

Project Management and Education: Improving Learning and Student Success

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ABSTRACT

The importance of project management in education has become increasingly evident in our evolving technology-ridden lives. Educators are required to manage complex projects involving multiple stakeholders, resources, and deadlines. These requirements make project management methods of particular interest to educators looking for practical tools. Using project management principles, educators can effectively teach and improve their students' learning outcomes. Project management gives students valuable skills, allowing them to succeed personally and professionally. This merger can contribute to the long-term success of students and the marriage of project management fundamentals, methods, and practices with academics.

KEYWORDS

Project Management, Educational Programs and Initiatives, Communication, Students, Collaboration, Learning Outcomes, Teaching, Education, Academics

PROJECT MANAGEMENT AND EDUCATION: IMPROVING LEARNING AND STUDENT SUCCESS

In today's global and technological workforce, project management (PM) stands out as a crucial skill needed by students and educators. It is the skill most employers say they are seeking in potential candidates. Beyond its technical facets, PM is a skill that involves, requires, and encourages a set of soft skills that together create an ideal employee, educator, and student. PM fosters this comprehensive suite of soft skills including planning, organization, communication, decision-making, problem-solving, and technical proficiency, which are all crucial for the holistic development of students. A recent study identified communication as the most valued and sought-after job skill (Skliar & Batsenko, 2023). Depending on the geographic location, PM and project management professional (PMP) certification, listed as separate skills, were identified as the sixth and the eighth most desired skill in the Western United States, the fourth and sixth in the North, the third in the South, and the second in the East (Skliar & Batsenko, 2023).

According to the Project Management Institute (PMI) (2017), there has been an increasing deficit of professionals with project-oriented skills, a trend that has exceeded previous forecasts based on a 2012 analysis. The main reasons for this deficit are a significant increase in the number of jobs that require project-oriented skills, an attrition rate, including retiring professionals, and significant growth in demand for professionals with PM skills, especially in fast-growing economies. By 2027, PM-oriented jobs in seven project-oriented sectors are expected to grow by 33%, or nearly 22 million new jobs. The PMI also predicts that by 2027, employers will need 87.7 million people to work in

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positions focused on PM and that talent shortages could potentially create risks of nearly \$208 billion in GDP over 10 years in 11 countries.

The lack of skilled people to perform highly skilled jobs is only one of many issues facing our global workforce. The United States is a country drowning in clutter. It is not just clutter in our homes or in our communication and writing, but clutter in our lives that is strangling us (Zinsser, 2008). People need help remaining on task, keeping track of details, and staying organized. With many different means of technology to facilitate our communication, work, travel, and lives, the need for tools and processes aimed at specific practices, skills, and techniques to complete tasks, communicate effectively, stay organized, and solve complex problems has become necessary. Busy, over-scheduled, and confusing lifestyles are not only an adult, an employee, or a PM problem. Students are expected to thrive without formal training in the frameworks and practices that allow them to stay organized, plan efficiently, communicate effectively, and problem-solve. Students are not trained in specialized techniques to be successful at decision-making. In our fast-paced, rapidly evolving educational system, these practices are vital, and their necessity will continue to grow. To continue denying students the opportunities to develop these skills and abilities fuels the fire and increases clutter, eventually creating an insurmountable pile of strangulating confusion.

Incorporating PM principles improves the delivery and impact of educational programs and activities, enhancing teaching and learning effectiveness. Educators have faced the challenge of managing intricate projects with numerous stakeholders, resources, and deadlines. PM methods can serve as tools for educators and students to navigate their projectized environments. Effective PM can ensure the success of educational programs, optimize resources, minimize risks, and prepare students for the workforce. PM is important in education because it focuses on fundamental techniques, principles, and tools such as planning, organizing, controlling, and evaluating projects. It is essential for educators to deliver successful initiatives and curricula that meet the needs of students, faculty, and stakeholders. By integrating PM with academics, educators can improve student learning outcomes, equip students with essential skills for personal and professional success, and contribute to their long-term achievements.

PM includes a variety of processes, practices, methods, and frameworks traditionally used to ensure project success through planning, executing, monitoring, and controlling (PMI, 2017). Projects are temporary endeavors with a defined beginning and end that provide value and involve uncertainty while consuming resources (PMI, 2017). With this definition in mind, many things that are not traditionally viewed as “projects” can benefit from PM methodologies and principles. Most of us will participate in and even plan a project in our lifetime. An event, for example, is a project. In educational technology, planning for a new curriculum could be viewed as a project, and the objectives and goals would be the deliverables (Kline et al., 2020). As education continues to transform, projects will continue to become more complex.

PM is evolving and is no longer a practice specific to the internet technology (IT) or construction industries. PM has become a valuable and widely used process in post-pandemic human resource management and the education industries. The popularity of PM has grown in the economic sector as well. The economy is becoming increasingly project-based, and some businesses have begun to use the term “project economy” to describe this shift. Therefore, students must acquire PM skills to thrive in a project-driven economy (Trilling & Ginevri, 2017). PM can assist drowning societies by allowing them to become organized. By employing PM techniques, we can optimize resources such as time, digital tools, and materials. These techniques and tools ensure that resources are utilized efficiently, reducing waste and leading to cost savings (PMI, 2021).

PM tools facilitate communication and collaboration (Trilling & Ginevri, 2017). Teachers, students, and parents can benefit from improved communication abilities gained using PM practices and tools. These will help users schedule meetings, share updates, and collaborate on documents or projects in real time. PM tools can also assist users with organizing tasks, setting deadlines, and prioritizing work. When employed, effective time management skills can help reduce the stress

associated with deadlines. PM encourages a structured approach to solving problems by teaching individuals to approach challenges strategically by breaking down large projects or problems into smaller, more manageable tasks (PMI, 2017).

PM tools, techniques, and methods offer significant advantages to teachers and students in educational settings. These methodologies, traditionally used in business to ensure the success of projects through planning, executing, and controlling, can be effectively applied to education to enhance learning experiences, improve organizations, and foster a culture of collaboration and continuous improvement (Trilling & Ginevri, 2017).

The need to arm educators and prepare students prompted the creation of the following three research questions:

- a. What is the role of PM in education?
- b. How do PM methods and practices impact educators and their students?
- c. How will educators prepare to teach PM to their students?

These questions set the foundation for investigating the significance of PM in education, exploring its effects on educators and students, and examining how implementing PM practices influences the delivery and outcomes of educational programs in a digitally mitigated, global, and projectized economy.

Project managers are skilled professionals who initiate and execute projects based on their expertise (PMI, 2017). They strategically approach each assignment and are capable of handling unique situations effectively. These are the masterminds behind some of the most innovative and successful products, services, and processes (PMI, 2024). Project managers share these and many other traits with teachers. One such trait is an appreciation for the value of learning, training, and educating. Another shared trait between teachers and project managers is the understanding of the importance of innovation, creativity, and flexibility (Trilling & Ginevri, 2017). Both project managers and educators strive to maximize their learning and success. Effective communication, creative problem-solving, motivation, and excellent time management skills are critical abilities that successful project managers and effective educators must possess (PMI, 2017).

