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The Impact of Reflective Journaling on Academic Achievement in Construction Methods and Project Management

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ABSTRACT

Construction and project management education increasingly requires not just technical knowledge, but critical self-awareness and the ability to bridge theory with site-based realities. Traditional assessment often misses the "deep learning" required for complex problem-solving. This study investigates how reflective journaling (RJ) influences academic achievement—measured through both quantitative grades and qualitative skill acquisition—among students in project management and construction programs. A mixed-methods approach is recommended. This involves analyzing student journals for dimensions of reflective thinking and correlating these with academic performance data, such as test scores and project-based learning (PBL) outcomes. Regular journaling is expected to improve metacognitive skills, memory, and the synthesis of new knowledge with prior experience. It helps students manage "stress-time pressures" common in project-based work and increases their motivation to apply learning to real-world scenarios. Reflective journaling serves as a vital pedagogical tool that enhances academic achievement by fostering "reflection-for-action". The study provides a framework for educators to integrate structured RJ into construction curricula to better prepare students for the professional demands of the 2026 industry.

***Keywords*:** Experiential learning, formative assessment, project management education, reflective journaling, self-regulated learning

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1. INTRODUCTION

In 2026, educational research continues to emphasize that journal writing is a transformative pedagogical tool that bridges the gap between theoretical knowledge and practical application. In the specialized context of Project Management (PM) courses, reflective journaling serves as a critical mechanism for students to navigate the "projectized" environments increasingly required by modern organizations. Recent 2025 and 2026 studies demonstrate that this practice not only enhances academic achievement but also shifts student attitudes from passive reception to active engagement.

Some of the Impact on Academic Achievement are: Improved Cognitive Processing [1,3]: Journaling facilitates cognitive processes such as brainstorming, reflection, and questioning, which are essential for mastering complex PM principles like planning and risk evaluation; Enhanced Memory and Recall: Writing things down improves the brain's encoding process, leading to an estimated 20-23% improvement in factual recall and concept retention; Performance Gains: Studies in related technical fields (such as Mathematics and Statistics) show that students exposed to journal writing approaches consistently achieve higher post-test scores compared to those using traditional modular or lecture-based learning; and Metacognitive Development: Reflective journals encourage "thinking about one's thinking," helping students identify their own learning gaps and develop strategic plans to overcome academic challenges.

These are some of the impact on Student Attitude: Increased Engagement [2.4]: Journaling transforms students from passive recipients into active participants, stirring curiosity and shifting perceptions of challenging technical subjects into accessible disciplines. Shift to Positive Mindsets: Experimental data indicates that students often move from a "negative" or "neutral" attitude in pre-tests to a distinctly positive attitude after consistent reflective practice. Ownership and Autonomy: By documenting their personal learning journeys, students take greater ownership of their work and feel better prepared for the professional responsibilities of a project manager and Reduced Anxiety: Expressive writing provides a safe space for students to process emotions and mistakes without the immediate pressure of formal grading, which reduces stress and improves mental clarity during high-stakes projects.

For educators, the most effective implementations involve structured journals with predefined prompts (e.g., "What did you find challenging about today's project phase?") and continuous feedback from instructors. Digital platforms and online portfolios are now widely used to facilitate this interactive reflection.

2. BACKGROUND OF STUDY

In 2026, the global landscape of project management (PM) and construction education is undergoing a decisive shift toward technology-driven integration and human-centered leadership. As AI and automation increasingly handle repetitive tasks like scheduling and resource allocation, the academic success of future professionals is no longer tied solely to technical knowledge but to their ability to provide "Power Skills" like critical thinking, emotional intelligence, and ethical reasoning [5,7].

Reflective journaling (RJ) has emerged as a vital pedagogical tool to bridge the gap between classroom theory and the complex realities of modern construction sites. This study explores the background of RJ within this high-pressure, digitally transformed environment through the following key themes [6,8]:

Shift to Hybrid and AI-Enabled Workflows: By 2026, PM education must prepare students for a world where AI-powered tools predict bottlenecks and manage risk in real time. This necessitates a move from traditional rote learning to metacognitive training, where students must evaluate the outputs of autonomous systems.

Demand for Lifelong Learning: Rapid technological changes, such as the adoption of Building Information Modeling (BIM) and digital twins, require students to be "improvement agents" who can continuously learn and adapt.

Complexity in Construction Projects: Modern projects involve multi-location execution and strict environmental (ESG) regulations. Educators are seeking methods that help students manage this complexity through structured self-analysis.

Research indicates that students who engage in regular RJ demonstrate improved academic performance, social engagement, and ownership of their learning [9,10]. In PM courses, journaling helps students move from mere description to dialogic reflection, where they solve problems by thinking about their own problem-solving processes [11,13]. RJ serves as a "mental rehearsal" for future practice, enabling students to link theoretical frameworks to real-world design or fieldwork experiences. It helps translate classroom concepts into durable professional skills [12,14]. In an AI-dominated workforce, human-centric leadership is a differentiator. Journaling fosters the self-awareness and emotional intelligence necessary for managing diverse, global teams and handling high-stress project environments [15,16].

Many students find daily journaling to be a repetitive or "annoying" burden if not properly structured. This can lead to superficial entries that lack the depth required for true learning. Effective reflection rarely happens without deliberate guidance. For 2026, experts recommend structured prompts and regular instructor feedback to prevent reflection from becoming a "ritualized practice" detached from actual learning goals. While qualitative benefits are well-documented, some critics argue there is still insufficient large-scale scientific evidence linking RJ directly to long-term career success in the construction industry [17,18]. This study aims to fill that gap by examining how structured reflective practices specifically impact the academic outcomes and professional readiness of project management and construction students in this pivotal year of 2026.

