 1

Summary of Three-Part Design:15-minute research method module

Phase	Duration	Focus	Activities	Skills Developed
Phase 1	15 min	Information Gathering	Team-based research, note-taking	Research, time management, and collaboration
Phase 2	15 min	Analysis Presentation Preparation	Summarizing, creating PowerPoint/ Word document	Critical thinking, digital literacy, teamwork
Phase 3	15 min	Presentation Peer Sharing	Presenting findings, discussion, feedback	Communication, peer learning, reflection

Ethical Considerations

Participation was voluntary, and all students' data were anonymized. The study adhered to institutional ethical guidelines for educational research.

Findings and Discussion

Implementation of the 15-minute quick research method in laboratory classes demonstrated evident strengths in areas of learner engagement, skill development, and learning outcomes. The method effectively combined elements of project-based learning (PBL), team-based learning (TBL), cooperative learning, and experiential learning to produce a highly interactive and student-centered environment.

The exercise enabled the educators to monitor student learning continually and provide comments instantaneously. Students expressed a deeper understanding of important points, and regions requiring additional instruction were easily ascertained. This is also in line with the evidence presented by Bell (2010), who emphasized that short, formal active learning during sessions increases comprehension and allows corrective guidance in a timely manner. Students worked in small teams or pairs, engaging in collaborative problem-solving and sharing responsibilities. This approach fostered peer interaction, communication, and cooperative learning, which contributed to a positive classroom environment and stronger interpersonal relationships among students (Johnson et al., 2014; Jeno et al., 2017). By actively engaging in the research process and reflecting on their findings, students experienced enhanced knowledge retention. The "learning by doing" approach allowed students to connect theory to practice, supporting the principles of experiential learning (Yardley et al., 2012; Roossien, 2022; Mutanga, 2024).

The activity was effective in developing critical skills required for academic and professional success. Students developed project-based learning (PBL) skills, including research, planning, and presentation skills, while team-based learning (TBL) skills, such as communication, cooperation, and group decision-making, were enhanced. In addition, the use of mobile phones, tablets, and web-based resources has fostered digital literacy and self-directed learning, enabling students to master working with and making use of digital tools (Thomas, 2000; Allen et al., 2013; Roossien, 2022). Despite these strengths, several limitations emerged. In large class sizes, student-teacher interaction was reduced, which may limit personalized attention and equitable participation. Technical limitations, such as unstable or unreliable internet connections at times, hindered operations, affecting research efficiency and presentation. Additionally, the short time inherent in the 15-minute format sometimes constrained the depth of inquiry for complex themes, with some students pointing to the necessity of additional time to adequately analyse and synthesize information.

The findings support that short, formalized research activities can be a very effective pedagogical tool, balancing rapid knowledge acquisition with building critical capabilities. The integration of PBL and TBL methods by an experiential learning platform fosters active participation, facilitates collaboration, and fosters critical thinking. The immediate feedback provided by educators enhances the learning loop so that pupils can adjust strategies and improve comprehension in real time (Bell, 2010; Thomas, 2000; Roossien, 2022; Practera, 2021).

Further, electronic tool use is in line with modern educational focus on independent learning and electronic literacy. Through composing presentations using PowerPoint or Word files, students practice converting knowledge into communicable forms, an essential skill for scholarly and professional success.

Difficulty areas recognized large groupings, technology constraints, and a short time to identify areas for improvement. Strategies like smaller groups, alternative offline materials, and scaffolded instruction could contain these limitations while not detracting from the benefits of the activity.

In summary, the 15-minute research exercise effectively enables active, collaborative, and experiential learning, as well as equipping students with the required critical 21st-century skills. It can be successfully adapted in many higher education environments with minor adjustments to take student engagement, knowledge retention, and skill acquisition to a new level.

Recommendations for Broader Application

For Teachers: To maximize the effective use of the 15-minute quick research activity, teachers can integrate such brief research exercises on a daily basis in laboratory classes. It enhances students' participation, learning, and development of critical skills. Putting students in small, homogeneous groups enables peer discussion, interaction, and equitable participation. Providing immediate and constructive feedback after presentations reinforces learning,

clears misconceptions, and guides reflective learning. Instructors must also use digital tools responsibly, teaching the students the proper use of online academic resources and presentation software to improve both research and digital competency skills. For larger classes, separating the students into smaller groups or using breakout sessions would allow for continued meaningful participation as well as proper instructor supervision.

For students: Students are encouraged to be actively involved in team exercises, taking responsibility for research and presentation tasks so that collaborative learning is assured. The development of self-directed learning skills, such as time management, rapid synthesis of information, and autonomous problem-solving, is essential to maximize learning within the limited timeframe. Moreover, the students must learn digital literacy by effectively utilizing internet sources, critically evaluating sources, and reporting findings in short and professional reports.

For Curriculum designers: Curriculum designers should include systematic, short-term research activities into course planning to complement theoretical education and enhance experiential learning opportunities. Planning activities involving multidisciplinary integration of knowledge by the students facilitates critical thinking and problem-solving skills applicable to practical applications. Systematic monitoring and evaluation of knowledge acquisition and skill development are also recommended to maximize learning activities and continuously find areas for improvement.

For future studies: Future research must investigate the long-term impacts of performing quick research on knowledge retention, critical thinking, and professional ability. Comparative evaluations that contrast the performance of 15-minute quick research drills and practice with other conventional or longer project-based pedagogies can throw more light on pedagogic effectiveness.

Conclusion

The study demonstrates that the 15-minute rapid research activity is an effective pedagogical means in university laboratory classes. It is effective in integrating project-based learning (PBL), team-based learning (TBL), cooperative learning, and experiential learning to create a student-focused and interactive learning environment.

Key findings of the activity are:

- Enhanced Knowledge Acquisition: Students were able to gather, review, and integrate information in a short duration, which indicated enhanced understanding of course concepts.
- 21st-Century Skill Development: The task encouraged critical thinking, problem-solving ability, collaboration, computer literacy, and effective communication.
- Active Learning and Experiential Learning: "Learning by doing" enabled the students to reflect on what they had learned, which increased retention and classroom participation.

- Collaborative Learning: Structured teamwork improved interpersonal skills, peer learning, and a positive classroom environment.

In spite of certain limitations such as class strength, technical disruption, and time factors, the method provides an extremely effective, interactive, and skill-oriented learning process. Implementing the model in lab or practical classes allows the instructors to monitor students' progress in a closer manner, provide immediate feedback, and augment self-instructional, collaborative, and experiential learning.

Overall, the 15-minute rapid research exercise is a good instructional material that could enhance the learning accomplishment of students, develop basic skills, and equip students with academic and career-related challenges. With little adjustments to technology and logistical issues, such practice can be successfully incorporated in various settings in higher education.

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INNOVATIVE TEACHING PRACTICES STUDIO-BASED, INDUSTRY-ORIENTED DESIGN TEACHING AT IBU

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Introduction

This paper examines a studio-based pedagogy in which students learn by tackling authentic briefs, receiving frequent critique, and iterating toward publishable outcomes. The course integrates six evidence-based methods: Project-Based Learning (PBL), Design Thinking (empathize, define, ideate, prototype, test), collaborative studio workflows, interdisciplinary integration, critique-based learning (CBL), and portfolio development, so that students operate as active makers and beginning researchers. Practice is aligned with industry through clear roles, staged "gates," lightweight user testing, and process-based grading. Critique is rubric-driven and supported by platforms such as Figma and Behance to develop visual reasoning and feedback literacy. Finally, embedded portfolio/branding

sessions (CVs, mock interviews, online presence) translate classroom outputs into coherent case studies, strengthening employability and professional identity.

Theoretical Framework & Literature Review

In literature, the following methods are commonly identified in art and design higher education: Project-Based Learning (PBL); the Design Thinking framework; Collaborative Studios/Peer Learning; Interdisciplinary Integration; Critique-Based Learning (CBL); Portfolio & Personal Branding workshops and cross-cutting affordances of digital platforms. Studio-based higher education in art and design blends constructivist and experiential traditions, where students build knowledge through projects, critique, iteration, and reflection in authentic contexts that mirror professional practice. In this environment, PBL anchors coursework in complex, real briefs that demand inquiry, decision-making, and public-facing artifacts. Research shows PBL organizes learning around "challenging questions or problems" and culminates in realistic products, with additional defining features such as authentic content and assessment, teacher facilitation rather than direction, cooperative learning, reflection, and the use of technology-based tools and communities of inquiry (Thomas, 2000). Evidence from higher education further indicates that cooperative learning structures, central to collaborative studio teaching, produce significantly higher individual achievement, stronger peer and teacher relationships, greater social support and self-esteem, and better psychological adjustment to college than

competitive or individualistic arrangements (Johnson, Johnson, & Smith, 1998). Complementing PBL, Design Thinking provides a human-centered, iterative logic - empathy, ideation, prototyping and testing that aligns desirability with feasibility and viability. It thrives when involved from the outset of innovation and is especially suited to branding, UX/UI, and service design where problems are "wicked" and require abductive, reframing moves (Brown, 2008; Dorst, 2011). Within studios, cooperative structures and clearly defined roles translate into accountable team workflows, while critique becomes the signature pedagogy that cultivates design judgment: effective crits depend on factors such as setting, modality, delivery, project phase, and explicit learning goals, and instructors' feedback talk meaningfully shapes students' critical thinking norms (Oh et al., 2013). Recent scholarship also conceptualizes critiques as complex, partly unpredictable events in which instructors must balance interpersonal dynamics, prior experience, and formal standards, cultivating dispositions such as empathy, reflexivity, and tolerance for ambiguity to make critiques genuinely developmental rather than merely judgmental (McDonald & Michela, 2022). Interdisciplinary integration in such studios responds to questions and design challenges that are too broad or complex to be handled by a single discipline, using thematic course clusters, team-teaching, learning communities, and integrative projects to balance disciplinary depth, breadth of perspectives, and synthesis into holistic solutions (Klein, 1999). Career readiness is scaffolded through portfolio and personal-branding workshops that transform studio outputs into coherent case studies and professional identity

assets, reinforcing the expectation that emerging designers articulate distinctive value through credible, visible work (Peters, 1997). Cutting across all of these practices, digital platforms (e.g., Miro, Figma) extend ideation and critique beyond the classroom, improving traceability and access while demanding intentional facilitation to sustain presence, equity, and inclusive participation in hybrid formats; contemporary accounts of virtual design studios, especially after COVID-19, emphasise the need to deliberately reconstruct studio culture and peer-to-peer learning in online environments (Pelsmakers et al., 2021). In combination, these evidence-based strategies align academic learning with employability by producing portfolio-ready outcomes, making research and iteration accessible, and rehearsing the interdisciplinary, collaborative, and reflective habits expected in contemporary creative industries.

Methodology and Implementation

All first- and second-year Graphic Design courses at the Faculty of Art and Design (IBU) were delivered face-to-face in a lab configured as a small studio (high-performance PCs, pen tablets, calibrated displays, proofing printers). Sessions combined short demonstrations, guided work, and structured critique led by the course professor with support from a teaching assistant. A shared task board and explicit team roles ensured transparency and accountability. Each method below has a concrete process, tools, and assessable deliverables.

(A) Project-Based Learning (PBL).