PM in Education

PM education has become an essential part of many educational programs, as it has proven effective in improving students' problem-solving, decision-making, and communication. PM education is an essential part of the curriculum for students pursuing careers in various fields. Several studies have investigated the impact of PM education on students' learning outcomes and subsequent job performance (Austin et al., 2013). PM is a complex discipline that involves the planning, organizing, and execution of projects (PMI, 2017). It is a skill in high demand in today's workforce, and it is becoming increasingly important for students to develop these skills for success (Nieto-Rodriguez, 2019). The benefits students gain from learning PM skills cannot be overstated. These skills can help students improve their problem-solving, decision-making, planning, organization, communication, collaboration, and adaptability (Zhang & Ma, 2023). PM education allows students to work effectively in teams and manage their time and resources. In addition, learning PM can help students prepare for the workforce in many different industries. A quick look at LinkedIn demonstrates the increased roles seeking project managers and PM skills. Students can gain a competitive edge when applying for jobs after graduation by learning these skills in higher education (PMI, 2021).

PM is increasingly valuable in the contemporary workforce, and educational institutions must integrate these skills into the curriculum while allowing educators to explore and learn PM concepts.

PM processes and teamwork also enhance communication. Students who participate in PM training become skilled communicators, which may give them the competitive edge they need to succeed in a project-based economy. This economy emphasizes flexibility, innovation, and a

results-driven approach, with projects playing a central role in driving organizational success. Most of these necessary skills are central to the successful performance of PM.

Antonio Nieto-Rodriguez's (2019) book, *Lead Successful Projects*, offers a comprehensive examination of the evolving landscape of the modern economy, examining a substantial shift towards a project-based business structure and moving away from traditional, operationally-focused business models that were prevalent in the past. This transition emphasizes the growing significance of PM skills, which are now considered essential in several sectors of the economy. According to Nieto-Rodriguez, possessing these skills is no longer considered a professional asset but a critical requirement. His insights into this shift provide valuable information about the changing dynamics of the economy and the increasing importance of PM.

The growing emphasis on flexibility, innovation, and a results-driven approach characterized by the shift towards a project-based economy further supports the need for learning these skills early in life. Thus, PM training is becoming essential for a wide range of professionals.

The Student

It is critical to highlight the benefits of learning PM skills for students. In such an environment as the current workforce, the ability to manage projects effectively is crucial. Nieto-Rodriguez (2019) defines projects as temporary endeavors to create unique products, services, or results. He suggests that approaching projects from a strategic standpoint is increasingly seen as the primary way organizations innovate and adapt to rapid technological changes, market demand, and global challenges. Further, he points out that the rise of a project-based economy coincides with a growing need for agility and adaptability in business.

The modern workforce has yet to realize the growing importance of PM skills. Students with PM capabilities have a distinct advantage in a dynamic economic landscape where versatility and multifaceted skill sets are highly prioritized. The relevance of the role of PM in education has gained prominence, though, mirroring the demands of a workforce increasingly driven by project-based and team-oriented tasks. By embedding PM curricula into education, institutions ensure that students are knowledgeable and possess the competencies to effectively apply their knowledge to diverse professional scenarios. Educational systems worldwide recognize the need to prepare students to thrive in a landscape where project execution is necessary for professional success.

Integrating PM principles and methodologies into the educational sector significantly enhances teaching, learning, and the student experience. Moreover, the incorporation of learner-centered pedagogies in PM education emphasizes the need to align educational strategies with the evolving needs of students. By integrating PM and training into the curriculum, academic institutions can prepare students effectively for many future roles, ensuring they possess both the technical competencies and the soft skills required in today's dynamic work environments. Educators can cultivate an adaptive, engaging, and student-focused learning environment by systematically incorporating these methods, skills, training, and software (Trilling & Ginevri, 2017). This incorporation prepares students for the complexities of modern project work and contributes to the continuous improvement of educational standards and practices. One study demonstrates that students participating in PM courses are more likely to be employed after graduation. Specifically, the study shows a 10% increase in employment rates among students who have received PM training compared to those who have not (Zhang & Ma, 2023). This finding suggests that employers value the skills gained from PM education.

Numerous studies examine the impact of PM education on students' skills. Research demonstrates that project-based learning significantly enhances students' problem-solving skills, particularly in civil engineering and construction management, through structured role-playing and project execution planning (Zhang et al., 2019). Furthermore, one meta-analysis indicates that project-based learning substantially improves students' learning outcomes, academic achievement, and critical thinking abilities (Zhang & Ma, 2023). Collins and Chiaramonte (2017) explore the effects of project-based learning on student self-efficacy and perceived justice, highlighting its benefits in fostering a sense of

fairness and confidence among students, who, with PM training, experience increased problem-solving, decision-making, and communication skills. According to Zhang et al. (2019), PM education allows students to acquire these skills in a real-world context, positively affects students' PM knowledge, and correlates with increased academic performance. Zhang and Ma (2023) found students with PM training exhibited improved PM knowledge, student motivation, teamwork, and leadership abilities. They also show that PM skills can help students better understand the organization and execution of complex projects and suggest this knowledge will be valuable in their future careers, as they will likely be involved in projects of all sizes and types .

Students can acquire these skills in several ways, as many books, online resources, courses, and certifications are available. Students can also gain experience by working on projects in their personal lives or volunteer settings (PMI, 2024). Regardless of how students choose to learn, PM is an asset, and possessing these skills can help students succeed in both their careers and personal lives.

PM requires that students plan and organize. These skills can help students develop strong organizational and time management skills. Traditional PM education, often rigid and theory-focused, may not align with the complexities of real-world projects. Bridging the gap between theoretical knowledge and practical application is crucial in making education more relevant and valuable (Serdyukov, 2017). Innovations like Agile methodologies emphasize flexibility and responsiveness, and integrating practical projects into education can provide students with hands-on experience. This approach more effectively prepares students for real-world challenges, highlighting the importance and relevance of PM in education (Ilomäki & Lakkala, 2019). PM requires students to identify and solve problems, make decisions, and work effectively in teams (Trilling & Ginevri, 2017). These skills are critical for career success and are transferrable to many fields. PM requires students to collaborate with others to achieve common goals, helping them develop strong collaboration skills necessary for meeting personal and professional goals. The workforce can be challenging at times, and students must be able to adapt to changes. PM can help build resilience and flexibility, both essential for career success (Trilling & Ginevri, 2017).

Completing a project is a rewarding experience, instilling a sense of accomplishment in students that boosts their confidence and self-esteem (Zhang & Ma, 2023). The real-world applications of PM allow students to apply their knowledge and skills through hands-on projects, which can be highly motivating and engaging. This hands-on experience helps students understand their learning concepts (Collins & Chiaramonte, 2017). Overall, PM provides various valuable skills to help students succeed personally and professionally. Whether planning a complex project, working in a team, or communicating with clients and colleagues, PM gives students the tools they need to succeed.

The Educator

Becoming an educator requires instruction, training, skill, and experience. Educators need skills to communicate effectively, solve problems creatively, motivate their students properly, and manage their time efficiently. Both project managers and educators require dedication, time, effort, and practice to hone the skills needed to become experts in their respective fields. These professions require many of the same skills and abilities.

