Traditional vs Immersive Learning Approaches in Project Management Education: A Scoping Review (PRISMA-ScR)

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Abstract

In every organisation, projects are essential. This is because an organisation's initiatives determine its purpose, strategy, and goals as well as its tactics for surviving in a competitive market. The way the project is being carried out is much more crucial. For this reason, in any sector, project management (PM) is just as important as the execution of projects. Preparing the next generation of project managers requires solid approaches that balance theoretical knowledge with practical and transferable skills. The traditional way of teaching project management relies on lectures, case studies, and classroom exercises, among others. Even though these are important and provide a conceptual foundation, they fail to replicate the dynamism of real-life projects. In the current era of technological advancement, emerging technologies such as Virtual Reality (VR), Augmented Reality (AR), and other immersive systems present significant opportunities to simulate the complexities of real-world projects, enhance learner engagement, support data-driven decision-making, and facilitate effective skill transfer. This paper presents a scoping review of scholarly works published between 2015-2025 comparing traditional and immersive learning in PM education. Relevant databases were searched, and studies were charted by their intervention type, methodology, learners and outcomes. The authors have identified 22 relevant studies with the traditional method, highlighting its relevance in introducing PM concepts and familiarising learners and students with basic terminologies and concepts, especially in instructing for theoretical relevance and the immersive approaches emphasising hands-on or experiential learning, bridging the gap between knowing (theory) and doing (practice). Mapping this evidence also helps identify critical gaps and provides a foundation for predicting how PM education can prepare learners for the realities of modern project work.

Keywords: Project management education, immersive learning, traditional learning methods, virtual reality

1. Introduction

Projects can be likened to a vehicle through which organisations implement strategic objectives, generate innovation, and respond to shifting markets or societal needs as the occasion demands. Nevertheless, the success of a project largely depends on how it is managed (Rolstadås et al., 2014). In the same vein, developing the capabilities of future project managers is an educational priority (Algeo et al., 2021; Jaccard et al., 2022), that involves economic productivity and organisational resilience. Traditional approaches provide scalability and ensure theoretical clarity and also lend themselves to cost effective delivery and have long been incorporated in higher education and professional training programmes. Conventional education modes are often hinged on lectures, classroom activities, case studies, etc., and they are not sufficient to motivate learners (Ingason & Eskerod, 2024). Traditional educational approaches also tend to prioritise knowledge gain over actual application. For these reasons, learners are often underprepared for the complexities of real-world projects. Most research have confirmed that passive learning approaches results in low engagement, and limited skill acquisition (Ang et al., 2021; Bavishi et al., 2022). However, in a field like project management, where collaboration, adaptability and hands-on learning are imperative, these shortcomings demand complementary or alternative pedagogical approaches.

The last few years have seen a rise in immersive technologies like virtual reality (VR), augmented reality (AR), mixed reality (MR), interactive simulation, etc., and to prepare learners for the shift from traditional educational approaches to that dominated by technology, it is important to expose them to emerging technologies (Aladesuru et al., 2025). These technologies provide experiential learning environments in project management education, which allow learners to apply concepts, experiment and experience the consequences of their choices in real time (Sami Ur Rehman et al., 2023), scenarios that are not easy to capture in traditional learning settings. Various studies have reported promising outcomes regarding the use of immersive technologies in education (Abouelkhir et al., 2022; Aladesuru et al., 2025; Algerafi et al., 2023; Sami Ur Rehman et al., 2023; Tariq et al., 2019), and cognitive load researches also imply that an immersive learning environment can reduce

mental strain by providing cues and feedback that position abstract principles in concrete experiences (Poupard et al., 2025).

There is a growing interest in immersive learning for project management education, however, the evidence base remains fragmented. The research available is scattered across various disciplines, such as healthcare, engineering, and business. Some studies highlight the limitations of traditional approaches, while others focus on the promising potential of immersive technologies in learning, yet there is limited study exploring immersive technologies in project management education. In addition to this limitation, there is limited or no systematic comparisons of both modes of learning in project management within the same analytical frame. The lack of comparative mapping raises this research question:

What does the existing research reveal about the types of intervention, learning outcomes, comparative advantages, and evidence gaps in traditional and immersive learning approaches to teaching project management?

This paper attempts to answer this question by conducting a scoping review of studies published over the last decade (between 2015 and 2025) that examine traditional and immersive approaches to project management education. The impact of this work is threefold. Firstly, it provides a high-level scoping review that compares traditional and immersive learning methods in project management education. Secondly, it identifies gaps in evidence that could possibly inform future research agendas. Finally, it provides practical steps for educators, curriculum designers and stakeholders to align project management training with the demands of contemporary project environments. We aim to consolidate what is already known and set the stage for new pedagogical strategies so that project management education can remain relevant, effective and provide the expected impact.