Teams of 3–5 students address an authentic, tightly scoped brief. The brief pack includes context, goals, constraints, audience, deliverables, grading criteria, and ethical notes. After primary/ secondary research (interviews, observations, competitor scans) organized in Miro, teams synthesize a problem statement and success criteria, ideate broadly, select directions using scorecards, and prototype at low fidelity. Following a structured critique, solutions progress to higher fidelity using Adobe Illustrator/Photoshop/InDesign (and After Effects for motion) and Figma for interaction and feedback. Informal peer testing informs iteration. Finalization covers production prep (packaged files, CMYK/RGB variants, export presets), print proofs/ Pantone checks, and a concise client-style presentation with rationale and reflection. Assessment is staged across research, concept, prototype, implementation, and final jury.

(B) Design Thinking.

Students follow a repeatable, human-centered loop (empathize-define-ideate-prototype-test). A mini-clinic introduces interviewing and observation. Findings are translated into a clear "How might we…" question and measurable criteria aligned with the brief. Prototyping moves from low to mid fidelity in Adobe/Figma; accessibility basics (e.g., contrast ratios) are checked. Quick usability sessions and micro-surveys generate annotated issues that feed back into iteration. Process documentation (screenshots, rationale notes, annotated decisions) is graded alongside outcomes.

(C) Collaborative Studios / Peer Learning.

Teams adopt explicit roles (e.g., Creative Lead, Visual Designer, Research/Strategy Lead, Production Lead; optional Motion/Interaction) supported by one-page role guides and a team charter (meeting cadence, file naming/versioning, conflict resolution, deadlines). Daily 10-minute stand-ups and a Kanban (To Do / Doing / Review / Done) keep progress visible. Pair design, peer tutoring, and short "mini-teach" segments close software gaps. Confidential peer assessment moderates individual grades. The professor observes team dynamics, unblocks bottlenecks, and models equitable turn-taking.

(D) Interdisciplinary Integration.

Short primers introduce product thinking (desirability–feasibility–viability), basic analytics, and component-based UI with developer-handoff notes. Mixed-group workshops produce a value proposition canvas and a key user flow that becomes wireframes. Constraints (time, budget, platform) are documented, with explicit trade-offs. Deliverable: a one-page concept note with annotated wireframes and a clear value proposition. Assessment targets problem framing, flow plausibility, and argumentative strength.

(E) Critique-Based Learning (CBL).

Critique literacy is taught through the Describe–Interpret–Evaluate–Suggest sequence and a rubric aligned with outcomes (concept clarity, typographic hierarchy, color, accessibility, craft). Formal crits (approx. 2-minute presentation + 5-minute feedback) run on a fixed cadence,

moderated by a facilitator to enforce timing and rubric focus. Roles (Presenter, Facilitator, Respondents) ensure coverage; feedback is captured via Figma comments; students submit a brief self-evaluation after each crit. Inclusion is supported by a "critique the work, not the person" policy and sentence stems for constructive language.

(F) Portfolio & Personal Branding.

Students position themselves, draft a 120-word bio, and attend a CV/cover-letter clinic. Case studies follow a Problem-Process-Solution-Impact template; documentation includes photos of print pieces, short prototype recordings, and brief accessibility notes. Behance is used for consistent naming, thumbnails, captions, and alt text. Mock interviews with rotating faculty refine articulation and professional polish. The portfolio rubric covers curation, narrative clarity, craft, documentation quality, and readiness for public presentation.

Findings and Discussion

Working with real, client-style briefs got students invested very quickly, and we noticed they started using audience language in their critiques much earlier than usual, although we also saw predictable problems like students polishing too soon before the direction was validated and teams sometimes splitting the workload unevenly, which we addressed through frequent desk critiques, rotating roles, and peer assessment, an overall pattern that matches what PBL research says about how authentic, public projects boost motivation and deepen learning.

In the Design Thinking work, the "How might we…" questions moved from vague wishes to clear and testable statements, accessibility checklists helped remove many basic usability issues, and students increasingly explained their design changes with evidence from quick tests, yet beginners sometimes treated the phases like boxes to tick, so we countered that by modeling interviews live, tightening success criteria, and running short build–test–change loops inside the same class session, which lines up well with reports that design thinking supports reframing, rapid prototyping, and cross-functional teamwork.

When we ran Collaborative Studios, daily stand-ups and a simple Kanban board made work cycles shorter and made blockers visible sooner, while pair design and short "teach a trick" moments helped close software skill gaps, and peer assessment nudged teams toward fairer contributions; whenever teams skipped a clear charter and file rules, version chaos returned, so we kept boards and shared-file hygiene non-negotiable, which echoes cooperative-learning findings about interdependence, accountability, and promotive interaction.

In the Interdisciplinary sessions, using a value-proposition canvas and mapping user flows made the trade-offs between desirability, feasibility, and viability much clearer, and wireframes plus handoff notes improved after a quick primer on components and developer constraints, although energy dipped when we lacked external partners, so we framed the class as a "product room" with explicit performance indicators and reopened the solution space when teams over-optimized for feasibility, a pattern

consistent with literature on integrating disciplines for real-world problem solving.

With Critique-Based Learning, feedback shifted from "I like..." comments to suggestions tied to the rubric, students who responded to critique more systematically tended to score higher at the end, and anxiety dropped thanks to sentence stems and the "critique the work, not the person" rule, but to keep things fair we had to be strict about timing, assign a facilitator, and apply consistent rubrics-choices that mirror studio-crit research on how structure improves judgment and equity.

For Portfolio and Personal Branding, most students finished with one or two publishable case studies that followed a clear story from Problem to Process to Solution to Impact, and better documentation, good photos, consistent thumbnails, made their work look more professional, while mock interviews noticeably improved how they explained decisions, though a few students still under-documented their process, which we addressed with targeted clinics. Overall, this supports the idea that visible, credible work builds career readiness.

Recommendations for Broader Application

For broader application, the essential move is to keep the structure that creates value, an authentic and tightly scoped brief with explicit KPIs, a visible process through a shared Kanban board and short stand-ups, staged "gate" moments that pace progress from research to concept to prototype to implementation and final presentation, fair

and directional critique with clear roles and time limits, and a systematic translation of outcomes into portfolio case studies, while allowing the specific tools to flex based on context and resources. This model travels well across disciplines as long as the logic of "real problem-iteration-public presentation" stays intact: in creative subjects you retain studio rituals and critiques, in technical or IT contexts you pair PBL and Design Thinking with short sprints, component libraries, and developer handoff, and in business or social-science courses you swap visual prototypes for service scenarios, journey maps, and KPI dashboards while running critique as a pitch governed by the same rubric discipline. To scale for different class sizes you can add parallel critique stations, rotate student facilitators, and enforce strict file-hygiene rules, and to meet different learner levels you simply adjust the scaffolding (students get more templates, checklists, and micro-tutorials, while advanced students get looser briefs, stronger demands on argumentation and impact) whereas for delivery modes the face-to-face studio is ideal but the same pedagogy holds in hybrid/online with recorded demos, short asynchronous feedback windows, "camera-on and screen-share" presentations, and small-group breakout work. Even in low-resource settings the core does not break if you provide clear rubrics, contrast and export checklists, a minimal Kanban, and process-based grading for iterations, implemented changes, and quick tests, because those elements prevent premature polishing, balance workload within teams, and convert learning into credible, visible progress that is easy to present as professional case studies.

Conclusion

This course model combined six clear methods-PBL, Design Thinking, collaborative studio work, interdisciplinary touchpoints, structured critique, and portfolio building-delivered face-to-face in a lab that runs like a small studio, with real briefs, visible task boards, defined roles, and constant professor support. Students learned by doing they researched, ideated, prototyped, tested, refined, and then packaged the results as professional case studies, which raised engagement, improved quality, and built confidence in presenting and defending decisions. The structured checkpoints, honest critiques, and light user testing kept teams on track and prevented premature polishing, while portfolio skills made the work ready for the market. Our observations match what the literature reports: authentic projects, iterative design, and cooperative structures lead to deeper learning and better outcomes, especially for beginners. For wider use, keep the same backbone—realistic briefs, clear gates, visible process, fair critiques, and process-based grading—then adapt the tools and scale to class size, level, and delivery mode. In short, this approach helps novices think and act like young professionals, and it reliably turns classroom work into credible, career-ready results.

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EVIDENCE-BASED STRATEGIES AND GOOD PRACTICES IN HIGHER EDUCATION

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Introduction

Trends in the educational process suggest the adoption of newer pedagogical methods aimed at fostering the development of students' intellectual abilities. Creative and innovative thinking, along with the development of socio-emotional intelligence, with a particular emphasis on problem-solving skills, are the core pillars of contemporary educational methods. Designed to support the educational process and promote interaction and active student engagement, contemporary trends focus on addressing students' needs and interests, while simultaneously shifting toward a "student-centered" approach. This shift involves reshaping curricula to adapt to individual student differences and varying levels of understanding. In the evolving landscape of education, traditional methods are

being supplemented—and often replaced—by innovative strategies that prioritize student engagement, critical thinking, and real-world application.

This chapter examines key approaches, including project-based learning, design thinking, personalized instruction, role-playing, and peer evaluation, and highlights their impact on student outcomes and educational effectiveness. The primary aim of this study is to explore the effectiveness of innovative teaching strategies—specifically project-based learning, role-play, personalized learning, and emotional engagement—in enhancing student learning outcomes and engagement in higher education. Our objectives are also to provide recommendations for broader application across disciplines.

Rationale

Traditional lecture-based instruction often fails to meet the diverse needs of modern learners. In contrast, innovative strategies such as project-based learning and role-play foster active participation, critical thinking, and emotional investment. These methods are particularly relevant in higher education, where students are expected to develop autonomy, collaboration skills, and real-world problem-solving abilities. The selected approach aligns with contemporary pedagogical goals and addresses the need for more inclusive, engaging, and effective teaching practices.

Theoretical Framework & Literature Review

Innovative teaching practices are increasingly recognized as essential for preparing students to thrive in dynamic, real-world environments. These approaches shift the focus from rote memorization to experiential, student-centered learning.

Contemporary educational trends emphasize student-centered, innovative pedagogical methods to foster intellectual and socio-emotional development while addressing individual needs and reducing academic pressure. In this regard, as Laid and Adlaon (2025) state in their review and research, innovative teaching strategies are essential for transforming science education in the 21st century. According to them, the traditional methods—often characterized by lectures and rote memorization—are increasingly recognized as insufficient for fostering deep conceptual understanding, critical thinking, and sustained student engagement. In contrast, approaches such as hands-on learning, technology integration, and student-centered instruction have demonstrated significant potential to enhance comprehension, motivation, and learner autonomy. As they conclude, student-centered approaches, which prioritize learner autonomy and personalization, further promote ownership of the learning process and stimulate intrinsic interest in science, and "by embracing and refining innovative teaching practices, educators can better prepare students to meet the demands of a rapidly evolving scientific and technological landscape" (Laid & Adlaon, 2025, p. 112).

Project-Based Learning (PBL)

Researchers, scholars, and professionals in the fields of education and psychology increasingly share the view that project-based learning, as an innovative method, is focused on initiating individual learning, active student participation, and preparing them for real-world problems. It encourages students to engage in real-world problem solving, fostering deeper understanding and collaboration. We agree with Bytyqi's (2022) statement that "there is no unique accepted definition of PBL" (p. 775). Referring to Buck Institute for Education (BIE), Bytyqi reports, PBL is defined as "A systematic teaching method that engages students in learning knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks" (Bytyqi, 2022, p. 775).

According to Larmer et al. (2015), this method aligns with contemporary educational trends that prioritize the development of intellectual abilities, socio-emotional intelligence, and problem-solving skills, as noted by researchers in education and psychology. Accordingly, as they report, socio-emotional intelligence is another critical outcome of PBL, as it encourages collaboration, communication, and empathy through group work and real-world problem-solving.