Educators can use PM principles such as planning, collaboration, monitoring progress, and adaptability to improve their teaching by planning and organizing lesson plans, facilitating collaborative efforts, monitoring progress, and adapting to changing circumstances. Many research studies and case studies support the benefits of PM education for students (Trilling & Ginevri, 2017).

Educators who teach PM courses gain valuable experience managing projects and leading teams. Teaching PM courses can also benefit teachers by increasing student satisfaction, and thus, educators play a significant role in helping students achieve their goals. Notably, a meta-analysis found that students who participated in a PM course reported notable improvements in time management, organization, and teamwork. Specifically, the students reported that they could more effectively manage their time, set realistic deadlines, prioritize tasks, and stay organized. They possessed the

Figure 1. Percentage improvement in each skill area for students using PM in education



ability to create and maintain project plans, track progress, and manage resources. Finally, they were better able to work effectively with others and experienced more effective communication, conflict resolution, and trust-building skills (Zhang & Ma, 2023). Figure 1 compares the degree at which students reported improvement in six skill areas.

The literature suggests that PM is not just a technical skill but a comprehensive approach to learning that fosters critical thinking, strategic planning, and effective communication. These skills, crucial in almost every career path, are well-aligned with 21st-century educational goals set to create adaptable, innovative, and collaborative learners. Educators play an essential role in fostering student collaboration and preparing them for modern work environments. The strategic incorporation of PM principles into teaching methodologies allows educators to organize lesson plans effectively, monitor and adapt to students' learning progress, and prepare students for future challenges. These competencies are crucial not only for academic success but also for professional excellence across various career paths.

The conventional educational systems have failed to prepare students for the complex, project-oriented work environment of the 21st century, according to Trilling and Ginevri (2017), who advocate incorporating PM techniques in education to develop essential skills such as collaboration, problem-solving, and effective communication. This approach enhances the learning experience and prepares students to meet the demands of the workforce, cultivating essential skills like critical thinking, creativity, and teamwork.

Project-based learning (PBL) challenges the conventional educational paradigm by transforming students from passive recipients of information to active participants in their learning processes. This method encourages students to engage with real-world problems, improving their ability to think critically and work collaboratively. Aligning projects with curricular goals can support academic objectives and foster soft skills development, such as leadership and teamwork.

However, implementing PBL is not without challenges. Educators face issues such as resource limitations, the need for extensive professional development, and institutional resistance to change. Trilling and Ginevri (2017) suggest comprehensive professional development programs to equip teachers with the necessary PM skills and knowledge to overcome these obstacles. Furthermore, creating partnerships between educational institutions and PM professionals can provide practical perspectives on instructional projects, enhancing the effectiveness of PBL initiatives. Merging PM principles with existing educational systems can address the gap between traditional educational methodologies and the requirements of the modern, project-oriented work environment. This holistic approach supports academic learning and emphasizes developing crucial life skills, making students well-rounded individuals ready to tackle future challenges.

Theoretical Concept

The theoretical framework is used to understand and structure management problems. This process involves selecting theories that define a problem concept. These theories provide structure and support and frame the entire study. The conceptual model shows how all the variables of a research problem are related visually (“Defining Your Theoretical Framework,” 2020).

Two widely recognized and adaptable frameworks that could be highly effective in educational contexts are the constructivist learning theory (CLT) and the Agile methodology. Each framework offers a distinct approach to incorporating PM into education, aligned with modern pedagogical goals.

CLT asserts that learners construct their understanding and knowledge of the world through experience and reflection, which can be practically applied to PM in education. This theory promotes active student engagement, problem-solving, and real-world applications of knowledge, all key aspects of PM. The collaborative nature of PM encourages social interaction and communication, further aligning with the principles of CLT. By engaging students in projects that solve real-world problems, this approach helps them understand the relevance of their education and apply PM in a meaningful context (Highsmith, 2004).

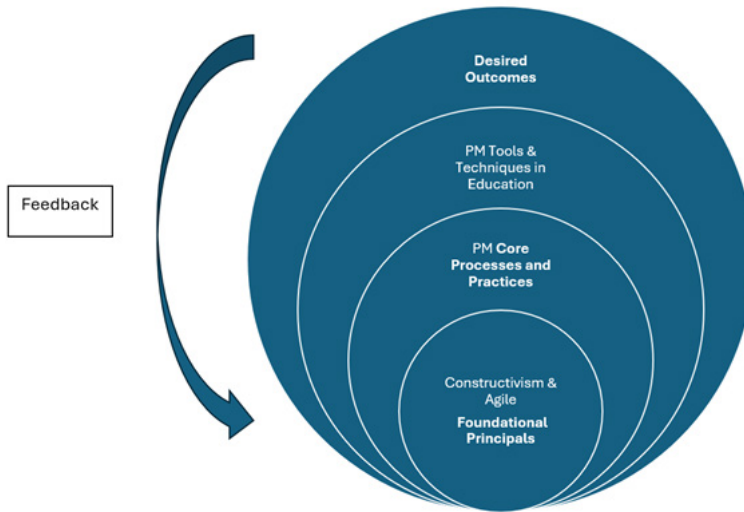
The Agile methodology, focusing on flexibility and continuous improvement and delivering value in short cycles, offers significant benefits in managing educational projects (Highsmith, 2004). This approach can be adapted to manage and deliver educational projects and content, emphasizing adaptability, student feedback, and iterative learning (Hoda et al., 2011). The iterative nature of the Agile methodology promotes continuous learning and improvement, allowing students to reflect on what they have learned, apply feedback, and enhance their work in subsequent iterations (Schwaber & Sutherland, 2020). Agile methodology promotes regular communication among project teams, mirroring PM. By incorporating Agile methodology and CLT into educational settings, we can enhance learning outcomes and prepare students with the skills needed for the future.

According to the CLT, knowledge is built as learners engage with their environment and reflect on their experiences (Vygotsky, 1978). The circular model visually represents this theory by showing how students engage in a continuous loop of learning, application, and reflection. CLT and Agile methodology create a base layer representing theoretical and methodological foundations. CLT emphasizes learning as an active, constructive process, while Agile methodology focuses on adaptability, iterative progress, and collaboration (Hoda et al., 2011). PM frameworks such as Agile methodology and CLT can be adapted to foster a culture of continuous improvement in educational institutions. The Agile methodology involves regularly seeking feedback, experimenting with teaching methods, and improving teaching practice (Highsmith, 2004). In both Agile methodology and academic settings, the goal is to progressively improve based on continuous feedback and reflection. These theories emphasize the ability to allow for adjustments based on learner needs, new information, or changing conditions, increasing student engagement, improving learning outcomes, and developing real-world skills (Schwaber & Sutherland, 2020).

Figure 2 shows the theoretical framework for PM and education and demonstrates the value of CLT and Agile methodology in PM.

The above literature highlights the significance of integrating PM principles in educational settings. It underscores the need for a structured approach to teaching these skills to prepare students for the project-based economy. The next section of this study, “Methods,” will delve into the methodologies employed to review the existing literature systematically, identify key themes, and provide evidence-based recommendations for educators and institutions.