The remaining section of this paper is divided as follows: Section 2 discusses the methodology employed. Section 3 discusses the results gathered from the synthesis of the review. Section 4 highlights the findings and implications for all stakeholders involved in project management education. Finally, section 5 concluded the paper by summarising the contribution and identifying next steps for future research and directions for advancing project management education.

2. Methodology

This paper employs a scoping review methodology (Arksey & O'Malley, 2005) to systematically map out and compare traditional and immersive learning approaches to project management education. Scoping reviews are an excellent method for assessing the breadth or depth of a body of published work on a particular subject (Smith & Duncan, 2022). They provide a clear picture of the available research and literature, along with a thorough summary of its main points. Scoping reviews are especially appropriate for emerging studies where evidence is heterogeneous or not yet adequately developed to support a systematic review (Levac et al., 2010). The conduct and the way this review is reported are based on Tricco et al., (2018) Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklist. This study was also guided by the Population-Concept-Context (PCC) framework (Munn et al., 2018; Peters et al., 2015) as seen in Figure 1, a tool that helps to formulate a clear and meaningful research question for scoping reviews, In this study, the population considered is the learners engaged in project management education from any field. This includes higher education students and professionals who are undergoing formal training in project management. The concept is the traditional and immersive learning approaches, and the context is project management education, either in academia or a professional environment. This framework makes sure that the scoping review captures conventional and technological interventions within the scope of project management education.

Figure 1: PCC Framework

A comprehensive search was performed across the major databases including Science Direct, Google Scholar, IEEE, Scopus, and Web of Science using Boolean operators (AND, OR). For this study, authors only targeted studies that have been carried out in the last decade (2015 - 2025) to reflect the period of rapid growth in immersive learning technologies. The search terms used varied across the databases, and they are seen in the table below (Table 1).

Table 1: Search Strings and Results

Databases	Search strings used	Results
Science Direct	("Project management OR PM education") AND ("Virtual reality OR simulation OR immersive learning") AND ("Traditional learning OR Case study") AND YEAR: 2015-2025	320
IEEE	("Project management OR PM training") AND ("Virtual reality OR AR OR simulation") AND ("Traditional learning OR classroom instruction") AND YEAR: 2015-2025	210
Scopus	("Project management OR PM training OR PM education") AND ("Immersive learning OR VR OR AR OR simulation OR serious game") AND ("Traditional learning OR lecture-based OR Case study") AND PUBYEAR > 2015 AND PUBYEAR < 2025	450
Google Scholar	("Project management OR PM education") AND ("Virtual reality or simulation") AND ("Traditional learning OR lecture-based") since: 2015 until: 2025	560
Web of Science	("Project management OR PM education") AND ("Immersive learning OR VR OR serious game") AND ("Traditional learning OR conventional teaching") AND YEAR: (2015-2025)	300
Total initial records		1840

The inclusion and exclusion criteria chosen for this study are also seen in Table 2 below.

The search terms in Table 1 were entered into different databases relevant to education, technology, and management, to assess information on traditional and immersive learning approaches in project management education. Having excluded relevant studies as highlighted in Table 2, all the extracted papers were imported into Zotero, a reference management tool, to remove duplicates. The title and abstract were further screened, followed by a full-text review.

Table 2: Inclusion and Exclusion Criteria

Inclusion criteria	Exclusion criteria
Studies that report on an educational intervention in project management.	Studies that focus solely on the technical design
Eligible studies that also describe a traditional or immersive approach in project management.	Studies that present only opinion-based commentary without secondary or primary data.
Eligible studies that evaluate the learner outcomes	Studies published from 2014 and previous years
Eligible studies that were published between 2015 to 2025	Studies that were not originally written and published in English and/or have been translated from an indigenous language to English
Studies that are published in English Language	