Many studies prove the positive implications of the PBL. In this regard, we will refer to Wurdinger et al. (2007), who found that PBL increased student motivation and reduced stress compared to traditional methods, as students felt more connected to their learning process

Design Thinking and Scenario-Based Learning

When discussing the "student-centered" approach, it is essential to highlight Design Project-Based Learning. As the name itself implies, this method emphasizes the individuality and creative capacities of students, empowering them to take greater ownership of their work and engage in practical applications. Design Thinking, as emphasized by Panke (2019), is both a process and a mindset that originated from research on "designedly thinking" and gradually evolved into a problem-solving approach. Initially adopted in business contexts, it has since expanded into broader domains, including education, where it is increasingly used to address complex, ill-defined challenges—often referred to as "wicked problems."

Its pedagogical relevance stems from its interdisciplinary roots and connections to participatory design, serious play, bricolage, tinkering, and making. These foundations contribute not only to its methodological richness but also to its adaptability across diverse educational settings (Panke, 2019, p. 21). To understand the characteristics that make this method effective, how it can be applied across diverse educational contexts, the techniques and instruments it employs, as well as its limitations and potential negative effects, we will draw upon its analysis as presented in the following table.

Table 1

Characteristics and Constraints of the method, Adapted from Pank (2019, p. 22)

Research question	Result	Key Takeaways
Potential: What is the potential of design thinking for education?	Nine themes emerged from design thinking literature: Tacit experiences, increased empathy, reduced cognitive bias, playful learning, flow/verve, collaboration, productive failure/ resilience, surprising solutions, and creative confidence.	Themes for describing goals and evaluating the outcomes of design thinking
Settings: How is design thinking applied in different educational settings (K12, informal learning, higher education)?	Informal settings: (1) designing exhibits, experiences, and services; (2) service learning and organizational collaboration; (3) extending exploration of artifacts, spaces, and services; (4) making and crafting Formal settings (K12/higher education): (1) as an instructional design method in course material development; (2) as a curricular development technique; (3) as a teaching strategy to achieve subject – specific learning goals; (4) a learning goal in and of itself; (5) as a facilitation technique in student support, i.e., mentoring, advising, counseling; (6) as a method for process improvement or product development; (7) as an approach for leadership and organizational development	Schematic overview for contextual-izing new case studies; corpus for further analysis

Tools: What tools, techniques, and methods characterize design thinking?	Review yielded 50 different tools, models, techniques, and methods. Granularity varied from single technique (e.g., crazy eights) to whole process (d. school process, STEM Fab Studio Design Process). Various origins and subject trajectories.	Planning help for design thinking facilitators; corpus material for further analysis
Limitations: What are the limitations of design thinking?	Review identified eight potential negative outcomes: lack of creative confidence, teamwork conflicts, anxiety and frustration, shallow ideas, idea creation over evaluation, lack of long-term impact, overconfidence, and misalignment between learning content and design thinking process.	Themes for evaluating the outcomes of design thinking and decision-making help for educators

Moreover, through Scenario-Based Learning (SBL), students are encouraged and motivated to generate and propose concrete solutions to given situations. This approach simultaneously supports the reinforcement and development of their socio-emotional competencies, enhancing both self-confidence and self-efficacy. In this regard, Sorin (2013) argues that SBL is a teaching tool where students are presented with situations derived from actual classroom practice, affords learners a more active role in their learning, and provides the opportunity to develop real-life skills outside the institution, to operate successfully in the global arena.

As she explains, by participating in scenarios that target teaching dilemmas worldwide, students gain experience and understanding that can be transferred to various international educational contexts (Sorin, 2013, p. 71).

Personalized Learning

Through the Personalized Learning approach, instruction is focused and adapted to the interests and needs of each student, enabling the enhancement of their autonomy and self-regulation. As Makhambetova et al (2021) report, referring to Lee et al (2018) and Chatti et al (2010), personalized learning is defined as *a student-centered system that supports their diverse needs and the development of abilities* (p. 2), and *an integrated approach to activities that are the product of self-organization or the individual instruction that considers personal needs and goals* (pp. 3). However, as the research suggests, many universities struggle to implement this method because it is very difficult to personalize and meet each student's needs. As they conclude, the implementation of this method requires further studies for the structure of a particular institution, analyzing programs, and conducting classes based on personalized learning.

Role-Play and Emotional Engagement

Role-play is a highly effective method for fostering creativity, as it enables students to express not only their knowledge but also their emotional responses through the roles they are assigned.

Techniques like the "emotional cup" and the relation counselor-client scenario method, which encourage students

to reflect on their emotional states before engaging in role-play, help overcome initial resistance and deepen participation. Using this technique also helped students to switch the roles, and this helps in developing empathy (in our case, counselor-client).

As Heyward (2010) says, involving students in a classroom activity designed to promote the learning of specific concepts makes it more likely that they will understand and retain these concepts when they engage emotionally in the learning experience. Accordingly, he argues that the difficulty and challenges for teachers involved in higher education are how to engage students in their learning in an emotional way while maintaining a safe and secure classroom environment for students.

Peer Evaluation and Reflective Practice

Peer evaluation and reflective practice are integral to developing critical thinking and self-awareness in student-centered learning environments. Explaining and exploring the reflective practice, peer evaluation, and peer feedback, Dutta et al. (2023) assume that students may conduct self-reflection or receive feedback and assessment from peers when involved in group activities. Accordingly, they say that self-reflection can stimulate students to question their learning philosophy and help to connect existing assumptions and knowledge with their current learning activities. Their study confirmed that "*reflection and peer assessment practice are conducive to the development of critical thinking and self-directed learning among students, which can augment their learning experiences at the university level*" (Duta et al., 2025, p. 35).

Methodology and Implementation

From the beginning of the semester, we set rules together and shared responsibilities. This helps students develop organizational skills, self-development, and self-control.

Table 2

Participant profile

Total number of students	38 undergraduates
Gender distribution	10 % Male and 90 % Female
Discipline	Guidance and Personal Development
Departments	Psychology and Psychological Counseling and Guidance
Teaching method	Face to face

Implementation Process

Weeks 1–2: Introduction to the course and teaching methods (PBL) and emotional engagement, followed by systematic weekly thematic classes and take-home activities

Weeks 3–5: Students formed teams and selected real-world problems.

Weeks 6–8: Role-play sessions using structured scenarios and the "emotional cup" technique.

Weeks 9–10: Peer evaluations and reflective journals.

Weeks 11–12: Final case evaluations and feedback sessions.

Materials and Tools

- Collaborative platforms (PowerPoint, Short Movie, Case studies, Project preparation, Google Docs)
- Thematic activities

Findings and Discussion

Student Engagement and Learning Outcomes

- Students who were initially hesitant became more engaged through immersive activities.
- Role-play and emotional tools helped overcome resistance and fostered deeper involvement.
- Peer evaluation developed critical thinking and confidence.

Student Feedback

- 85% reported higher satisfaction compared to traditional methods.
- 90% felt more confident applying theoretical knowledge.

Student Reflection:

Initially, students were noticeably reserved about assessing their peers' work. They questioned whether they had the authority or skill to give professional feedback. As they developed and presented their case studies, curiosity took over. Being immersed in the projects made them

more invested, but also a bit awkward when stepping into a critical evaluator role. This awkwardness is a natural step toward becoming confident reviewers. With structured guidance and practice, students gain both confidence and competence in peer assessment.

Student Insight:

Growing Into the Role of Evaluator

At first, many students felt unsure about evaluating projects. They weren't confident in their ability to give professional or meaningful feedback.

Working on their own case studies sparked curiosity. They became more engaged, but still felt a bit awkward when asked to review others' work. This hesitation is normal. It shows students are beginning to take their role seriously. With support—like simple rubrics or guided discussion — they can grow into confident, thoughtful evaluators.

Role-Play: From Skepticism to Engagement

At the outset, students didn't take the client-advisor role-play seriously. They hesitated and felt reserved about stepping into a professional role. Through the use of a structured scenario and the "emotional glass" technique, even the more skeptical students found themselves immersed in the role and began to explore it actively.

Benefit

This experience highlights the power of structured simulations in building confidence and engagement. Even students who initially feel unsure begin to participate meaningfully when the role becomes personal and emotionally relatable. resistance.

Practical Tip

In this activity, students were seated in a circle—a format that naturally matched the reflective and interactive nature of the roleplay. Tools like the "emotional cup" can help break the ice and support students in overcoming early role resistance

Cross-Disciplinary Application:

These methods are inherently flexible, allowing customization to suit different fields. In courses that involve different departments or academic programs, these methods prove highly effective by enabling students to be creative and apply their knowledge within their respective fields of study. They also facilitate the exchange of ideas and the exploration of diverse perspectives and contexts.

Class Size Versatility:

These methods adapt to both small and large groups. At the same time, such methods can be equally effective in small group settings, where students are encouraged to be more actively engaged and to develop practical skills.

Conclusion

As emphasized at the very beginning, recent trends in the educational process highlight the importance of innovative methods aimed at providing students not only with theoretical knowledge but also with opportunities to develop practical academic skills and competencies. Numerous scholars and professionals in education and psychology emphasize the positive effects these methods have in fostering critical, analytical, and creative thinking abilities among students. The shift from traditional to innovative methods in today's practice is a necessity. At the same time, these approaches are seen as a way to motivate and encourage student engagement.

This applied study underscores the transformative potential of innovative teaching strategies—particularly project-based learning, role-play, personalized instruction, and emotional engagement—in enhancing student learning and participation in higher education. By shifting the focus from passive reception to active involvement, these methods foster deeper understanding, critical thinking, and emotional resilience.

These findings align with constructivist and experiential learning theories, reinforcing the importance of student-centered approaches. The emotional dimension of learning—often overlooked in traditional models—proved to be a critical factor in sustaining engagement and fostering meaningful participation.

Considering these results, educators are encouraged to adopt flexible, emotionally intelligent teaching practices that accommodate diverse learning styles and promote

autonomy. Future research should explore long-term impacts of these strategies across disciplines and investigate how digital tools can further personalize and enrich the learning experience. To conclude, this chapter demonstrates that innovative strategies such as project-based learning, role-play, and personalized instruction significantly enhance student engagement and learning outcomes. Future research should explore long-term impacts and cross-disciplinary applications.

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THE CASE STUDY METHOD

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Introduction

In the past, teaching was mostly one–way: the teacher talked, and the students listened. In other words, until relatively recently, teaching in many educational systems was mostly frontal and teacher-centred. According to this traditional approach, the role of the teacher was to share information, knowledge, and facts through frontal lectures, and the role of the students was to listen passively. With time, educators, researchers, and scholars began to recognize the limitations of passive learning in developing and promoting critical thinking, problem-solving, creativity, and long-term retention, and as a result, a shift from traditional teacher-centred instruction to more interactive, student-centred learning started to take place in the late 20th century. Theorists like John Dewey, Lev Vygotsky,

and Paulo Freire, who promoted constructivist, dialogical, and experiential approaches, were the ones who mainly influenced this shift.

John Dewey (1938) believed that learning should be grounded in experience and reflection. He argued that traditional, passive learning alienates students and leaves them unable to apply knowledge outside the classroom. He promoted experiential and inquiry-based learning, where students actively engage with problems and reflect on solutions. According to Dewey, education should prepare students for democratic participation, which requires critical thinking. On the other hand, Lev Vygotsky (1978) similarly believed that the best way for learning to happen is through social interaction and collaboration. He recognized that individual, passive learning limits a student's growth, and that cognitive development is stimulated when learners work with others slightly ahead of them, i.e., he emphasized the importance of the Zone of Proximal Development. Rather than simple transmission of facts, Vygotsky promoted dialogue, scaffolding, and guided discovery. In conclusion, he emphasized that learning is a social and interactive process, not a solitary, passive one.