Figure 2. Theoretical framework



METHODS

Systematic Literature Review (SLR)

This research involves an SLR to identify key findings on the effectiveness of educational PM processes and procedures and their effects on students' success. This SLR followed a structured approach to understanding PM integration in education.

An SLR was devised to uncover evidence-based research for making evidence-based decisions. This SLR differs from traditional literature reviews. An SLR synthesizes many studies to answer research questions or hypotheses. Grant and Booth (2009) state, "gathering research, getting rid of rubbish, and summarizing the best of what remains captures the essence of the science of systematic review" (p. 92). The steps of an SLR are designed to identify, appraise, and synthesize research into functional themes and recommendations, like the one employed in this study.

To understand the complete relationship between PM and education, an SLR was conducted to establish the significance of PM in education, explore its effects on educators and students, and examine how implementing PM practices influences the delivery and outcomes of educational programs in our projectized economy. To achieve this objective, a bibliographic database search was created using the Pollock and Berge (2020) SLR process. This process was chosen because it is replicable and transparent (Penha et al., 2020). Pollock and Berge (2018) identify the six steps of an SLR. First, the objectives and purpose are clarified. Second, the best available literature is located. Third, the data are extracted. Fourth, the quality of the literature is determined. Then, the evidence is summarized. Finally, the information is evaluated. Ultimately, 50 articles were selected and deemed suitable for this study.

We established specific inclusion and exclusion criteria, focusing on peer-reviewed articles, published research studies, and relevant publications within the last 10 years. The central database we used was Business Source Complete.

The selection process involved an initial screening of titles and abstracts and a full-text review of each work to ensure relevance to our research objectives. The literature was critically appraised for quality and relevance, and studies that did not meet the benchmark were excluded. Thematic analysis was used to extract and analyze the critical themes from the selected literature. This approach

Table 1. Inclusion and exclusion criteria for an article in the literature review

Inclusion Criteria	Exclusion Criteria
Date of Publication (2005-2024)	Date of publication (before 2005)
English Language	Non-English
Qualitative, Quantitative, or Mixed Methods Studies	Evidence unrelated to project management, education, or benefits
Peer Review, Scholarly Journals, Full Texts	Commentaries, Letters, Editorials

Table 2. Keywords used for article search and coding

Keywords For Article Search and 1 st Cycle Coding	
Project	Improved Student Outcomes
Learning	Management
Education	Increase motivation
Teaching	Outcome

enabled the identification of patterns and trends within the data, thereby providing a comprehensive understanding of the role and impact of PM in educational settings.

This SLR used document retrieval to evaluate the integration of PM principles and practices in education. The aim was to examine how educational systems can adapt to the demands of the global project-based economy using PM and the implications for educators and student success.

Inclusion and Exclusion

The inclusion criteria were peer-reviewed articles, books, and academic journals published over the last two decades. Emphasis was placed on studies that specifically addressed the role of PM in educational settings, its impact on student learning, and the evolution of PM as an academic discipline. The exclusion criteria included non-peer-reviewed articles, publications older than 10 years, and studies not directly related to the integration of PM in education.

Table 1 shows the inclusion and exclusion criteria for an article in the literature review.

Search Strategy

The search strategy included a systematic search for relevant studies. Library databases were searched using a search string created from defined search terms. The search strings are combinations of terms linked with Boolean operators that signal the database to select articles to be included in the search results (Barends et al., 2017). This study used the Purdue University Library, EBSCO Host, and Google Scholar.

Table 2 shows the keywords used for article search and first-cycle coding.

Search Terms

Once the articles were located and chosen, they were assessed. Each article was evaluated according to the inclusion or exclusion criteria. Establishing inclusion and exclusion criteria is valuable, as it limits the number of articles and studies that must adequately address the research question. This criterion ensured that the literature used was timely, relevant, and applicable. The pre-established criterion guides the researcher in searching for articles and studies with the most significant value (Petticrew & Roberts, 2006). Articles and studies were searched in databases using search strings and inclusion/exclusion criteria. Once the articles were identified, they were saved in a cloud-based reference manager, Mendeley.

Table 3 Keywords for search terms

Project Management	Education	Outcomes
Planning	Education	Positive oUtcomes/Improved Problem solving, decision making, creative thinking
Manage, manager	Teaching	Improved Satisfaction
Project, program	Learning	Improved communication
Agile, Waterfall, Scrum	School	Increased Performance
Initiate Monitor, Control, Close	Lessons	Increased Motivation
		Improved/Increased learning

Next, the quality of the selected articles was evaluated using the Mixed Methods Appraisal Tool (MMAT) (Pluye et al., 2011). The best available research articles were assessed and subjected to data extraction to extract code words, phrases, and other valuable data.

Search String

The Purdue University Library, EBSCO Host, Business Source Complete, and Google Scholar databases were searched using search strings like “project management” and “education or learn or teach” and “outcomes or motivation.”

Table 3 indicates the keywords used to create search strings suitable for database search.

RESULTS

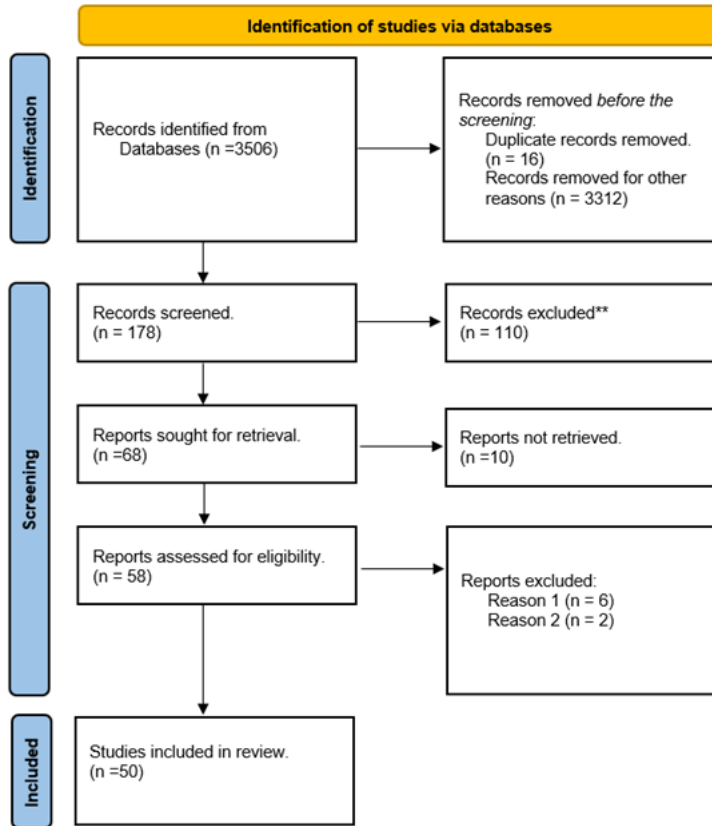
The search results were reduced using inclusion/exclusion criteria, and duplicates were removed. Subsequently, abstracts were screened. Finally, the full articles were screened and read carefully for inclusion in the SLR. Of the original 3,506 articles, 68 abstracts were screened, 61 full-text articles were read, 58 articles were assessed for quality using the MMAT, and 50 articles were included after quality assessment. After appraisal, studies were selected for inclusion in the SLR and data extraction process. The results are presented in PRISMA diagram format, as shown in Figure 3.