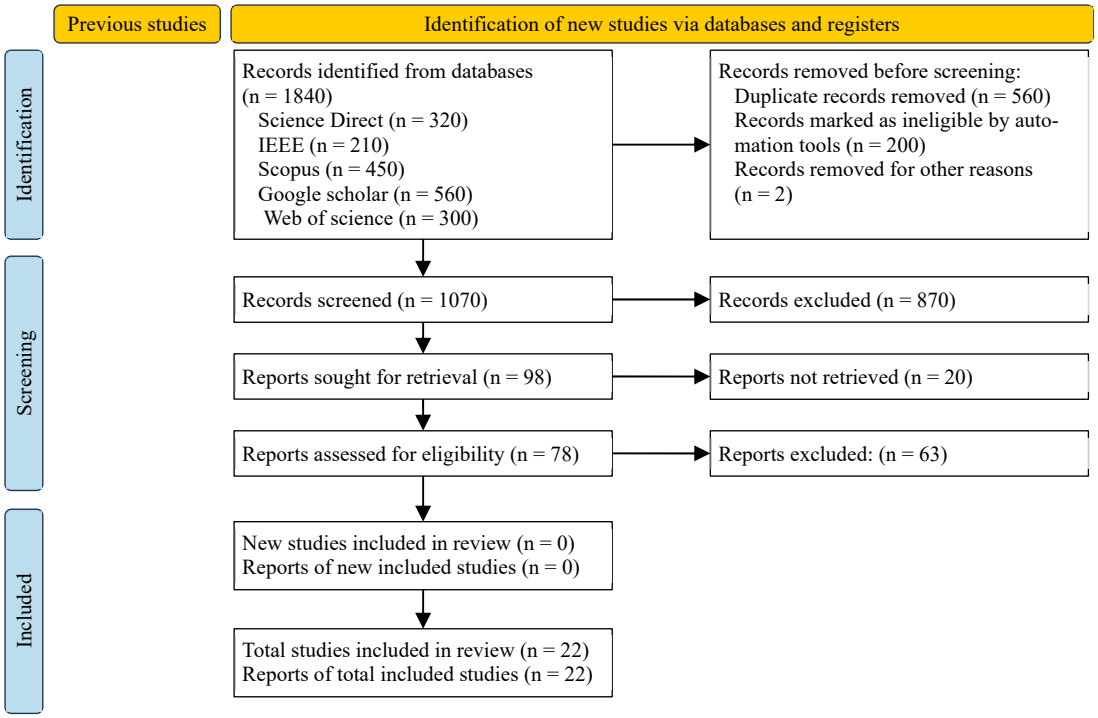

Figure 2: Prisma (ScR) Table

3. Results

3.1 Mapping of Included Literature

A total of 22 studies published over the last decade (2015–2025) were included as presented in Table 3. It was further mapped below to provide a descriptive summary based on publication year, educational settings, and design of the methodology as presented in Table 4.

Table 3: Included studies

Year	Number of studies
2015- 2017	3
2018- 2020	4
2021- 2023	6
2024- 2025	9

Table 4: Descriptive Summary of included papers

Author	Year	Setting	Methodology	Intervention type	Learning Outcomes
Akhmedov et al.	2024	Medical education	Comparative study	Simulation-based vs Lecture-based	Better long-term retention and performance in simulation group
Aladesuru et al.	2025	Higher education, Education 5.0 framework	Conceptual & Empirical (Mixed Methods)	Immersive Technologies (VR/AR)	Improved collaboration and applied problem-solving skills
Bukhari et al.	2017	Healthcare education/training	Framework study	Simulation-based Training	Defined ROI and performance measurement for simulation programs
De Lorenzis et al.	2023	Industrial training & procedural education	Comparative Experimental Study	Immersive VR vs Traditional Learning	Higher procedural accuracy and engagement
Farooq et al.	2022	Project management programs	Conceptual and empirical review	Blended Learning and Gamification	Improved engagement, retention, and learner satisfaction
Georgiou and Kyza	2018	Secondary and higher education	Experimental study	Augmented Reality/(Location-based)	Higher motivation and immersion; improved conceptual understanding
Gutierrez-Bucheli et al.	2024	Construction training (Professional)	Delphi study	Immersive technologies adoption	Defined criteria for effective adoption and decision-making
Hellström et al.	2023	Higher education (PMP)	Systematic review	Serious games	Enhanced engagement, decision-making, and project planning competence
Hoang et al.	2019	Design and engineering practice education	Conference study	Immersive technologies adoption	Identified internal/external barriers to adoption
Husamaldin et al.	2025	Project management & leadership education	Experimental (Conference Study)	Virtual Reality for Collaboration	Enhanced team communication and collaborative efficiency
Hussein	2015	University (Norway)	Case study	Blended learning	Higher engagement and participation through active methods
Jääskä et al.	2022	University-level project management courses	Quantitative Study	Game-based learning	Increased motivation and participation in project activities
Lin et al.	2023	Engineering education	Experimental study	Immersive Virtual Assembly Training	Improved presence, procedural accuracy, and learning efficacy
Lin et al.	2024	Classroom-based higher education	Systematic review	Virtual Reality (VR)	Higher engagement and attention
Pedram et al.	2017	Mining industry	Experimental	360° VR	Improved safety