Paulo Freire (1970) was a critic of the education model where teachers deliver information to passive students. According to him, that prevents students from developing critical consciousness. He advocated for dialogical learning, where teachers and students co-create knowledge through questioning and reflection, and emphasized that education should be a practice of freedom, not

oppression. He emphasized that this empowers students to think, question, and act.

All three thinkers shared the belief that students must be active participants in the learning process in order for education to truly transform individuals and society.

Research also gives support to this pedagogical shift, since according to research, active learning has been shown to significantly improve student understanding, retention, motivation, and academic performance, especially in higher education (Bonwell & Eison, 1991; Freeman et al., 2014). As a result, case study method, problem–based learning, group work, and discussion–based instruction emerged as effective tools to actively engage students and make learning more meaningful and practical.

The case study method is an interactive learning and teaching method where different stories, situations, narratives, issues, and real-life or hypothetical situations are presented in written form and require students to engage in analysis, meaningful discussion, and find answers and solve certain problems. When we review the literature relating to this method, we can conclude that the main aim of this method is to engage students, i.e., to move them away from passive reception of information toward participation and engagement in active, reflective, and collaborative learning. It can also be said that this method is helpful in promoting communication, dialogue, teamwork, and in cultivating analytical thinking, critical thinking, and connecting learning to real life.

When it comes to the objectives of the case study method, they can generally be grouped into three categories:

cognitive objectives, affective objectives, and practical (skill-based) objectives. Cognitive objectives relate to the development of critical thinking, problem-solving skills, analysing problems, evaluating multiple solutions, and applying theoretical knowledge to practical situations. On the other hand, affective objectives emphasize attitudes, values, and motivation, and they relate to increasing motivation and engagement in learning and developing openness to diverse perspectives. Practical objectives focus on the acquisition of skills and competencies required for professional practice and relate to enhancing communication and presentation skills, building collaboration and teamwork skills, and practicing decision-making.

Although this teaching strategy is effective across all educational levels, it proves particularly valuable in higher education, which is shifting away from passive "frontal" teaching toward interactive and participatory methods. This method allows students to engage with material, discuss ideas, debate, negotiate, present solutions, and develop soft skills, which align perfectly with the aims of university learning, active learning, and strengthening both professional and interpersonal competencies.

The idea of using real situations for learning goes back to the legal and medical fields in the 1800s. Law schools in the U.S., especially Harvard Law School, can be considered the pioneers of this method, since they were the first to use real court cases instead of lectures to train lawyers. Inspired by law, the Harvard Business School adopted the method in the 1920s. They began writing business cases to stimulate real-world decision-making, and the case study

method became the dominant method that they used. Now, the case study method is used widely in these and in other fields (Garvin, 2003, as cited in Rosier, 2022). Although this method is considered one of the most effective teaching and learning strategies, it is often said that empirical research on its impact remains limited. However, in recent years, interest and research in this area have expanded. Studies now extend beyond their traditional use in disciplines such as law and business to include fields like education, psychology, natural sciences, engineering, journalism, and others, which is a reflection of the growing recognition of their value across diverse educational contexts.

Theoretical Framework & Literature Review

The case study method has its pedagogical and theoretical foundations rooted in active and student-centred approaches to learning, which emphasize the construction of knowledge through experience, discussion, and problem-solving. As already mentioned above, this strategy aligns with the works of Dewey, Vygotsky, Freire, and others, and is supported by research demonstrating its effectiveness in promoting critical thinking, active learning, and the application of theory to practice.

When defining this teaching and learning method, different authors have emphasized different key elements. In general, the case study method can be defined as a teaching approach in which students learn by engaging in the analysis of complex, real-life situations that do not have

a single correct answer (Herreid, 2007). Bonney (2015) emphasizes the promotion of critical thinking as it defines the case study method as a strategy that uses real or hypothetical events to promote active learning, critical thinking, and the application of knowledge to practice. The case study method also plays an important role in developing reflective and problem-solving abilities by giving students opportunities to consider, analyse, and respond to realistic problems of practice (Merseth, 1991). Dunne & Brooks (2004) define the case study method as a form of discussion-based teaching that uses real or stimulated cases to place students in the role of decision-makers, requiring them to diagnose problems, evaluate options, and propose solutions.

The case study method as a teaching and learning strategy draws from experiential learning theory (Kolb, 1984), which emphasizes that learning is a cycle of experience, reflection, conceptualization, and application. The case study method gives the learners an opportunity to cycle through all of them, i.e., it allows them to reflect, theorize, and apply knowledge.

There are quite a number of studies that have examined the effectiveness of the case study method across different fields of education. For example, the study conducted by Bonney (2015) compared the efficacy of the case study method to traditional classroom discussions and instruction based only on using textbooks in teaching key biological concepts. The results from the study showed that the case study method was significantly more effective in promoting conceptual understanding as well as students'

awareness of the importance of biology to everyday life. Based on these findings, Bonney (2015) suggests that the use of this method should be considered a preferred instructional approach for teaching a variety of concepts in science education. In a similar way, Merseth (1991) found that teaching using case studies in teacher education programs increases students' ability to analyse classroom situations, to reflect on professional practice, and to make pedagogical decisions. Mahdi et al. (2020) investigated the effectiveness of the case study method as a teaching strategy, particularly in terms of its role in improving students' critical thinking skills. The results showed that the development of students' critical thinking skills was a direct consequence of using the case study method. The results of another study also showed that the case study method is more effective than traditional lectures in promoting understanding (Rosier, 2022).

From all of this, it can be concluded that all of these listed studies, along with many other studies, emphasize the versatility and effectiveness of the case study method across different disciplines.

Methodology and Implementation

The case study method was applied in practice in several courses within the Psychological Counseling and Guidance Department within International Balkan University, such as Community Services, Organizational Counseling, Counseling and Guidance in Elementary and High school, and Multicultural Education. The method was applied among third and fourth-year students, with the aim of

encouraging critical thinking, perspective-taking, and practical application of theoretical concepts.

The cases that were used in these courses varied in both content and type. They included real-life case studies and fact-based situations, as well as fictional scenarios created either by the instructor/teacher for the purpose of the topic or class, or taken from course textbooks, or online resources. The materials ranged from ethical dilemmas, company stories, and open-ended cases, which were designed to encourage students to make predictions, offer suggestions, and draw conclusions, to original cases based on authentic documents, articles, reports, or descriptions of conducted experiments. Some cases gave multiple perspectives or opposing viewpoints in order to stimulate students to engage in critical analysis and discussion. All the cases that were used were carefully selected or designed to align with the subject matter of each course and to contribute to the understanding and exploration of the topic.

The case studies were usually used as a closing activity or as a follow-up activity after the theoretical part of the topic had been covered. Occasionally, they were introduced at the beginning of a lesson if they provided a good introduction to the topic and illustrated the concept in a practical way. Most of the cases that were used included guiding questions at the end, which students were required to answer. These questions encouraged discussion, exchange of opinions, and collaboration, helping students to reason through the problem and make informed decisions.

In terms of the interaction between students, they sometimes worked individually and sometimes in pairs

(tandems), and more rarely in small groups. The students first read the case and then tried to answer the guiding questions, complete the assigned task, or make a decision, depending on the objectives of the topic, the objectives of the case, or the course. After that, each pair, group, or individual student presented their answers, decisions, or opinions to the class, explaining the reason behind their choices and decisions. After the presentations, a group discussion took place, during which the students compared perspectives, reflected on possible alternatives, and drew conclusions together. The activity usually ended with a brief reflection where the connection between the case and the broader lesson content was emphasized, as well as the key message or learning outcome.

At the beginning of the activity, a set of ground rules is established regarding how tandems, groups, or individual students will share their information and decisions, and how the discussion will take place. The aim of these ground rules is to have some kind of order and guidance during the activity, but also to provide a respectful, safe, and supportive atmosphere, where all students feel comfortable expressing their thoughts and opinions without being afraid that they will make mistakes, or that they will be mocked or ridiculed. The main goal is to encourage open dialogue and learning. The discussion that the students have may be further stimulated with the help of the instructor/teacher by giving additional comments, suggestions, or probing questions, and by motivating them to engage actively, using analytical and critical thinking skills during the analysis.

Findings and Discussion

Based on the observations of the implementation of this technique, it can be concluded that, because of its use, the students engaged more actively and confidently in discussion and opinion sharing. The activity encouraged focus and participation, as all students contributed and had something to add. Using case studies, the students were stimulated to think analytically and critically, taking into consideration the advantages and disadvantages, and examining situations from multiple perspectives. They were able to put themselves in the position of individuals within the case scenario, considering the decisions or choices those individuals faced based on the available information and facts.

This approach helped students to better understand certain concepts, theories, or information, as well as how theoretical knowledge is applied in practice. An increase in their interactivity and motivation to engage during class and to collaborate with classmates was also noted during the implementation of this method.

Recommendations for Broader Application

The case study method can be used in all levels of education: primary, secondary, and higher education. Depending on the level of education in which it is used, certain adaptations need to be made. Besides the scope and the depth, which need to be adapted, the age, cognitive development, and prior knowledge of the students should also be considered, as well as the nature of the topic that is being taught.

For the successful implementation of the case study method, several key criteria should be taken into consideration, and these criteria apply to all disciplines and fields. First, the case study that is selected for learning purposes should be relevant. This means that the case study that is being used must connect to the topic, the theory, or the concept that is being taught. The content of the case should be rich and engaging, and should encourage participation, cooperation, and teamwork. Another element that should be taken into consideration is the length of the case study. The length of the case study is important to make sure that the case can be analysed, discussed, and completed within the time that is available for the class. If a case is too long, it can reduce its effectiveness and make the achievement of course objectives or learning objectives more difficult. Lengthy cases may also cause students to lose interest or motivation, as they can become overwhelmed by too much information or too many details. Furthermore, they can also leave less time for essential elements such as discussion, reflection, debriefing, and the presentation of analyses, limiting opportunities for students to justify their decisions, exchange perspectives, and connect theory with practice. For this reason, it is generally recommended to use short or moderately long cases that can be completed and discussed within one or two class sessions. When assigned as homework, the same principle applies because, as already mentioned, excessively long or complex cases can become time-consuming or even discouraging for students.

It should be emphasized that this does not mean that longer studies cannot or should not be used. In fields such

as law, business, medicine, and some others, cases are often longer and more detailed by nature. In such instances, the key is to adapt the case appropriately for learning purposes. In other words, the length of the case is not the main issue; what matters is whether it is well-designed for the intended learning objectives and aligned with students' level of knowledge and ability. It is generally recommended that longer and more complex cases be used with advanced or graduate-level students, while shorter and more focused cases tend to be more effective for undergraduate or introductory levels. The way the case is structured and adapted to support learning is key.

Regarding class size or number of students, it can be said that in small groups, the case study method tends to be most effective, since there is more time for individual participation, deeper discussions, and feedback. In larger groups, managing the discussion can become more complex and challenging, since not all students can contribute equally. However, with a structured technique, it is still possible to use the case study method effectively by dividing students into smaller groups or tandems, assigning different roles within each group, and conducting whole-class summaries after group discussions. In these situations, the instructor's facilitation skills and classroom management become crucial for success.

It is also important to note that there may be situations in which the case study method is not the most appropriate or effective approach for achieving the intended learning objectives. This may occur, for example, when students lack prior knowledge or experience, or when they are not

yet cognitively ready for the level of analysis and interpretation the method requires, or when the learning goal is to acquire some factographic information. In such cases, alternative or complementary teaching methods should be considered in order to best address students' learning needs and preferences and achieve the desired learning outcomes.