Quality Appraisal

The MMAT was used to assess the quality of the chosen articles that met the inclusion criteria. The tool represents a set of yes or no questions established to measure the quality of an article. The questions are divided into purpose, qualitative, quantitative, and mixed-method sections. (MMAT, 2001). There were five questions for each type of study included in this review, as shown in Table 4. In addition, the quality of each study was determined by calculating the number of criteria met within the study’s respective section and dividing this number by the total number of criteria in that section (Pluye et al., 2011). For example, there are five criteria for each section. If a study met three of these criteria, it scored 60%. Therefore, a high score represented a high-quality study. Only high-quality studies were included in this review.

Fifty articles were assessed using MMAT. Appendix C presents the MMAT questionnaire (Hong et al., 2018). All studies that scored > 60% were included in the coding process. The articles’ scores ranged from 40% to 100%. A score below 60% warranted an article's exclusion, as a low score implies that the article is of poor quality. Each study that qualified after the MMAT assessment was summarized for data extraction and later coded. The quality of the included studies was deemed sufficient using the MMAT (Pluye et al., 2011). The total scores for all articles were categorized as excellent, good, fair, or poor. Forty articles received an excellent score, eight received a good score, two received a fair score, and eight scored a low rating and were excluded, as shown in Figure 4.

Figure 3. PRISMA diagram



Note. Reprinted from Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement (pg #) D. Moher, A. Liberati, J. Tetzlaff, D. Altman., 2009 British Medical Journal.

Data Extraction Process

All studies were carefully read and analyzed to extract key findings, conclusions, and future research areas. During this phase, 50 articles were reviewed. Appendix A shows the complete list of references by author and date. Vital information, including summaries, keywords, and identified themes, was meticulously extracted from each article and compiled into a comprehensive data chart. These are represented in tables within the Appendix.

Figure 5 shows the increasing popularity of topics by year from the SLR, and Table 5 represents the articles used, listed by first author and a short review for of each article used in the SLR.

Initial Coding

The first coding round was structured to identify significant concepts and patterns within the data. An initial list of structured codes was created to guide the coding process, making locating relevant information for each research questions easier. Figure 6 demonstrates the frequency of articles in popular journals.

Table 4. MMAT questionnaire used to measure quality

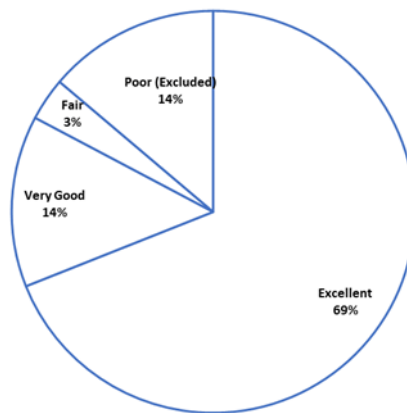
Category of study designs	Methodological quality criteria	Responses			
		Yes	No	Can't tell	Comments
Screening questions (for all types)	S1. Are there clear research questions?				
	S2. Do the collected data allow to address the research questions?				
	Further appraisal may not be feasible or appropriate when the answer is 'No' or 'Can't tell' to one or both screening questions				
1. Qualitative	1.1. Is the qualitative approach appropriate to answer the research question?				
	1.2. Are the qualitative data collection methods adequate to address the research question?				
	1.3. Are the findings adequately derived from the data?				
	1.4. Is the interpretation of results sufficiently substantiated by data?				
	1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation?				
2. Quantitative randomized controlled trials	2.1. Is randomization appropriately performed?				
	2.2. Are the groups comparable at baseline?				
	2.3. Are there complete outcome data?				
	2.4. Are outcome assessors blinded to the intervention provided?				
	2.5. Did the participants adhere to the assigned intervention?				
3. Quantitative non-randomized	3.1. Are the participants representative of the target population?				
	3.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				
	3.3. Are there complete outcome data?				
	3.4. Are the confounders accounted for in the design and analysis?				
	3.5. During the study period, is the intervention administered (or exposure occurred) as intended?				
4. Quantitative descriptive	4.1. Is the sampling strategy relevant to address the research question?				
	4.2. Is the sample representative of the target population?				
	4.3. Are the measurements appropriate?				
	4.4. Is the risk of nonresponse bias low?				
	4.5. Is the statistical analysis appropriate to answer the research question?				

continued on following page

Table 4. Continued

Category of study designs	Methodological quality criteria	Responses			
		Yes	No	Can't tell	Comments
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?				
	5.2. Are the different components of the study effectively integrated to answer the research question?				
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?				
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?				
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?				