Author	Year	Setting	Methodology	Intervention type	Learning Outcomes
		training (Vocational/Professional)	evaluation	Safety Training	awareness and retention
Poupard et al.	2025	Multiple education domains	Systematic review	Immersive technologies	Improved performance and motivation; moderate cognitive load
Qawqzeh et al.	2025	Industry 4.0 training (Sustainability and Safety)	Experimental study	VR-based learning	Improved sustainable practices and safety compliance
Sami Ur Rehman et al.	2023	Construction management education	Experimental study	Immersive VR for Project Scheduling	Improved understanding of scheduling processes and spatial reasoning
Scorgie et al.	2024	Construction and safety education	Systematic Review & Meta-analysis	Virtual Reality Training	Enhanced safety performance and learning transfer
Stanney et al.	2020	Various simulation-based learning environments	Theoretical review	Immersive technology (VR)	Identification of cybersickness causes; improved user experience recommendations
Tacgin	2020	University setting	Experimental study	Immersive VR (myVOR)	Enhanced learner engagement and self-efficacy
Tumpa et al.	2024	Project management education	Literature review	Computer-based Games	Improved problem-solving and teamwork skills

i. Publication year

The above trend in Table 4 provides evidence of increasing research interest from 2018 to 2020, which can be attributed to the growing interest in immersive learning approaches marked by both the commercial availability and accessibility of consumer virtual reality and augmented reality technologies, and the shift to remote learning due to the Covid-19 pandemic (Aladesuru et al., 2025). Prior to that, previous years (between 2015 and 2017) included more studies with foundational theoretical underpinnings on simulations and game-based learning.

ii. Educational setting

Most of the research presented in Table 4 in this area focused on academic settings, with a reasonable gap in published studies from the corporate niche, which is undoubtedly a higher consumer of project management training. The key consideration of a little over half, 12 (55%) of the studies was on undergraduate or graduate students in engineering, healthcare, business, or specialised project management programs like university courses. 4 (18%) of the studies focused on experts and professionals of project management like professional certification courses, 4 (18%) were on industry training programs, while 2 (9%) of the studies were targeted towards educators in a professional development context, and technology developers or designers.

iii. Methodological design

The dependence on quasi-experiments or short-term experimental designs presents the need for longitudinal and qualitative studies to assess the long-term impact of learning transfer. Quasi-experimental designs are more common, as they compare outcomes (test scores or performance) between groups using immersive methods versus traditional lectures. Case studies that detail the execution of specific VR, AR, or game-based learning interventions are also present. In addition, there are quantitative surveys that measure factors like motivation, engagement, and technology acceptance. Finally, some methodological designs are developmental studies with evaluation that focus on building and testing new immersive tools.

3.2 Thematic Findings and Synthesis of Outcomes

The findings from the included studies have four thematic preoccupations, showing different impacts of traditional versus immersive learning approaches on project management education. They are sorted into cognitive and technical knowledge acquisition, behavioural and soft development, affective outcomes (engagement, motivation and presence), and usability, cost, and accessibility (challenges).

i. Cognitive and Technical Knowledge Acquisition

A recurring theme in the studies identified that traditional approaches, such as lectures and readings, are more effective for basic cognitive knowledge acquisition, including the

understanding of abstract, theoretical project management concepts like the Earned Value Management formulas, and PMBOK process groups. Although immersive tools can visualise this and show how it is applied in real-time, they are not effective in allowing learners to recall the knowledge in traditional tests as much as organised lectures do (Akhmedov et al., 2024).

Immersive methods like virtual reality (VR) simulations and computer-based games are more effective in retaining procedural knowledge, as learners experiment with real cases in a do-it-yourself format, like conducting a virtual risk review, instead of just reading about it. This allows learners to train and improve long-term memory of the steps (Qawqzeh et al., 2025; Tumpa et al., 2024).

ii. Behavioural and Soft Skill Development

This is where immersive learning shows a strong competitive advantage because High-fidelity simulations, serious games, and VR environments are specifically efficient and thorough at training complex soft skills and decision-making capabilities under pressure, without real-world consequences but with real-time effects, which traditional approaches of lecture and reading can only conceptualise at best (Aladesuru et al., 2025; Hellström et al., 2023).

In a study conducted by (De Lorenzis et al., 2023), students in immersive environments made faster and more adaptive decisions in the areas of risk and scope changes when compared to their traditional lecture counterparts using static case studies to learn decision-making. Moreso, immersive learning environments, either via game-based or VR simulations, where students or learners are required to interact with virtual avatars in different difficulty levels and even language translations, simulating difficult stakeholders, groom their communication and conflict resolution skills (Hellström et al., 2023).

iii. Affective Outcomes (Engagement, Motivation, Presence)

Students and learners report higher levels of engagement, motivation, and enjoyment when using VR/AR tools in learning PM courses than when they learn via structured lecture programs. Game-based learning methods have shown that students are more motivated to learn project management as the process is made more interactive and engaging, making them active participators rather than receptors (Jääskä et al., 2022).