Conclusion

In conclusion, it can be emphasized that the case study method represents one of the most effective and engaging strategies for promoting active, student-centred learning. As studies show, this teaching and learning strategy can be used in many different educational and scientific fields and disciplines, and it can be adapted to different levels of education and learning contexts. The case study method gives students the opportunity to analyse different real and hypothetical situations, to develop critical and analytical thinking skills, and apply knowledge in practice. The successful implementation of this method depends on careful selection of cases or scenarios, the appropriate adaptation to the level of the students' knowledge and education, as well as on the abilities and skills of the instructor.

Although the case study method may not always be the most suitable method to use for every topic that is being taught or for every learning objective or for every class size, if the case is designed, structured, and implemented in a careful way, it can be very effective for learning. Understanding when and how to use case studies is very

important in the teaching process. Instructors should consider the selection criteria mentioned above when using this method in order for it to be more effective.

It can be said that the case study method helps students not only learn about the topic, the theory, or the concept that is being taught, but also learn how to think, how to look at situations from different perspectives, how to make decisions, and find solutions.

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THE USAGE OF THE ROLE PLAY METHOD IN HIGHER EDUCATION

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Introduction

The role play is a widely used teaching method, especially in the education and social sciences. It allows students to actively participate and engage while providing them with experiential learning (Teachfloor, 2025). Even though this method has a great number of objectives and benefits, enhancing communication, decision-making, and problem-solving skills, developing critical thinking, allowing students to learn from their errors in a safe environment, and active listening and participation might be the most important ones.

Considering that social sciences require lots of practice besides theoretical knowledge, allowing students to rehear what they have learned that day while allowing and encouraging them to make mistakes in a harmless

environment might empower not only their knowledge but also their skills and abilities when they have to deal with similar situations in real life. Thus, the most fundamental rationale of role play is to lead students to take ownership of their learning process.

As mentioned above, while role play allows students to be active listeners and participants, it might increase the whole student engagement as well as their motivation level. Moreover, it is believed that this method can be used in higher education, allowing students to be prepared for their future professional challenges.

Theoretical Framework & Literature Review

Role play method derives from "sociodrama" which can be defined as acting-out in a given situation in an experiential learning environment which can be used to train the professionals or in a classroom setting to enhance the learning of different fields such as literature, history or science (Blatner, 2009; Rao & Stupans, 2012; Alkin & Christie, 2002; Role Playing, 2012). What makes role play essential in education is that, as cited in Ladousse (1987), "role play is not an isolated activity, but an integral part of the lesson in which it is used". Teachers can decide how and when to apply for it in their classrooms. It might be used during the whole lesson material to be learned or only in a small part to emphasize what has been learned. However, in order for role play to have a greater impact, there are several steps teachers must take into consideration.

1. Teachers must be brief and clear about role play. The objectives, outcomes, and the content of the role play must be relevant to the topic. (Liu & Ding, 2009)
2. Correcting the errors of the students might be tricky. Teachers must be aware of when and how to correct the errors so students will not be demotivated. For example, if students are role-playing about organizational behavior, and one student acts out as a manager and says, "Employees are only motivated by money" the teacher might respond as "That's one factor, but can you think of other motivators supported by research, like recognition or job satisfaction?". This correction might help the student to learn more concepts about work motivation without feeling discouraged (Liu & Ding, 2009).
3. During role play, teachers can be facilitators, spectators, or participants. This means that teachers can demonstrate new information during the activity, they can only listen and provide feedback at the end of the activity, or they can actively engage and participate during the activity along with the students. In any case, the main function of teachers is to let their students explore and seize what is meant to be learned and implement it in real-life situations. (Liu & Ding, 2009; Ladousse, 1987)

Moreover, in order for role play to be meaningful for the students, it should end with a conclusion or debriefing. Teachers need to decide which point of the observed behavior needs feedback (to be provided to students). According to Jackson and Back (2011), the first step that

should be taken is collecting self-assessment (asking students to assess the procedure) and asking at which specific point they want feedback. The second important step is to emphasize the goal of the activity (what was intended to be learned) and give feedback on that precise remark. The last step is asking for feedback from students, in which they can explain their thoughts, how the procedure made them feel (positive, interesting, boring, and other attitudes), and what different approaches can be taken in the future. These steps are expected to lead students to gain more insight about the method and make role play more powerful.

A study that was conducted in 2015 by Afdillah and Noor aimed to see whether role play method in teaching played a role in language improvement among high school students in North Jakarta. The study was done among 56 students and quantitative research through quasi-experimental study was used. According to the results, the usage of role play in teaching speaking among high school students is an effective method.

On the other hand, Aubusson et al. (1997), conducted research with a collaborative approach where three teachers explained their experiences about role playing in teaching science. The three main positive outcomes from the research were: *enhanced learning* (in which students took more responsibility and leadership), *classroom atmosphere* (it created a less threatened environment which students used to interact more easily), and *catering for individual differences* (that allowed students with different abilities, learning preferences, and levels of understanding to

participate significantly). Also, it was found that while all students were highly advantaged from role play, those students who are not good at science were also attracted to participate and found role play productive.

Methodology and Implementation

During the Spring Semester of the 2024/25 academic year at International Balkan University, the role play method was used in the Organizational Psychology course for the chapter "Personnel Selection (Attraction and Socialization)" during the exercise hours. There were two different groups taking the course: third-year Psychology group/ Faculty of Humanities and Social Sciences (as a compulsory course) and fourth-year Management group/ Faculty of Economics and Administrative Sciences (as an elective course). There was a total of 28 students, of which 21 were from Psychology (2 males and 10 females) and 7 were from Management (2 males and 5 females). The data is shown in Table 1.

Table 1

Participants by Gender and Study Group

	Psychology	Management
Male	2 (9.5%)	2 (28.6%)
Female	19 (90.5%)	5 (71.4%)
Total	21 (100%)	7 (100%)

The idea behind the activity was for students to be able to understand which applicant is more suitable for recruitment for a specific role. Through this exercise, students were able to understand how recruitment procedures go, how to choose the perfect applicant, what questions to ask, and how to eliminate unsuitable applicants.

The activity was done face-to-face, meaning that all the students were present in the classroom. Printed scenarios and questions were used during the activity. The activity was explained at the beginning of the exercise hour. Students were also informed about the procedure and the purpose of the exercise. Materials that were used during the exercise were: *printed job descriptions, sample applicant profiles,* and *a list of common interview questions.*

The first step of the exercise started by explaining that there is an opening position for the marketing coordinator. The responsibilities of the job were listed and explained to students. They included:

- Develop and implement marketing campaigns.
- Manage social media accounts and content creation.
- Conduct market research and analyze trends.
- Collaborate with sales and design teams for branding strategies.

Also, students were informed about the qualifications of this position, such as:

- Bachelor's degree in Marketing, Business, or a related field.
- Strong communication and organizational skills.

- Experience with digital marketing tools (Google Analytics, social media platforms).

After the explanation of the responsibilities and requirements, 5 volunteer students were picked. One of them was chosen as a hiring committee member along with the teacher, while the remaining students (4 of them) were applicants. The interview questions were shared with the hiring committee member (volunteer student). The example questions were listed as:

- Tell us about yourself and why you are interested in this position.
- What are your strengths and weaknesses?
- How do you handle tight deadlines and pressure?
- Can you describe a time you worked in a team and faced a challenge?
- What do you know about our company and its culture?
- Where do you see yourself in five years?
- How do you handle constructive criticism?
- Why should we hire you over other candidates?

The sample profiles were divided into all the applicants (volunteer students) before the exercise started, and they had 5 minutes to read their roles. Sample profiles are shown in Table 2.

The remaining students were observers, who were asked to monitor the exercise and later to evaluate what they thought about the applicants, the procedure, the questions, and who should get hired.

Table 2

Sample Profiles

Name and Surname of the Applicant	Education	Experience	Skills	Strengths	Weaknesses
Sara Adams	Marketing	2 years as a social media manager	Content creation, SEO, social media analytics	Creativity, adaptability, teamwork	Limited experience in data analysis
Emily Carter	Business & Marketing	3 years as a content strategist in an e-commerce company	SEO, digital marketing, branding strategy	Strong analytical skills, excellent creativity	Limited experience in traditional marketing
Olivia Johnson	Marketing & Communication	1.5 years as a social media manager for a startup	Graphic design, influencer marketing, copywriting	Great at storytelling and brand building	Limited experience in data analysis
Sophie Brown	Human Resources and Organizational Behavior	1-year internship in a university HR department	Training coordination, document management, employee support	Strong communication skills, culturally sensitive, detail-oriented	Limited experience with HR information systems (HRIS)

Findings and Discussion

During the exercise, hiring committee members (volunteer students and teachers) asked questions to the applicants, and each candidate was evaluated separately. The challenges of the job position (such as tight deadlines, working in a team, and pressures) were also asked of the applicants. The exercise continued, eliminating the applicants, and the first one was Sophie Brown, since she did not fulfill any of the requirements. The most qualified applicant was Emily Carter (who was played by a Management student, "J.M."). The volunteer student for this role was able to answer questions and handle all the challenges, and she seemed very confident. She also explained that she was open to attending the necessary training for her limitations and is open to learning.

Right after the role play, observing students were asked to vote on which applicant should get hired. All students voted for Emily Carter because of her decisiveness and courage. They also stated that her educational background and experience would be very suitable for this specific position. The exercise finished with hiring Emily Carter, giving feedback on the comments, and answering the questions.

It was recognized that 80% of the students were participating in the exercise, which was 30% more than in the other exercises during the semester. Students were more engaged, commenting and actively learning about the recruitment process of organizations. They also gained insight into what matters in a job interview, and that educational background or experience is not enough. During the role play, students experienced individual differences

such as empathy, openness to new experiences, extroversion, and self-confidence, which also play an important role in getting hired. After the exercise, students gave positive feedback. One of the surprising results was the increase in the contribution and active participation of the passive students (those who do not actively participate in the exercises) with a lower GPA. The findings align with relevant research, which most of them concluded that role play enhances the active participation of the students and emphasizes the learning outcomes. Using both quantitative (such as measuring the participation percentage before and after the exercise and qualitative methods (getting feedback from students about their emotions, thoughts, and comments about the exercise) gives a more complete picture of the positive effects of the role play method in teaching and learning.

Recommendations for Broader Application

Through this exercise, it is seen that role play can be used in different contexts and different courses. It is suggested that role play be pursued from various perspectives, especially in the social sciences. For example, role play can be used in teaching counselling, simulating counselor-client relationships. On the other hand, in law or political sciences, court trials, debates, or negotiations can be replaced. Another example might be from business and management perspectives, allowing students to experience workplace conflicts, organizational communication, leadership challenges, and other concepts.

The method can be used in various classrooms, where in small groups everybody can actively play a role, and in large groups, there can be an observer group. It is important to detect the level of the students, so that in the introductory/novice groups, the roles can be kept simpler, while in more advanced groups, students can play more complicated roles.

Another important point that teachers must consider is the conditions of the application of this method. Clear instructions, well-defined objectives, and creating a safe, non-judgmental environment where students are not afraid of making errors are the essentials of the role-play method.

Conclusion

In conclusion, the role play method has proven to be a valuable pedagogical tool in higher education, particularly in disciplines such as social sciences (more specifically "psychology") where theory must be complemented with practice. By actively involving students in experiential learning, role play enhances communication, decision-making, and problem-solving skills, while simultaneously fostering motivation, engagement, and critical reflection. The exercise conducted in the Organizational Psychology course at International Balkan University demonstrated that role play not only increased participation but also encouraged contributions from typically passive students, thereby supporting both skill development and inclusivity.