Figure 4. MMAT assessment results



In Vivo Coding

Figure 5. Publication by year from the SLR

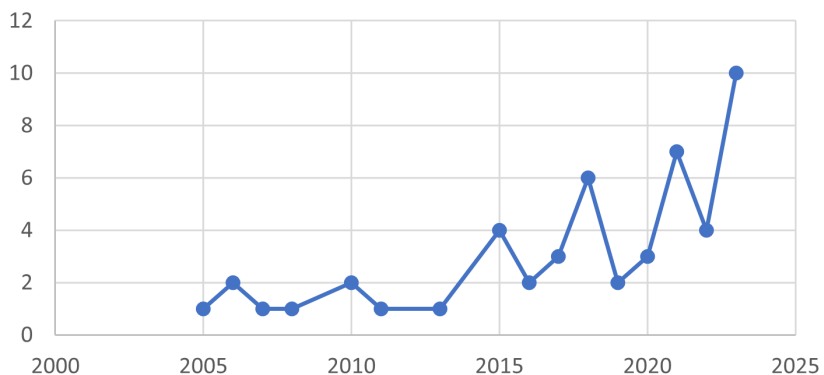


Table 5. Coding process

#	First Author	Short Summary
1	Moylan	A role for seasoned project managers in advocating for PM-ready youth (Moylan, 2022).
2	Kim	Reflective account of instructing remote planning studios during COVID-19 (Kim, 2022).
3	Pellerin	Review of methods, techniques, and tools for project planning and control (Pellerin & Perrier, 2019).
4	Rincon-Guio	SLR on advances, trends, and challenges in PM (Rincón-Guio et al., 2023).
5	Rumeser	SLR of PM serious games (Rumeser & Emsley, 2018).
6	Schmitz	Three cohort study of role-play instruction for agile PM (Schmitz, 2018).
7	Stephenson	Community of practice pedagogy for developing personal competencies (Stephenson, 2017).
8	Shanahan	Scaled and sustained use of client-based projects in business school education .
9	Sharp	Conceptual framework and research agenda for agile in teaching and learning (Sharp & Lang, 2018).
10	Chipulu	Interrelationships between PM and student-experience constructs (Chipulu et al., 2011).
11	Aghajani	Integrative review of project portfolio management focusing on sustainability (Aghajani et al., 2023).
12	Austin	Application of PM in higher education (Aghajani et al., 2023).
13	Chang	AI technologies for teaching and learning in higher education (Chang et al., 2022).
14	Daigle	Student learning outcomes in introductory accounting information systems course (Daigle et al., 2007).
15	Starke-Meyerring	Building a shared virtual learning culture (Starke-Meyerring & Andrews, 2006).
16	Sturm	Coordinating human and machine learning for effective organizational learning (Sturm et al., 2021).
17	Begičević	Decision-making on prioritization of projects in higher education institutions (Begičević et al., 2010).
18	Krishnamoorthy	Education crisis, workforce preparedness, and recommendations (Krishnamoorthy & Keating, 2021).
19	Cable	Eight principles of effective online teaching in PM education (Cable & Cheung, 2017).
20	de Bruyn	Emotional intelligence capabilities to improve skills of accounting students (de Bruyn, 2023).
21	Pandita	Employee experience through academic culture as a predictor of performance (Pandita & Kiran, 2021).
22	Amaral Féris	Enhancing software through project-based learning and quality of planning (Amaral Féris et al., 2021).
23	Servranckx	Essential skills for data-driven PM (Servranckx & Vanhoucke, 2021).
24	Karanja	Evaluating learner-centeredness course pedagogy in PM syllabi (Karanja & Grant, 2020).
25	Graen	Experience-based learning about LMX leadership and fairness in project teams (Graen et al., 2006).
26	Tomlinson	Bringing an entrepreneurial lens to the business communication course (Tomlinson, 2023).

continued on following page

Table 5. Continued

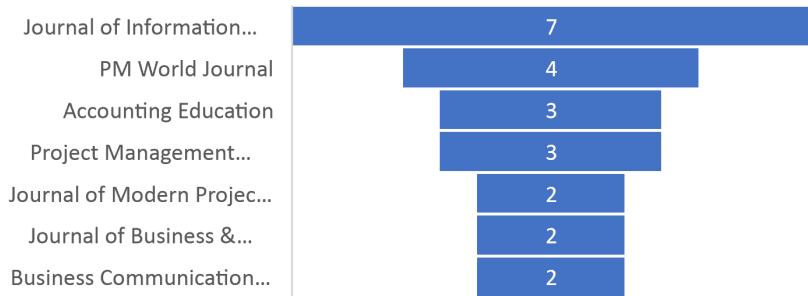
#	First Author	Short Summary
27	Brunello	ICT for education projects: A look from behind the scenes (Brunello, 2010).
28	Nosková	Opportunities to innovate PM education in the digital age (Nosková & Jelínková, 2023).
29	Pope-Ruark	Agile strategies in technical and professional communication courses (Pope-Ruark, 2015).
30	Arbaugh	Introduction to PM education: Emerging tools, techniques, and topics (Arbaugh, 2007).
31	Barclay	Critical success factors in online learning in higher education systems (Barclay et al., 2018).
32	Eltigani	Learning modes and learning capability model in projects (Eltigani et al., 2019).
33	Mills	Managing value co-creation/destruction in education capital programs (Mills & Razmdoost, 2016).
34	Syed Muhammad	Relationship between transformational leadership and project success.
35	Chiocchio	Evidence of collaboration and PM training in healthcare teams (Chiocchio et al., 2015).
36	Rao	Net Zero from a PM perspective (Rao, 2023).
37	Sibona	Active learning exercise for Scrum PM (Siibona et al., 2018).
38	Wang	Benefits of the A3 planner in facilitating project-based learning in education (Wang et al., 2019).
39	Loon	Practices for learning in early careers (Loon, 2021).
40	Harake	Literature review on project logistics management for project managers (Harake, 2023).
41	Pells	PM as a national competence (Pells, 2009).
42	Fisher	PM education and training process for career development (Fisher, 2005).
43	Project management education through stimulation	Achieving reliability, relevance, and reality in a “messy” environment (Project Management Education, 2022).
44	Ingason	PM education: Past and future perspectives (Ingason & Jonasson, 2015).
45	Ding	PM, critical praxis, and process-oriented approach to teamwork (Ding & Ding, 2008).
46	Sarwar	Empirical relationship among sustainable development targets: Education (Sarwar, 2021).
47	Friess	Scrum in classroom collaborations: A quasi-experimental study (Friess, 2024).
48	Linden	Scrum-based learning environment fostering self-regulated learning (Linden, 2018).
49	Cudney	SLR of Lean and Six Sigma approaches in higher education (Cudney et al., 2020).
50	Carreiro	Teaching and learning in PM: Challenges (Carreiro et al., 2023).

During the second review of the first coding cycle, new codes were added as they emerged from the data, a process known as “in vivo” coding. This approach ensures that no relevant data is excluded and that the coding accurately reflects the content of the articles (Saldana, 2009).

Axial Coding

Next, axial coding was employed to reorganize and connect the initial codes, establishing patterns and relationships between them. This process helped to align the codes with the research questions and variables, creating a more coherent structure (Saldana, 2009).

Figure 6. Journal frequency



Coding Process

Codes were collected from the sources and categorized according to similarities, trends, and patterns. The first round of coding was structured. A list of structured codes was created during the coding cycle, structuring an initial list of codes before the coding process, which made locating the relevant information to answer the research questions easier. In the second review of the first cycle, in vivo coding was used to add codes when they emerged. In vivo coding ensures that the relevant data is not excluded (Saldana, 2009). The codes chosen for axial coding were the most supported in research studies. Next, the codes were assembled into categories aligned with the research questions and variables. Axial coding reorganizes codes to establish patterns (Saldana, 2009). After all data were analyzed, relationships were revealed, and themes were developed (Brazley, 2013). The data collected from the studies were combined to establish the findings and, eventually, the recommendations.

Researchers who compare multiple sources to find new meanings or perspectives engage in synthesis and theme development (Saldana, 2009). Synthesis is not a summary, rather it combines sources and their data to explain a concept (Purdue University, n.d.). The purpose of the synthesis is to generate the findings of the research, which are necessary to explain what the evidence reveals.

Findings from the SLR inform and encourage further research on the topic or concept. The researcher reports what was found and what the data suggests, and the evidence is then used to establish the findings. The purpose of the findings in a research project is to inform the generation of implications used to establish recommendations.

Synthesis and Theme Development

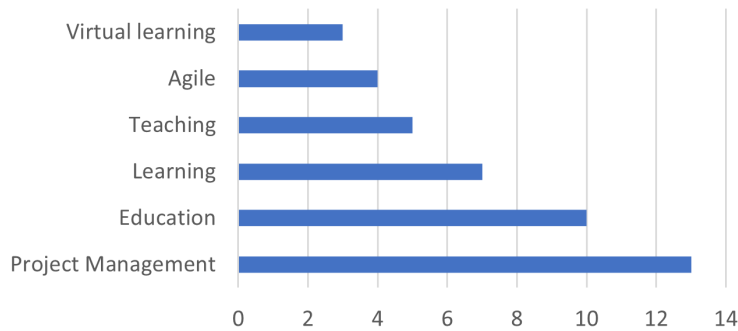
The data collected from the studies were synthesized to generate research findings. Synthesis, which involved combining data from multiple sources to explain a concept rather than merely summarizing the information (Purdue University, n.d.), was crucial in identifying new meanings and perspectives, developing themes, and answering research questions. Following the axial coding, the codes were assembled into broader categories, leading to the generation of the top codes represented in Figure 7 and, eventually, the final themes' development. Relationships revealed during the coding process informed the creation of themes.