The sense of presence or feeling of being there that learners experience via VR enables them to embody scenarios, reducing cognitive load relative to unnecessary visualisation, allowing more cognitive resources to be focused on deeper learning and emotional connection to the content, reducing anxiety for practical (Lin et al., 2023). Also, the fact that the immersive learning approach is novel improves learners' engagement, attention span, and self-interest towards the activities in the subject matter (Georgiou & Kyza, 2018). However, immersive tools like serious games, can also be overwhelming for novices in the absence of appropriate scaffolding (Hellström et al., 2023). Learners who are new to project management may be slow in learning via immersive approaches if the simulation is too sophisticated, hence the need for an appropriate user interface and designs to align with learning objectives and provide debriefing to enable immersive approaches to consistently perform better than traditional instructions (Hellström et al., 2023; Poupard et al., 2025).

iv. Usability, Cost, and Accessibility (Challenges):

Given the primary tools of tutoring such as the lecturer, whiteboard, and textbook which require minimal infrastructure and little to no exceptional technical support or assistance, traditional learning approaches are more cost-effective and accessible, making them easy to scale and equally distributed across institutions (Akhmedov et al., 2024; Tumpa et al., 2024).

However, many studies have highlighted the challenges to the adoption of immersive learning approaches in project management to include the high cost of hardware like VR headsets, steep learning curves for content creation, and the need for specialised technical support and demand for high-end computing power (Aladesuru et al., 2025; Hoang et al., 2019; Tumpa et al., 2024). Not to mention that the possibility of cybersickness, poor network, and other technical glitches can hinder the flow of learning (Stanney et al., 2020). Additionally, immersive learning approaches require digital literacy and fluency from both the learners and instructors, which may not be readily available and require them to take up extra training to be able to assess, understand, and operate the immersive tools for project management education (PME) (Lin et al., 2024).

3.3 Comparative Assessment: Where Immersive Approach of Learning Outperforms Traditional Approach of Learning and Vice versa.

This section places the descriptive or characteristic and thematic findings of immersive learning (IL) and traditional learning (TL) approaches side-by-side to compare their effectiveness in project management education. This is to ascertain where one approach trumps the other, and utilise the information to improve project management education, and further identify gaps to be filled to achieve a holistic PME that aligns with relevant industry demands, changes and future of work. The comparative assessment is expressed in the Table 5 below:

Where immersive learning dominates:

Table 5: Comparative assessment on where immersive learning dominates

Aspect	Dominance	Competencies
Experiential learning	Provides a learning by doing platform for a safe, routine-based, and real-time simulation environment for trial-and-error learning, where learners practice and understand the implications of their actions, fail even, without the real-world consequences of such failure (Pedram et al., 2017).	Risk management and safety training, scope change control, teamwork simulation (Scorgie et al., 2024).
Skill Transfer	Serves as a mediating platform between theory (knowing) and application or practice (doing), which is more effective than case studies as it simulates PM problems, honing the transferable skills needed to solve them in actual practice (Sami Ur Rehman et al., 2023)	Negotiation, leadership, conflict resolution, stakeholder management and effective team communication and collaboration (Husamaldin et al., 2025).
Affective outcomes (Motivation/ Engagement)	The sense of presence or the feeling of doing it yourself enables learners to have an emotional connection to the task at hand, enhancing their focus, attention, and motivating them to learn for longer times (Lin et al., 2024)	Self-interest, personalised learning, sustained effort even in complex tasks (Jääskä et al., 2022)
Data Collection	It enables instructors and educators to pick up patterns and nuanced traits of learners within the simulation (Tacgin, 2020)	Assess learner's performance metrics objectively that are lacking in paper-based tests (Poupard et al., 2025)

Traditional learning (TL) still retains its qualities as the fundamental instruction for project management education. Even in the wake of the immersive learning approach being touted as the future of PME, it has yet to completely replace traditional learning, both practically and cost-effectively. The areas of superiority of TL over IL is highlighted in Table 6 below:

Table 6: Superiority of Traditional Learning over Immersive Learning

Aspect	Dominance	Justification
Foundational theory	It is the most efficient way of introducing learners to PME, as it is effective in delivering core, abstract theoretical knowledge, especially for large students with different levels of technical comfort, when the goal is of theoretical relevance rather than procedural routines (Jääskä et al., 2022)	It is best for introducing concepts like project governance, legal frameworks, and contract types. These concepts do not need technical systems to be taught or understood.
Accessibility and Cost	It is equally accessible to all across socioeconomic status, regardless of institutional funding or technical capability (De Lorenzis et al., 2023)	It does not discriminate in terms of the digital divide as it ensures that fundamental contents are delivered (Lin et al., 2024)
Reflection and Original Thinking	Lectures and seminars provide a platform for structured conversations, philosophical debates, and opinions on PM ethics, methodology choices, and social experimentations regarding PM issues, which inspires innovations, policy making, and advocating for both the welfare and improvement of the needs of project managers. Additionally, it is essential for learners with little to no PM experience and background who require guidance in lectures and structured problems prior to complex simulations and game-based learning, to enhance their original thinking, basic understanding of concepts and niched terms, and gain intuitive skills gained from theoretical knowledge that is essential when using immersive tools (Hussein, 2015).	Immersive environments can sometimes be a distraction for this sort of arrangement, defeating the essence of human interaction needed to drive change. Also, before using IL tools, understanding of basic terms and theoretical concepts on PM is relevant to prevent cognitive overload which hinders learning.

3.4 Evidence Gaps in Literature and Implications for Future Research and Stakeholders

Based on the evidence gaps identified in the descriptive mapping and thematic analyses of this scoping review, in addition to recommending aspects for future research to address and facilitate the optimal adoption of immersive learning, and specific balance of the methodological, contextual, and temporal gaps with traditional learning for an effective PME that aligns with present and future demands of project management, the following gaps are identified:

i. Longitudinal impact and learning transfer

Most of the studies in this scoping review are short-term, engaging learners for less than one year. This lacks the merit to provide critical evidence addressing whether the skill advantages developed in immersive learning PM simulation are transferable to real-world work performance. The studies also do not provide concrete evidence on how long the enhanced knowledge retention from IL lasts (Husamaldin et al., 2025). Longitudinal studies are

therefore needed to track and follow up students and learners of PME using immersive learning tools from the point of study to their performance in their first jobs right after training to document the efficacy of the training, and its shift from successful experimentation to effective work delivery.

ii. Corporate and Professional Settings

The studies in this scoping review mostly rely on academic settings (universities) for their evidence and deployment of schools of thought. There is little to no empirical evidence on the return on investment, real-time effects of deployment, and best practices for engaging sophisticated immersive PM training solutions in corporate and other institutional contexts (Bukhari et al., 2017). This underscores the need for impact studies that focus on experienced professionals that compare immersive learning to traditional corporate workshops or hands-on training, and vice versa. Also, studies need to measure IL against quantifiable professional outcomes, such as reduced project failure rates, improved adherence to schedule or budget, and increased career prospects in PM.

iii. Hybridisation of both Learning Models

Although some authors (De Lorenzis et al., 2023; Farooq et al., 2022) recommended that a blended approach of IL and TL is best to achieve an optimal project management education, where TL is employed for theory-based courses, and IL for procedural rehearsals and application-based courses. There is no specific comprehensive research that implies or defines the scope of such an application, including the ratio and sequence of blending both learning models. This leaves the suggestion as just an opinion, without contributing to effective PME. Further studies, randomised controlled trials, are needed to achieve this through systematic testing of different sequencing models, allocating timeframes and deadlines to maximise the combined impact of knowledge retention and the development of practical skills. furthermore, studies can build on the study of (Tacgin, 2020) and (Hoang et al., 2019) to explore experimental designs to test the various learning delivery approaches, like comparatively assessing a 70% lecture-based model against a 30% simulation model and vice versa, to obtain empirical evidence on the balance point in optimising the hybrid learning models, and the skills acquired thereafter.

3.5 Implications for Stakeholders

The findings of this study have a multisectoral implication as different sectors, and groups, are affected by it in a lot of ways. The stakeholders include educators and students, curriculum designers, commercial and consumer electronics stakeholders, and policy makers and regulators. The implications of the findings to each stakeholder include:

i. Educators must evolve from the TL model of transmitting knowledge to facilitators of experiential learning. This shift will require them to upskill professionally in areas that are relevant to their practice. For students or learners, they will have to adapt to a new method of learning and grading, which requires some technological fluency that they may not have and may find demanding to acquire.

ii. Curriculum designers face more challenges in designing and integrating immersive solutions that balance academic theory with practice in a seamless blend that requires new assessment strategies to be able to holistically capture cognitive, behavioural, and affective competencies of learners. Despite of that it will be done also to be inclusive while addressing accessibility, cost, and technological inequalities among learners.

iii. Commercial/consumer electronic stakeholders: Business and firms will have to partner with academic institutions on a knowledge-sharing relationship where theory from the school is both applied to practice in the lab, and/or the field. This will be achieved via ecosystems of internships, mentorship, co-teaching, and collaborations in developing courses that advance research in developing products that are both sustainable and enhance project delivery.

iv. Regulatory agencies, including accreditation bodies like project management institutes (PMI), will have to calibrate and redesign their quality assurance standards to include immersive learning outcomes, performance scores, even digital portfolios and simulation-based assessments, as legitimate measures of project management competence and skill.