The findings reinforce existing literature that highlights role play as a method capable of bridging theoretical knowledge with real-world applications. Moreover, its adaptability across various disciplines confirms its relevance as an effective teaching strategy in higher education. With thoughtful planning, clear objectives, and a supportive classroom environment, role play can empower students to take ownership of their learning and prepare them more effectively for professional challenges. As such, the integration of role play into teaching practice should be considered a meaningful step toward fostering deeper learning outcomes and equipping students with skills essential for their future careers.

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PART 3

TECHNOLOGY-ENHANCED LEARNING

INTEGRATING TECHNOLOGY AND GROWTH MINDSET PRINCIPLES INTO INNOVATIVE TEACHING STRATEGIES

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Introduction

In the 21st century, the transformation of higher education requires not only technological adaptation but also a profound shift in the mindset among educators and students. According to Bucata and Tileaga (2024), universities are entering into a "*digital renaissance in education*". Globally, digitalization reshapes teaching, learning, and research, forcing educational institutions to rethink their structures, cultures, and competencies. In that sense, the digital transformation is not referring only to adopting digital tools, but to a human-centered journey that redefines educational systems into innovation-driven learning systems, as well. Simultaneously, the integration of emerging technologies, such as artificial intelligence (AI), augmented and virtual reality (AR/VR), and gamification, is providing

opportunities for personalization, adaptive feedback, and engaging learning experiences (Mena-Guacas et al., 2025). In that sense, educators are moving from the dissemination of knowledge to interactive and student-centered learning.

However, the successful integration of digital technologies requires more than just superficial technical integration, i.e., it asks for a shift in students' and educators' mindsets. Digital tools demand to be aligned with a meaningful pedagogy and learner psychology, where the growth mindset theory (Dweck, 2006) provides a strong psychological foundation by emphasizing that abilities and intelligence can be developed through sustained effort, feedback, and persistence. The technological empowerment supported by growth–oriented beliefs can form the core of educators' teaching approach. From here, the applied teaching methodology can be developed as a practical framework that incorporates Bloom's revised taxonomy in learning, the growth mindset principles, and interactive delivery of lectures. On the other hand, the development of a growth-oriented mindset leads students to view challenges as opportunities for improvement, leading to higher academic performance, greater motivation, and improved resilience (Paunescu & Dweck, 2016).

Therefore, the objectives of this chapter are to determine:

1. How do technology-enhanced learning environments promote student engagement, creativity, and critical thinking?

2. Where do these two teaching methodologies intersect, and what is their outcome?

Finally, the aim of this chapter is to present and reflect on a teaching strategy that operationalizes the synergy between digital technologies integration and growth mindset pedagogy used by the author when conducting courses in a bachelor's degree. By combining the clarity of the course content, the purposeful communication used as a pedagogical tool, and inspiring or motivating students, this teaching strategy demonstrates how meaningful learning becomes when pedagogy, technology, and psychology converge.

Literature Review

The integration of technology in higher education is a central theme in contemporary pedagogical research; however, what is noticed among the literature review is that there is a lack of studies that incorporate the psychological and motivational dimension of technology adoption. Therefore, the literature review analyses the studies that focus on technology integration into teaching and learning practices on one side, and on the other side, the studies that focus on the development of a growth-oriented mindset among educators and students.

According to Panakaje et al. (2024), technology integration has significantly improved the teacher performance and students' engagement in Indian higher education institutions, i.e., their findings conclude that while digital tools are increasingly used in the classrooms, pedagogical strategies of this integration determine the impact on students' learning outcomes.

Similarly, Sailer et al. (2024) have found that digital technologies can foster students' learning outcomes when engaging them in active forms of learning. Furthermore, when digital technologies have embedded cognitive supports, such as scaffolding (AI tutors, or adaptive quizzes), or feedback within learning activities, they can enhance students' cognitive engagement and overall learning outcomes.

Fisher et al. (2013) focus on the growth mindset principles adopted by educators, according to whom, when instructors are involved in research-informed reflections and receive feedback on their different and innovative teaching methods, they have enhanced adaptability and a stronger will to experiment, which is essential for digital transformation in education.

Researchers such as Boyd (2015) and Baldwin et al. (2020) highlight that the growth mindset framework is a transformative force in learning and educational development. These studies conclude that educators and then HEIs are central to building a culture of growth and belonging, and in order to achieve this, HEIs' Teaching and Learning centres and their initiatives should support and train academic staff to model growth–oriented practices. Then teaching shifts from mere transfer of knowledge to active and transformative learning experiences (Kolyda, 2023).

These two perspectives on nurturing a growth mindset model among educators and HEIs complement the idea that technology integration succeeds when supported by a mindset of continuous improvement. Growth-oriented educators are more likely to view new (digital) tools as opportunities for learning rather than as disruptions and

barriers. This mindset fosters institutional resilience and teaching innovation, which is in line with Dweck's (2006) growth mindset and the belief that intelligence and ability can evolve through sustained effort and continuous feedback. While technological adoption enhances access and efficiency, the growth mindset ensures that technology is used to empower rather than replace the learning effort.

As a summary of the presented literature, it can be noted that the technological-pedagogical and the psychological-motivational studies are considered as two disconnected strands that are complementary. By integrating these two perspectives, it can be suggested that the successful integration of digital technologies into teaching strategies requires not only technological capacity on behalf of educators and students, but at the same time, a mindset of continuous improvement rooted in Dweck's growth mindset theory.

Conceptual Framework of Teaching Innovation Strategies

Starting from the previous suggestions given, this study positions teaching innovation at the intersection of cognitive progression, psychological empowerment, and digital facilitation. While technology integration enhances access, interactivity, and engagement through gamification, it realizes its full potential when it is combined with a growth mindset that enables educators and students to learn, adapt, and create. In that sense, this could be presented as a triadic framework, *Growth Centered Teaching*

Through Technology of teaching innovation that incorporates three different and independent dimensions:

Figure 1

Triadic framework of teaching innovation

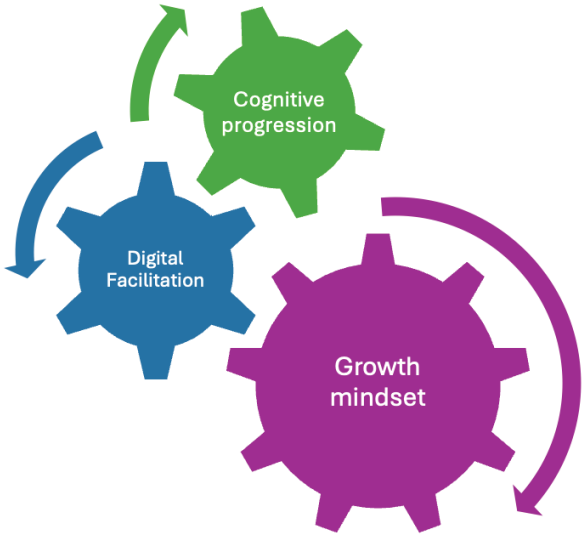

Figure 1 illustrates the dynamic interaction among the three core dimensions of the proposed teaching innovation framework, as interconnected gears that drive one another in a continuous cycle of reinforcement and improvement. The arrows indicate this relationship, whereby firstly, educators with a growth-oriented mindset are more prone to adopt and experiment with utilizing digital tools in classrooms. Technology enhances the active learning and higher-order thinking skills towards greater cognitive progression, while learners and educators experience visible progress, their confidence and willingness to innovate grow, feeding back into the mindset loop.

Explanation of the Proposed Framework

The proposed triadic framework focuses on teaching innovation, which conceptualizes teaching innovation as a dynamic interplay between psychological empowerment (growth mindset), digital facilitation (technology integration), and cognitive progression (higher-order learning outcomes). This framework describes the processes (of how) and the purposes of teaching innovation (what) in the digital era. This framework focuses on three complementary methodological pillars, such as:

1. Embodiment of growth mindset principles, which serves as a psychological and motivational basis for continuous learning.
2. Technology-enhanced delivery of teaching and increased classroom interactivity as the operational dimension of the framework.
3. Bloom's revised taxonomy, which serves as a cognitive basis for structuring the learning processes.

Nurturing a Growth Mindset – Educators and Learners

The psychological foundation in the framework is presented as the growth mindset and is the central and largest gear. This gear is shown as a motivational factor that enhances educators' willingness to adopt new technologies and improve their pedagogical approaches. As an indirect effect, not only educators, but also learners adopt this mindset and perceive challenges as opportunities for their continuous learning and transformation. This means that

in this framework, the main assumption exists that both educators and learners are prone to nurturing a growth mindset instead of a fixed mindset.

Research in educational psychology shows that fostering a growth mindset leads to higher academic performance, greater motivation, and improved resilience (Yeager & Dweck, 2012; Claro et al., 2016). Furthermore, embedding growth mindset principles into university teaching requires more than just motivational messages and inspiring talks; it requires alignment with pedagogical tools such as assessment design, provision of feedback, and educators' openness and curiosity. By encouraging students to research, critique, and build on existing knowledge and using formative assessments for tracking progress and identifying learning gaps, learners move from "remembering to creating," aligning with higher-order cognitive levels in Bloom's revised taxonomy (Anderson & Krathwohl, 2001).

Technology Integration - Tools

The digital facilitation is presented as the technological enabler that supports interactive, gamified, and student-centered learning. Digital platforms such as Wayground, Kahoot, AI tutors, agents, large language models, virtual simulations, and learning analytics provide real-time feedback and cognitive scaffolding that activate the growth mindset and serve as a mechanism for making cognitive progress visible. Technology integration increases students' engagement and motivation (Hung et al., 2020) and provides greater opportunities for personalized and differentiated learning (Johnson et al., 2016)

As shown in the practices of International Balkan University, interactive technologies help educators to identify learning gaps and tailor instruction based on the determined gaps. However, what was noticed in practice was the maintenance of assessment authenticity and balancing automation with empathy. Furthermore, students reported feeling more prepared for exams, appreciated the competitive element for knowledge competition, and felt greater confidence in understanding the course material.

Pedagogical Outcomes – Cognitive Progression

The cognitive progression reflects the learning advancement through Bloom's Taxonomy, where course activities and assessment are intentionally designed to move learners from lower-order to higher-order thinking skills. This means that the ultimate goal of this integration between the technology and mindset is to empower learners to create. The arrow shows that as digital facilitation enhances engagement and feedback, and the growth mindset strengthens motivations, both contribute to deeper cognitive progression.

Teaching Strategy Used in Classroom

The primary goal of technology integration and combining it with the growth mindset principles was to enhance the learners' engagement and development of creativity. The secondary goals of the practiced framework were to help students identify their learning gaps and direct their efforts towards improvement. Additionally, digital tools,

such as Wayground, enabled feedback in real-time, presented in an interactive and competitive manner. Furthermore, as an indirect effect, there was constructive competition among peers, acknowledgement of the students with higher scores, and deepening collaboration.

For all this to be achieved, classroom implementation of the proposed teaching innovation framework required practical teaching strategies such as guiding students through Bloom's hierarchy, i.e., introducing them and revisiting through reflection and feedback. For the purpose of developing critical thinking skills, case studies were applied so that students were motivated to become active participants in their education. Furthermore, mindset modelling was a priority, by demonstrating enthusiasm, curiosity, and willingness to question. The integration of continuous feedback, in the form of short quizzes, allowed for tracking learning outcomes and identifying areas of improvement. In that sense, feedback was viewed as a valuable tool for the development and upgrade of knowledge rather than just a grading mechanism.