FINDINGS

Overview

This SLR analyzed 50 articles related to PM and education. The analysis focused on identifying key themes, trends, and concepts from the literature. The primary aim was to understand this domain's current state of research and practice.

Figure 7. Frequency count of top codes



Key Codes and Concepts

Through a comprehensive coding process, several key codes and concepts were identified. The most frequently occurring codes reflect the central topics addressed by the articles. Below is a summary of the top codes and their frequencies:

1. **PM:** 13 occurrences
2. **Education:** 10 occurrences
3. **Learning:** 7 occurrences
4. **Teaching:** 5 occurrences
5. **Agile:** 4 occurrences
6. **Performance:** 3 occurrences
7. **Higher Education:** 3 occurrences
8. **Project-Based Learning:** 3 occurrences
9. **Student Experience:** 3 occurrences
10. **Sustainability:** 2 occurrences
11. **Virtual Learning:** 2 occurrences
12. **Scrum:** 2 occurrences
13. **Technology:** 2 occurrences
14. **Emotional Intelligence:** 2 occurrences

These keyword codes highlight a broad but related scope of research interests in PM and education.

Initial Findings

To establish the initial finding, the keywords that were identified during the coding process were ranked in terms of their frequency. The words, phrases, and concepts that were ranked most common were combined and synthesized into themes. The words and concepts with their frequency and concept usage were recorded to form the initial findings.

1. **PM:** This was the most frequently occurring theme, with 13 mentions across various articles. The focus was on methodologies, practices, and the role of PM in different educational contexts.
2. **Education:** The second most common theme, with 10 occurrences, this theme explored various educational strategies, frameworks, and the integration of PM principles in educational settings.
3. **Learning:** With seven mentions, this theme covered different learning approaches, including experiential and PBL, emphasizing their importance in PM education.

4. **Teaching:** This theme appeared five times, focusing on teaching methodologies, instructional strategies, and the impact of agile practices on teaching effectiveness.
5. **Agile:** Four articles discussed Agile methodologies, highlighting their application in teaching and PM contexts.
6. **Performance:** Performance occurred three times, and these articles mentioned improving student and teacher performance through PM education and by using PM fundamentals.
7. **Higher Education:** This theme, also with three mentions, explored the application and challenges of PM in higher education institutions.
8. **Project-Based Learning:** Appearing three times, this theme emphasized the effectiveness of PBL approaches in enhancing student engagement and learning outcomes.
9. **Student Experience:** With three mentions, this theme focused on the interrelationships between PM practices and student experiences.
10. **Sustainability:** Sustainability in PM practices was discussed in two articles, indicating a growing interest in sustainable PM approaches.
11. **Virtual Learning:** This theme, appearing twice, explored the development and challenges of virtual learning environments in the context of PM. The impact of the COVID-19 pandemic on education and PM was a significant theme mentioned in two articles. These studies reflected on adaptations to remote teaching and learning environments.
12. **Scrum:** Two articles mentioned Scrum methodologies in educational settings, reflecting on active learning exercises and Scrum-based learning environments. Scrum is an Agile framework based on flexibility and agility in PM.
13. **Technology:** Two articles highlighted artificial intelligence (AI) technologies and their role in teaching and learning, emphasizing AI's potential to transform educational practices. Technology-mediated communication was also addressed.
14. **Emotional Intelligence:** Discussed in two articles, this theme focused on developing non-technical skills, particularly emotional intelligence, among students addressing that PM encourages the development of soft skills, including teamwork, communication, and collaboration.

Summary of Initial Findings

The analysis of these articles has provided a clear picture of the current trends and key areas of focus in PM and education. The recurring themes reflect the diverse applications and challenges of integrating PM principles in educational settings. These findings can inform future research and practice, helping educators and practitioners better understand and address the complexities of PM in education.

The SLR produced four primary themes from the synthesized data, each supported by grounded observations and data extraction. These findings are detailed below, and their implications for the research question are discussed.

Themes

Introduction to Themes

This study identified four primary themes through systematic coding and thematic analysis:

1. PM
2. PM and Education
3. PM and Educators
4. PM and Student Success

Theme One: PM

The job outlook for project managers is rising steadily. Employers want employees who have PM skills. Researchers report that by 2027, the number of PM-oriented jobs in seven project-oriented sectors is expected to grow by nearly 22 million new jobs. Even the available literature on PM has increased. One article in 2005, two articles in 2010, and 10 articles in 2023 linked PM to the education industry. PM was rated the second most important job skill, behind communication, and PM-trained students had increased performance.

Theme Two: PM and Education

The synthesis revealed that integrating PM principles into educational frameworks significantly enhances learning. Articles by Chang et al. (2022) and Nosková and Jelínková (2023) highlight the role of artificial intelligence AI and digital tools in education, indicating a trend towards technology-enhanced learning environments.

Theme Three: PM and Educators

Educators play a crucial role in implementing PM methodologies. Sharp and Lang (2018) and Pope-Ruark (2015) discuss the benefits of Agile methodologies in teaching, emphasizing the need for educators to adopt flexible and iterative approaches. According to their studies, PM improves student performance, engagement, motivation, and career outlook, and educators need skills training and professional development to learn PM techniques, so they can ensure that initiatives are successful and they are making the best use of resources. Thus, when educators' skills improve, their students' skills improve.

Theme Four: PM and Student Success

Student success is closely linked to the application of PM practices. Studies by Rumeser and Emsley (2018) and Amaral Féris et al. (2021) demonstrate that serious games and PBL can improve student engagement and outcomes. Furthermore, this research shows that students who participated in PM programs are more likely to finish high school, obtain a job, and experience improved performance and motivation and that students' soft skills and job outlook also increased due to PBL. Additionally, the students who participated in these studies ultimately communicated better and performed better in teams.

Research Questions Answered

The findings from this SLR have several implications for future research and practice. By integrating PM principles into educational contexts, institutions can enhance teaching and learning experiences. Further research is encouraged to explore these practices' long-term impacts and develop more refined methodologies for their implementation.

This study employed a rigorous and systematic approach to identify and analyze key themes in PM education. Through structured coding, in vivo coding, and axial coding, the research developed themes that inform the findings of this study. By transparently presenting the coding process and data synthesis, this paper aims to provide a clear and reliable foundation for future research.

DISCUSSION

Educators and students must be trained. It is important to relay the value of PM curriculum to everyone involved. This necessitates the creation of professional development, a new curriculum, microlearning courses, and student training material. Additional staff members are needed to create the curriculum and train educators. However, it is an endeavor to convince stakeholders to agree to the training. Curriculum needs to be written for students and educators at all levels. This involves

choosing books and activities appropriate for each level, but professional development opportunities to teach PM to educators may be costly.