3.6 Practical Steps for Educators, Curriculum Designers, and Commercial Stakeholders to Align PM Training with Contemporary Project Management Realities

i. For Educators (Instructors and Trainers)

The goal for these stakeholders is to transform the classroom from a theoretical environment or a centre where knowledge is passed, to a practice field where knowledge is both received and applied. This they can achieve by employing traditional models for foundational concepts, keeping it short and straightforward, to explain the “why or what” behind an idea, followed by a concept lesson with immersive practices to explain the “how/when” of the questions and answers asked and/or answered in the “why/what” stage. For instance, after teaching a risk analysis course using the TL model, the instructor or trainer can run a simulated risk event in which students respond under pressure to mimic the real-world environment. Furthermore, instructors and trainers should prioritise debriefing and critical reflection to enable the students to connect their emotional experience of the simulation to the logical explanations of the theory, which can transform their failures into insightful learning. Additionally, assessments can be shifted from memorised facts and theories to behavioural outcomes of

practice, where simulation metrics can be used to grade the soft skills of students based on stakeholder communication, conflict resolution, and decision-making quality, especially under pressure and uncertain conditions.

ii. For Curriculum Designers

It is the work of this group to bridge the theory-practice gap by effectively conceptualising the architectural framework and mapping to both reflect and integrate the strengths of both learning models. It can be done in three stages: First stage benchmarks the core theory modules, and the Second stage utilises high-fidelity simulation modules that explain the theoretical basis of terms such as scope creep and budget overrun in complex project scenarios. The last stage can deploy capstone projects or case studies in which learners analyse and reflect on their simulation performance data and suggest an action plan to enable them to do so in real-world settings. They should also design simulation experiences that are not just technical but embed human elements like communicating across diverse time zones, or resolving conflict between avatars, to precisely target and develop skills such as emotional intelligence and people management, which are both relevant for present and future projects, and are best trained by IL models. Finally, these learning modules should be created in a way that allows them to be scalable and partitioned in a way where high-cost VR environments are deployed for more sophisticated projects and advanced behavioural training, while lower-cost VR environments can be browser-based simulations that handle routine hands-on training.

iii. For Commercial/ Consumer Electronics Stakeholders

This group of stakeholders can target their investments in immersive learning by focusing on immersive solutions that can improve their return on investment by enhancing key business metrics such as reduced project failure rate, improved schedule adherence, and higher stakeholder satisfaction. Additionally, they can invest in ideas that address infrastructural barriers to immersive learning implementation. High-fidelity training requires appropriate technical staff, comfortable spaces, and consistent technical networks and support systems, which when neglected, can disrupt the success of training initiatives. Finally, consumer electronic stakeholders and other commercial interest groups can implement follow-up monitoring and evaluation systems to assess the long-term impacts on skill transfer, also collect and analyse performance metrics that both address the limitations of short-term assessments, and connect learning to practice.

4. Discussion

This scoping review conducted according to the PRISMA-ScR guidelines critically analysed the existing research on Traditional versus Immersive Learning Approaches in Project Management Education, and aimed to answer the research question: *What does the existing research reveal about the types of intervention, learning outcomes, comparative advantages, and evidence gaps in traditional and immersive learning approaches to teaching project management?* The study synthesised 22 studies published between 2015 and 2025, providing evidence on the current state of the learning models, revealing patterns in intervention types, documented learning outcomes, comparative advantages and available evidence gaps. The included studies show that learning interventions in project management education differ in their basic pedagogical goals. The traditional learning approach, which is based on lecture-based instructions, reading of textbooks, case study analyses, and classroom test and assignment exercises, continues to serve as the basis for learning the foundations and theoretical concepts of project management across tertiary institutions of learning and professional training centres. They enable students to understand abstract and conceptual frameworks, such as formulas, project governance principles, etc. This is in agreement with the studies of (Jääskä et al., 2022) and (Hussein, 2015), which opines that TL is essential for introducing PM concepts to beginners and course starters, especially to those with no prior PM background or experience.