Conclusion

The integration of technology and growth mindset principles into higher education represents a profound shift in the practice of teaching and learning. It marks a change of focus from teacher to learner-centered development, where digital innovation is aligned with psychological empowerment and cognitive progression, from basic knowledge acquisition to analysis, evaluation, and creation. Learners

move from surface learning to deeper conceptual learning. The use of real-time quizzes and gamified challenges turned classrooms into practice rooms where ex-cathedra teaching was minimized. Furthermore, the modeling of the growth mindset empowered not only the educator to experiment with innovative teaching frameworks, but also motivated students to engage more deeply in their learning.

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A CONSTRUCTIONIST APPROACH USING POWERPOINT-BASED HYPERMEDIA FOR DEVELOPING SELF-REGULATED LEARNERS IN HIGHER EDUCATION

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Introduction

Contemporary universities have evolved from the traditional paradigm of teachers as sole sources of knowledge and have increasingly moved toward student-centered approaches with a focus on developing students' cognitive, metacognitive, behavioral, and motivational capacities, among which the most important is "learning to learn." After graduation, students should be able to continue self-educating long after they leave formal academic settings, and thus, self-regulated learning (SRL) has become a critical competency vital for lifelong learning (Bartolomé & Steffens, 2011; Pintrich, 1995; Taranto & Buchanan, 2020; Zimmerman, 1990). Given that future education has digital technology at its core, with AI technologies becoming the main resource for learning increasingly, it is critical for students to develop lifelong self-regulated learning

and critical thinking in the context of computers and hypermedia content use. Following the emergence of the Internet, limitless digital content is available online on any topic for students to consume; yet, studies show that university students generally fail to effectively incorporate digital technologies into their self-regulated learning processes due to distractions from social media and entertainment (Lobos et al., 2024; Yot-Domínguez & Marcelo, 2017).

The lack of digital SRL in students calls for an increased interest in developing curricula that specifically address the problem and teach students to self-regulate effectively online and in technology-driven environments. Improving SRL in students, in general, increases their digital literacy and better prepares them to navigate the complexities of the digital era in academic and non-academic settings (Anthonysamy et al., 2020a, 2020b). This chapter contributes to the effort by describing a teaching method where students design educational applications using widely available PowerPoint software, grounded in constructionist theory (Harel & Papert, 1991). The method is intended to foster SRL and digital literacy skills by having students actively create educational hypermedia packages for other students in the class, making them simultaneously creators, collaborators, and consumers. It is hypothesized that placing students in the role of content creators of practical digital artifacts will facilitate their activation and practice of all the components of self-regulation in the learning process.

Theoretical Foundations

The Concept of Self-Regulated Learning (SRL)

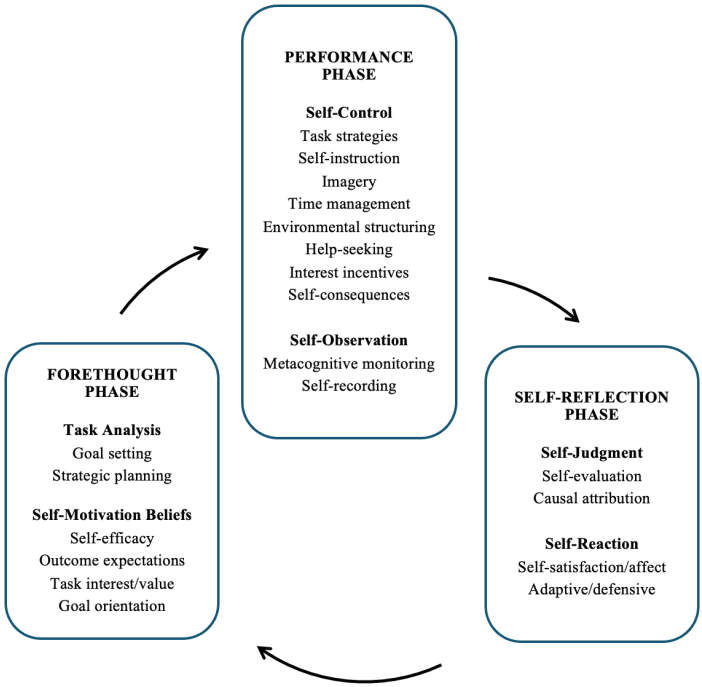
In a general psychological sense, self-regulation involves processes like monitoring, evaluation, and reinforcement of one's own behavior to effectively achieve goals (APA Dictionary of Psychology, 2015). In educational settings, this construct most often refers to *self-regulated learning* (SRL), which is understood as students taking control of their own learning process in an organized and strategic manner, relying on their learning capacities to achieve academic goals (Pintrich, 1995; Zimmerman, 1986). It also implies that students understand and control their learning environments (Schraw et al., 2006). Zimmerman (2002) concisely defines SRL as a "self-directive process by which learners transform their mental abilities into academic skills" (p. 65).

Moreover, models of SRL proposed in the literature consider various dimensions and subprocesses of learning, and despite their differences, they share the key agreement that self-regulated learning is cyclical or recursive in nature, goal-driven, and involves preparatory, performance, and appraisal phases (Panadero, 2017; Puustinen & Pulkkinen, 2001). Two of the most prominent models, Zimmerman's Cyclical Phases Model (Zimmerman, 2000; Zimmerman & Moylan, 2009) and Pintrich's SRL Model (Pintrich, 2000), outline a set of cognitive, metacognitive, motivational, and behavioral components of self-regulation, each relevant for learning. For example, the forethought phase of Zimmerman's model requires task

analysis that primarily depends on the cognitive component and self-motivation beliefs that drive the learning process. In addition to the cognitive component, the performance phase in the model involves metacognitive strategies, self-control, and self-observation, after which students self-reflect on their performance (Figure 1).

Figure 1

Zimmerman's Cyclical Phases Model of Self-Regulation. Adapted from Zimmerman and Moylan (2009).



Recent review studies link effective SRL skills and strategies to academic success, justifying the necessity for a deeper and more intentional implementation of SRL into

university curricula (Liu et al., 2025; Sinkkonen & Tapani, 2024; Waheed et al., 2025). In short, students and teachers should place equal emphasis on self-regulation in the educational process alongside subject knowledge.

Papert's Constructionism as a Learning Theory

Constructionism is a learning theory developed by mathematician and educator Seymour Papert in the 1980s that views learning as an active process occurring through the building of personally meaningful and shareable artifacts, whether they are computer programs, scripts or stories, multimedia, objects, or even robots (Harel & Papert, 1991; Papert, 1980, 2002). Rooted in Piaget's constructivism (Piaget, 1978), this approach suggests that constructing something concrete helps learners develop a deeper comprehension of abstract concepts. Learners deeply immerse themselves in and interact with the tools and objects they create, forming long-lasting knowledge similar to what children do. Such objects become 'objects-to-think-with' (Papert, 1980, p. 11), and to demonstrate the idea, Papert co-developed a simple programming environment called *Logo* that children could use to program the behavior of a robotic creature *Turtle* by typing commands on a computer and seeing it move around the floor (Papert, 1980; *What Is Logo?*, 2014).

Despite the similarities in theory and practice to Piaget's constructivism, Papert's constructionism focuses on the development of cognitive capacities in an environment

intentionally created by a teacher, but in such a way that encourages student autonomy and exploration. The theory also suggests that learners construct knowledge by creating tangible artifacts, often in a self-paced, self-motivated manner, with additional and occasional collaboration with others. Constructionism places teachers in the role of facilitators, in which they define problems and set goals for students, taking on a more supportive function in the process (Alanazi, 2016; Rob & Rob, 2018).

Universities increasingly embrace constructionist principles of learning through project-based activities, collaboration, and sharing with peers. These changes, rooted in Papert's theory, build smart learning environments that are well-suited to the ubiquity of digital technologies in the 21st century, with computers as central metacognitive tools and mediums (Levin et al., 2025).

Digital Literacy and Academic Performance

The context of digital literacy in modern education has shifted from focusing on basic technical computer skills to developing broader abilities for learning in information-rich environments. Since most students can operate various digital devices (e.g., smartphones) and leading technology companies design products that are increasingly user-friendly, the next goal of digital education will be to develop competencies in critical thinking for evaluating information, managing digital complexities, mastering digital content creation, and enhancing our ability to navigate social media. In fact, Reddy et al. (2023) claim that the concept of digital literacy entails several underlying

sub-literacies, including informational, computer, media, communication, visual, and technological literacies.

Digital skills have been identified as one of the key competencies for lifelong learning by the Council of the European Union (Council of the European Union, 2018). For learning, it is not sufficient to only be able to operate a digital device; modern education should develop students who are competent in skills that master digital environments, including proficiency in navigating non-linear content and hypermedia (Eshet-Alkalai, 2012; Gutiérrez-Ángel et al., 2022). Digital literacy is increasingly recognized as a critical factor in the academic outcome of university students, and digitally literate students show better performance on digital tasks, have a better learning experience, and consequently demonstrate better academic success (Ben Youssef et al., 2022; Kubiczek & Ali, 2025). There are additional mediating factors in the relationship between digital literacy and academic performance, such as perceived self-efficacy, self-regulation capacity, and learning adaptability in students, suggesting a direct interplay between regulation, digital literacy, and learning (Harimurti et al., 2024; Mehrvarz et al., 2021; Wu & Yuan, 2023).

Hypermedia as Dynamic Learning Environments

Hypermedia emerged more than half a century ago from the technological invention of crosslinking digital text. Hypertext is still the backbone and the underlying architecture of the Internet, proving that this simple idea of linking words can create vast networks and represent

a limitless amount of information. Computer technology enabled other non-textual media—like images and sounds—to merge into more complex forms of multimedia, and soon after, the concept of hypermedia arose in the scientific literature as a combination of multimedia and hyperlinking. Over the years, hypermedia grew as an instructional tool (Ajlouni & Jaradat, 2021; Oliver & Herrington, 1995).

Hypermedia mirrors the associative nature of the human mind, making it a particularly valuable tool in education. In hypermedia, one piece of information can be linked to another, similar to how the minds of learners associate previously learned information with new material (Heimbürger & Multisilta, 2004). Due to the non-linear and adaptive architecture of hypermedia, it is possible for students to explore educational content in a self-directed manner, choosing freely what to learn next, in contrast to traditional textbooks and other linear presentation types of media (Patterson et al., 1996; Scheiter & Gerjets, 2007). Learners also benefit from the multiple representations that arise with the involvement of multiple sensory pathways activated from the multimedia content in a dynamic and interactive environment. Unlike traditional classrooms, learners are offered greater control, autonomy, and flexibility, and the material is adapted to their pace, preferences, or needs, reflecting a shift towards constructivist, learner-centered education (Opfermann et al., 2013).

However, the use of hypermedia in education does not come without challenges. A major and serious issue in

non-linear environments is disorientation, or "losing oneself in the hyperspace," which refers to the feeling of being lost, not knowing the location of the content or how to navigate the material (S. Chen, 2002; Scheiter & Gerjets, 2007). The second issue has to do with cognitive overload and distraction that hypermedia may introduce, since such information-rich environments require executive and metacognitive skills for software operation and control, while memorizing relevant educational content and selecting and deciding on learning pathways (Opfermann et al., 2013). Strong self-regulation is required to overcome issues like disorientation or cognitive overload, of which the most important are solid metacognitive abilities and the motivation to maintain persistence. For some groups of students with low self-regulation skills, hypermedia may lead to little learning, but careful teacher scaffolding and skills training, such as planning, monitoring, and effective strategies in learning, show promising results in improving learning, allowing them to benefit from the powerful educative hypermedia tools (Azevedo et al., 2011; Azevedo & Cromley, 2004).