Therefore, it is important to review the understanding of PM education and reflect on the advantage of developing project managers to deal with the increasing complexity, chaos, and uncertainty in project environments (Thomas & Mengel, 2008). Two vital recommendations for educators are aligning educational offerings with labor market demands to ensure the relevance of PM education and creating a teacher learning outcome test and a student PM skills evaluation.

PM emphasizes effective teamwork and cooperation (Bell, 2010) between stakeholders and employees with different skills and experiences. Project-oriented learning encourages students to collaborate on projects, reflect on real situations, and develop collaborative competence. Ideally, there would be a reflective process where students can assess the impact of their actions on their goals, as evaluation skills and assessment are integral parts of PM.

Autonomy and self-training are important parts of PM. They are also great skills for educators and students to possess. These skills can be leveraged for training opportunities. For example, an online self-training program developed to enhance PM skills among students has been successful and has demonstrated significant benefits (Nukoonkan & Dhammapissamai, 2023). PM skill training should be like real life; students should be allowed to perform roles and improve or develop existing or new skills through realistic activities.

Peer-to-peer learning could be an effective tool for PM skills development. This involves peer learning groups where senior students and educators guide less experienced students in developing PM skills. Mentoring was identified as a potential way of training educators and students. It may provide valuable guidance and feedback throughout project-based learning.

Integrating PM principles into education, informed by frameworks like CLT and Agile methodologies, presents a significant opportunity to enhance learning outcomes, equipping students with essential skills and fostering a learning environment that reflects the dynamic and collaborative nature of the world they will enter. By embracing active learning, continuous improvement, and real-world problem-solving, educators can empower students to become self-directed learners, effective communicators, and critical thinkers, preparing them to thrive in the ever-changing landscape of the 21st century. This shift in educational practices holds the potential to transform classrooms into dynamic hubs of innovation and collaboration, where students are not just acquiring knowledge but actively shaping their own futures.

FUTURE RESEARCH

There is an acknowledgment of gaps in the literature regarding the teaching and learning of PM skills (Carreiro et al., 2023). This suggests that while the value of PM in education is recognized, there is still room for research and development in this area. Gaps in the literature suggest further research on teaching PM skills (Pokharel, 2021) including studies related to finding the most effective ways to teach and learn these skills (Carreiro et al., 2023). Also, traditional PM education is rigid and theory-focused, which may not align with the complexities of the real world. Thus, researchers should focus on bridging the gap between theoretical knowledge and practical application to make PM education more relevant and valuable (Serdyukov, 2017).

The findings of this research have substantial implications for educators and policymakers. They highlight the necessity of reevaluating and enriching current educational frameworks with PM principles. This paper outlines several future directions and potential innovations in PM education, emphasizing the pivotal role of technology and the creation of specific PM programs.

LIMITATIONS

This paper also acknowledges the limitations of research, particularly in the scope of the literature review and the potential non-generalizability of the findings across different cultural and geographical contexts. Future studies should broaden the research base and examine the enduring impact of PM education on career trajectories and its applicability across fields and cultural settings. Addressing these gaps will enhance the depth of research on PM education and contribute to a deeper understanding of its benefits and applications.

CONCLUSION

The intersection of PM and education provides a fertile avenue for improving effective, quality teaching and learning. Systematic incorporation of PM methods into educational practices prepares students for the complexities of modern project work and fosters continuous improvement in academic standards. When implementing PM learning, educators must ensure that students experience a realistic environment by applying PM instruction to group work that involves teaching and feedback. The success of PM education is impacted by teaching style, communication, and assessment (Lebcir et al., 2008). Therefore, teachers should get training and certification, and a pretest and posttest can be developed to measure learning and skill achievement. Ultimately, PM curricula and professional development opportunities need to be established and created.

This research reinforces the effectiveness of PM education in boosting students' employability and skill sets and calls for further research to refine educational strategies and confirm the long-term benefits of PM education for students. The broad applicability of PM skills across multiple industries makes them essential for student success, advocating for an educational focus that equips students with a strategic, proactive mindset for lifelong development.

PM skills are essential in many careers. As one of the most requested job skills, PM is a valuable ability to enable students with. These skills have been shown to improve student performance, motivation, and engagement. Teaching PM is not easy, and educators need training to become skilled at providing these skills to their students, but since these skills provide students with an advantage, PM curriculum and coursework should be included in every grade level of a student's current educational journey.

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APPENDIX A: SLR

1. Moylan (2022)
2. Kim (2023)
3. Pellerin & Perrier (2019)
4. Rincón-Guio et al. (2023)
5. Rumeser & Emsley (2018)
6. Schmitz (2018)
7. Stephenson (2017)
8. Shanahan et al. (2021)
9. Sharp & Lang (2018)
10. Chipulu et al. (2011)
11. Aghajani et al. (2023)
12. Austin et al. (2013)
13. Chang et al. (2022)
14. Daigle et al. (2007)
15. Starke-Meyerring & Andrews (2006)
16. Sturm et al. (2021)
17. Begičević et al. (2010)
18. Krishnamoorthy & Keating (2021)
19. Cable & Cheung (2017)
20. de Bruyn (2023)
21. Pandita & Kiran (2021)
22. Amaral Féris et al. (2021)
23. Servranckx & Vanhoucke (2021)
24. Karanja & Grant (2020)
25. Graen et al. (2006)
26. Tomlinson (2023)
27. Brunello (2010)
28. Nosková & Jelínková (2023)
29. Pope-Ruark (2015)
30. Arbaugh (2007)
31. Barclay et al. (2018)
32. Eltigani et al. (2019)
33. Mills & Razmdoost (2016)
34. Iqbal et al. (2015)
35. Chiocchio et al. (2015)
36. Rao (2023)
37. Sibona et al. (2018)
38. Wang et al. (2019)
39. Loon (2021)
40. Harake (2023)
41. Pells (2009)
42. Fisher et al. (2005)
43. Project management education through simulation (2022)
44. Ingason & Jonasson (2015)
45. Ding & Ding (2008)
46. Sarwar et al. (2021)
47. Friess (2023)
48. Linden (2018)

49. Cudney et al. (2020)
50. Carreiro et al. (2023)

Dr. Angela Even is a distinguished educator and project management professional, currently serving as an instructor at Purdue Global University. Holding a Doctorate in Business Administration from the University of Maryland University College and an MBA from the University of North Carolina, Dr. Even possesses a rich academic background complemented by a Bachelor of Arts in Biology from the University of Iowa and an MAT from Marshall University. Her expertise spans project management, curriculum development, educational excellence, and leadership. Dr. Even is certified as a Project Management Professional (PMP) and a Society for Human Resource Management Certified Professional (SHRM-CP). Additionally, she holds certifications in Agile and Scrum methodologies, further underlining her proficiency in contemporary project management practices. With a career dedicated to education and professional development, Dr. Even excels in teaching, advising, and contributing to the field through research and publications, which reflect her passion for empowering individuals with the skills and knowledge for success.