The strength of the traditional approach has been shown to be in its scalability and efficiency, as it is the most cost-effective means of delivering lectures, especially for large volumes of conceptual information across a large and diverse audience. Going on, the literature revealed that immersive learning interventions have a high diversification with the common goal of experiential application (Qawqzeh et al., 2025). The most common intervention types of IL were virtual reality (VR) simulations, computer-based simulations, and game-based or serious games learning methods, including augmented realities (AR) and mixed realities (MR) for visualising complex data, and for practice-oriented lectures (Sami Ur Rehman et al., 2023). IL outperforms TL in practice-based learning. For instance, by handling a change request in a VR setting, learners tend to have long-term retention of knowledge compared to their theoretical-based counterparts (De Lorenzis et al., 2023). In behavioural and soft skill development, IL shows the most competitive advantage as complex PM competencies like stakeholder management, team conflict resolution, and decision-making, especially under pressure, are effectively trained through experiential learning scenarios. This is because these competencies have to be developed actively through practice and effect-based feedback, which cannot be achieved via static case studies. The studies of Husamaldin et al. (2025), and Georgiou and Kyza (2018) corroborate this.

In terms of affective outcomes, immersive approaches also outperform traditional approaches because the active feeling of being present is a chief factor in enhancing a sense of emotional connection to the learning material, which then improves student engagement, motivation, curiosity, self-interest, and attention (Lin et al., 2023) corroborates this evidence in their study.

Comparatively, both models have their advantages and disadvantages, and one cannot be entirely replaced with the other. Instead, they are equally indispensable and complementary in bridging the theory-practice gap in project management education, an opinion that Farooq et al. (2022) and Akhmedov et al. (2024) agree with. This scoping review contributed to the literature by providing evidence that is specific to the project management niche, proving that immersive learning is more effective in developing and acquiring in-demand project management skills. While studies (Gutierrez-Bucheli et al., 2024; Pedram et al., 2017; Qawqzeh et al., 2025) have explored the relevance of VR simulations in developing medical or engineering procedural skills, this scoping review confirms that the same is replicated in non-technical, socio-technical skills that are relevant to project management such as leadership and communication, further contributing to (Tumpa et al., 2024) school of thought that it is challenging to teach soft skills effectively via lectures, case studies, or written materials, which is what the traditional approach avails. Also, IL, specifically high-fidelity simulations, provides a way to measure and modify these socio-technical behaviours objectively. This can be achieved either via recording a learner's actions, such as how they handle and manage resource allocation during a crisis, communicate a delay to the client avatar, or manage changes, a performance-based metric enabled by some IL tools that is completely unavailable in paper-based assessments (Tacgin, 2020).

Having explored the existing literature in the project management education for traditional vs immersive learning approaches, the findings of this study suggest a shift towards blending both pedagogical models as the foundation for achieving effective PME. It is based on the sequential nature of project management as a theory before practice or application. The most effective PM learning will adopt a theory-first approach to explain the "why and what" or lay the foundational concepts of project management, before introducing the "how and when" aspects or the practical delivery and behavioural technicalities of project management, where the former employs a traditional learning model, and the latter applies the immersive learning approach, respectively. This proposed structure adds to the project management education literature by expressing that simple integration is not sufficient, but the sequence and exact measurement of the intervention type to be employed for the different learning requirements must be known for optimal PME.

5. Conclusion

This research has successfully mapped the difference between traditional and immersive learning approaches in project management education. While traditional learning remains fundamental in introducing learners and students of project management to theoretical backgrounds such as formulas, types of methodologies, and other basic terminologies of PM they should be familiar with, it is also cost-effective in delivering lectures to a large audience, and equitably accessed across academic institutions, especially in low-resource settings. On the other hand, immersive learning interventions take up from where the TL approach ended, by providing a hands-on platform for learners to develop procedural and complex behavioural skills that are in demand for modern-day project management. This scoping review has also highlighted the relevance of blending both learning models to achieve a more effective project management education. By highlighting their pros and cons, and comparatively assessing their collective relevance in PME, this review has shown that replacing one for another is not only feasible, but reductionist in achieving an efficient and effective training for project managers who are not just competent in handling present project demands, but ready to take on future demands as innovation improves.

This study also highlighted critical gaps in learning models, explaining that although a blend of learning models is ideal in achieving effective PME, the level of impact in bridging theory and practice gaps is hypothetical at best, as studies are yet to be conducted beyond academic settings to assess how the behavioural and procedural skills cultivated from immersive learning interventions translate to improved project delivery like sticking to budget and timeline, managing uncertainty, and reducing project failure. Additionally, this study serves as a blueprint for developers of immersive learning tools, policy makers, PME instructors, and project managers to focus on key areas of deploying IL in PME such as developing user interface/ experience, determining PM courses that will be taught by traditional methods and/or immersive tools or both, and performance metrics to collect data on transferable skills and their real world impacts, to effectively and seamlessly transition from theoretical concepts of PME to application. In the end, this study calls for an action plan that is both connecting and assuring to all stakeholders of project management as they create a system of feedback loop (as one decision from a group affects the other) that grooms project managers that are equipped to drive both present and future demand

of work across all sectors, and projects that are more successful and sustainable.

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