PowerPoint as a Constructionist Tool for SRL

Since its inclusion in the Microsoft Office suite in the 1990s, the PowerPoint package has experienced rapid growth and has become widely used in classrooms around the world, primarily as presentation software that instructors utilize to guide and enhance their lectures. There is widespread consensus that PowerPoint adds value by

increasing visual interest and enhancing understanding and may improve student attitudes and subjective perceptions toward the class (Brock & Joglekar, 2011; Nouri & Shahid, 2005; Susskind, 2008). One issue that arises in the classroom is instructors' tendency to use PowerPoint in a linear fashion, typically going through a series of bulleted points from beginning to end (Kinchin et al., 2008), which has been criticized for promoting passivity and rote memorization, lacking careful planning and explicit pedagogical strategies (Wagner, 2017). Studies indicate that interactive presentations address the issue of passivity and engage students in various ways, thereby enhancing their learning. For instance, including animations in the presentation material or incorporating interactive elements in the design could boost motivation and improve test scores across diverse student populations (Bolkan, 2019; Y.-T. Chen, 2012; Dewi et al., 2024; Wanner, 2015). Additionally, interactive presentations have been promoted as tools for teaching students self-regulation skills and as low-cost, easily adoptable solutions with significant didactic value (Boyas, 2010; Esquela-Kerscher et al., 2016).

And yet, PowerPoint has been overlooked in one key aspect: the software has the potential to serve as a framework for constructionist learning when used by students, in line with Papert's ideas and principles, rather than being merely a presentation tool for teachers. In its Kiosk mode, PowerPoint becomes a hypermedia development platform that enables students to practice self-regulation skills while they create interactive and educational applications for their peers.

Kiosk Presentation Mode in PowerPoint

The main purpose of Kiosk mode in PowerPoint is to create a self-running slideshow, optimized for presentations in public settings such as booths or information displays (Microsoft Support, 2025). When configured in Kiosk mode, the slideshow loops continuously in full screen until the viewer manually interrupts it by pressing the Escape (Esc) key, whereas in other presentation modes, users advance slides by pressing the space or arrow keys. The presentation remains predictable and flows in a highly controlled manner, where the slideshow only progresses according to the specific rules and functions built by the creator via customized elements, links, and timings. Creating an effective Kiosk mode presentation involves careful planning and crafting of all its functionality manually, mostly by cross-linking elements via the hyperlink function in PowerPoint that can link specific elements to a web page or file, locations and elements within the same document, or even email addresses. Presentations built with Kiosk mode resemble software applications, having navigation menus, interactive windows, multimedia, and multiple non-linear paths.

Building Kiosk Presentations and Self-Regulation Processes

The primary advantage of the Kiosk mode in PowerPoint is that it offers an opportunity for students to build fully functional, interactive educational applications from scratch without any prior programming skills, just by using their basic knowledge of Microsoft Office. The

application-building process itself should challenge students enough so they can practice and acquire self-regulation skills, without the danger of overwhelming them. Since it asks students to build tangible and shareable digital artifacts, this teaching method is rooted in the constructionist theory of learning. During the process, students maintain complete control, from initial topic selection to the finalization of the product, while they interchangeably take on different roles as authors, researchers, designers, programmers, and producers.

The proposed method in this chapter aims to establish external conditions that naturally engage students, aligning with Zimmerman's model of self-regulation (Figure 1). Learning begins with the forethought phase, during which the instructor explains the overall purpose of building a non-linear multimedia application using PowerPoint Kiosk mode. Students are encouraged to select their own topics to teach their peers, and soon they begin deliberating on specific tasks and goals, planning strategies, and reflecting on their self-efficacy regarding the project. Once they finish planning and start building, they enter the performance phase, where they encounter various challenges, such as finding content and sources, making design choices, implementing menus and navigation, time management planning, and mastering PowerPoint techniques either through self-instruction or by seeking help from others. Students will likely engage in self-observation and metacognition during the performance phase. As part of the cycle, once students create beta versions of their PowerPoint applications, they are expected to self-reflect, testing the project's functionality, clarity, and likability with

peers. Based on the feedback, they are likely to self-reflect on how good their projects are and how they feel, after which the cycle of self-regulation continues. Figure 2 illustrates the typical implementation flow of a semester-long course, each associated with a specific phase of the Zimmerman model. Topic selection and goal setting (1) and research and resource curation (2) align with the forethought phase. Storyboarding and design planning (3) and development in PowerPoint (4) correspond to the performance phase. Finally, evaluation and testing (5) and the final presentation and reflection (6) align with the self-reflection phase.

Figure 2

Typical flow process of developing hypermedia educational applications using PowerPoint.

1. Topic Selection and Goal Setting	Students select an educational theme, set learning goals for their audience, analyze the task, and plan the structure of their hypermedia application.
2. Research and Resource Curation	Students gather accurate and relevant information, evaluate the credibility of digital sources and organize content into categories.

3. Storyboarding and Design Planning	Students plan screens, interactions, and navigation flows, insert quizzes, branching scenarios, or feedback. This reflects metacognitive strategies.
4. Development in PowerPoint	Students create slides with multimedia, action buttons, and kiosk mode. They test hyperlinks, adjust layouts, and refine interfaces. They may troubleshoot issues.
5. Evaluation and Testing	Peers or instructors provide feedback on design, clarity, and interactivity in the application. Students collect feedback and iterate on their design, engaging in self-reflection.
6. Final Presentation and Reflection	Students present their applications, reflect on the learning process, and evaluate their SRL. They articulate what could be improved, linking back to constructionist principles.

Self-regulated learning in each of its phases involves a variety of cognitive, metacognitive, motivational, and behavioral components. Processes like content comprehension and integration, problem-solving and decision-making, and operation and use of digital tools draw upon cognitive competencies. On the other hand, processes like planning and goal setting, monitoring, and self-evaluation and

adaptation invoke metacognition. Beliefs of self-efficacy, sources of motivation (intrinsic/extrinsic), and personal value of the task—all rely on motivational processes. Finally, the behavioral component relates to things like time management and organization of the environment, help-seeking and collaboration, or persistence and effort. Table 1 gives a brief overview of the different components involved in self-regulated learning.

Table 1

Various components and examples of their involvement in self-regulated learning using a constructionist methodology for hypermedia application building with PowerPoint.

Component	Example
Cognition	Students must deeply understand their subject matter to teach it. They summarize, memorize, attend, infer, and synthesize information. Designing navigation, quizzes, and feedback requires planning and anticipating user actions. Students must organize information and select appropriate multimedia, necessitating analytical reasoning.

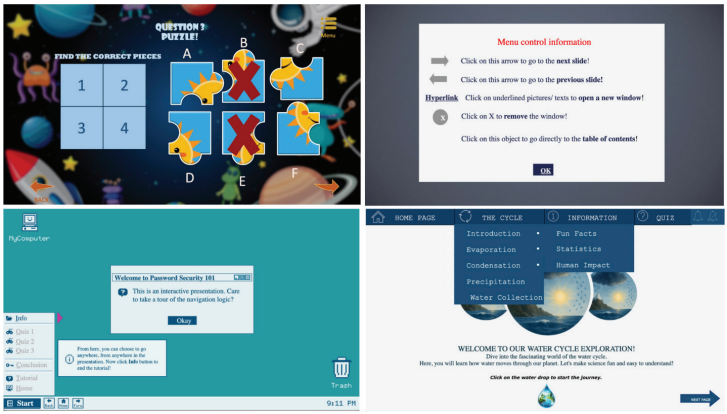
Metacognition	Students evaluate their projects, reflect on feedback, and adjust their strategies. They monitor their understanding of the content and the effectiveness of their design. They attribute successes or difficulties to effort, strategy, or external factors, influencing future performance.
Motivation	Students may be motivated by the creative nature of the task or by grades and peer recognition. Positive feedback can enhance self-efficacy.
Behavior	Students allocate time for research, design, and revision, and arrange their work environment for productivity. They may seek help from peers or instructors and adjust their behavior accordingly.

Finally, the principles discussed in this chapter have been applied and tested in a real classroom setting as part of a course titled *Computer Aided Education* at the International Balkan University. The course was a combination of standard in-class teaching and project-based work, as students incrementally built their hypermedia education applications during the semester. In-class topics included theoretical aspects of various media, including text, color use, graphics, multimedia, sound, online learning, screen layout, navigation, and assessment methods, among others. Figure 3 presents a single frame of four different student

projects developed in PowerPoint and functional in Kiosk mode. Each was built from the bottom up and on an educational topic of interest to the student. In the figure, advanced forms of interaction, assessment, and navigation can be seen.

Figure 3

Examples of student-built educational projects using PowerPoint in Kiosk mode as part of a Computer Aided Education course at the International Balkan University. The top two projects in this figure are credited to students Zanfina Ajdini and Makbule Aylin Dudurga, while the bottom two are credited to Gorkem Caliskan and Meliha Tahiri, all enrolled in a psychology program.



A Note on the Role of the Teacher in Self-Regulated Learning with PowerPoint

Self-regulated learning based on the principles of constructionism not only alters how students learn but also fundamentally changes the role of the teacher. Instead of

being the traditional authority and the source of knowledge, teachers take up the roles of mentors, modelers, and facilitators, whose primary function is to guide students through the SRL process and to design stimulating learning environments (Smith, 2001; Taranto & Buchanan, 2020). Communication between students and teachers becomes dialectical, where ideas, strategies, and goals are mutually discussed and agreed upon, with students maintaining a sense of self-efficacy and control over the process. Through stimulating discussion and planned scaffolding, teachers aim to foster students' autonomy and responsibility, promote reflection and self-evaluation, and think of ways to maintain motivation in their students. In addition to the supporting role teachers have in the process of guiding students as they build their PowerPoint projects, instructors should themselves develop knowledge and skills in hypermedia theory and practice and, in a broader sense, acquire competencies in digital technologies as they advance and develop at a very fast pace. Staying up to date with such technologies is imperative for the future, especially since large language models (LLMs) like ChatGPT, Gemini, and Claude are increasingly serving as facilitators, mentors, and sources of knowledge for students. Thus, the value of teachers in the context of future learning through digital means lies in the quality of the human relationships they cultivate with their students.

Conclusion

The new challenge for modern universities, especially when new digital technologies and AI are transforming education, is to create new generations of lifelong learners. This chapter introduces an innovative teaching method based on Papert's constructionist theory, utilizing the often-underappreciated Kiosk mode in the ubiquitous PowerPoint software to foster self-regulated learning (SRL). In a sense, the ideas presented here reinvent this ever-present software in classrooms as a self-learning environment that does not require too many prerequisites and competencies, especially in light of more recent AI technologies. Instead of constantly trying to catch up with the "latest and greatest" AI technologies in education, students primarily must acquire the most important educational skill – learning to learn. By having students create their own interactive hypermedia applications, they practice self-regulation and self-organization skills, producing tangible artifacts that they share with their peers. This approach transforms common presentation software into a powerful tool for developing self-regulation and encourages students to employ and acquire a variety of cognitive, metacognitive, motivational, and behavioral skills. It will also significantly contribute to the enhancement of their digital literacy and their ability to navigate complex digital environments. The method of learning with hypermedia not only benefits students; it also redefines the teacher's role as a crucial facilitator who guides, motivates, and supports students in becoming autonomous, self-regulated lifelong learners.

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