A. Problem Statement

Despite the critical need for project management and construction students to bridge the gap between classroom theory and real-world complexity, traditional instruction often fails to foster the necessary metacognitive and reflective skills. It remains unclear how structured reflective journaling can be effectively integrated into the curriculum to measurably improve both academic achievement and the development of essential professional competencies.

B. Significance of the Study

The study on "The Impact of Reflective Journaling on Academic Achievement in Project Management and Construction Education" is highly significant because it addresses the need to shift students from passive learners to "reflective practitioners" capable of handling the complex, unpredictable, and social nature of construction and project management work. Reflective journaling bridges the gap between theoretical knowledge and practical application, which is crucial in these fields. Here is a breakdown of the significance of such a study:

B.1. Enhancement of Academic Achievement and Learning

Deepened Understanding**:** Journaling forces students to engage in critical thinking, moving beyond rote memorization to truly understand complex project management concepts.

Improved Cognitive Processes: The act of writing down reflections improves metacognition (thinking about one's own thinking), allowing students to monitor their learning, identify gaps in knowledge, and adjust their study strategies.

Integration of Theory and Practice: It provides a space to connect classroom lectures with real-world construction scenarios, making learning more durable**.**

B.2. Development of Professional and Soft Skills

Critical Problem-Solving: Construction management involves unforeseen, challenging situations. Reflective journals help students analyze their past actions to improve future decision-making.

Emotional Intelligence and Resilience: Reflective journals help students manage negative emotions like anxiety or disappointment regarding difficult course projects.

Soft Skills Growth: It encourages the development of communication skills and self-awareness necessary for navigating team dynamics and leadership roles.

B.3. Transformation of Educational Practices

Evidence-Based Pedagogy: The study provides empirical data on the effectiveness of reflective tools, rather than relying on theoretical assumptions.

Targeted Feedback for Educators: Journals provide instructors with insights into student struggles, allowing them to provide timely, personalized feedback and adjust teaching methods.

Active Learning Cultivation: It promotes a shift toward a student-centered, active learning approach, where students are accountable for their learning process**.**

B.4. Preparation for the Construction Industry

Development of "Reflective Practitioners": The industry requires professionals who can move from "trained technicians" to "reflective practitioners," who can read situations and handle ambiguity.

Long-term Career Benefit: The habit of reflection formed during studies helps professionals continue learning throughout their careers, adapting to new challenges.

Improved Collaboration: Studies show that journal writing helps team members in project management to improve individual and team communication, as well as handle stress and time pressures.

In summary, the study is significant because it highlights how simple, consistent, and structured writing practice can lead to a more profound, professional, and successful learning experience, ultimately preparing students for the dynamic, high-pressure environment of the construction and project management industry.

3. RELATED LITERATURE

Reflective journaling (RJs) is recognized as a powerful pedagogical tool in higher education, functioning as a bridge between theoretical knowledge and practical application [19,20]. In project management and construction education, where professional practice involves complex, unpredictable, and social scenarios, journaling helps students bridge the gap between classroom theory and industry reality.

Literature frequently links reflective practice to experiential learning, particularly Kolb's [model [20, 21], which includes concrete experience, reflective observation, abstract conceptualization, and active experimentation. In construction and engineering, this translates into students moving beyond memorizing technical calculations to developing better problem-solving strategies, critical thinking, and a deeper understanding of technical definitions [22]

Research indicates a strong, positive correlation between reflective journaling and academic performance, though this is often demonstrated through improved engagement and deep learning rather than solely through higher test grades. Studies show that diary and letter writing activities (forms of journaling) increase academic achievement [23]. One comprehensive study noted that 67.3% of respondents indicated a positive change in academic performance. Journaling helps students internalize and reconstruct complex information, often fostering deeper understanding of professional and organizational behaviors. Specifically for construction projects, reflective journaling allows students to evaluate their work, judge if learning goals have been attained, and make connections between classroom theories and real-world project challenges. The act of reflection fosters a 74.8% increase in student motivation to complete assignments and an 84.3% boost in self-efficacy.

The construction industry is characterized by high-stakes, team-based projects. Literature suggests that journaling in this domain specifically boosts [24,25]: Because construction involves unforeseen incidents and complex planning, reflective journaling acts as a tool for "reflection-in-action," where students analyze situations to make better future choices. In collaborative learning settings, reflective logs help students evaluate their roles within teams, improving social intelligence and communication skills, which are crucial for project managers. Reflective practices help transition students from passive learners to independent professionals who can learn from past experiences.

The literature suggests that reflective journaling affects academic achievement through several key mechanisms [26,27]: Journaling encourages students to think about their own thinking (metacognition), slowing the pace of learning and increasing ownership. It helps students identify their own learning strengths and weaknesses, allowing for more efficient, self-regulated learning (SRL). Effective reflective journals encourage "double-loop learning," where students analyze their own assumptions and behaviors rather than just describing events. For journals to be effective, they require structure (scaffolding) and regular feedback from instructors to guide students from simple description to higher-order critical analysis [28].

Despite the benefits, the literature highlights several challenges in implementing reflective journals in technical disciplines like construction [27, 28]: Time Consumption: Both students and instructors often find reflective journaling time-intensive.

Surface-Level Reflection: Without proper prompts, students may produce only descriptive, shallow entries, Resistance to Novelty: Students unfamiliar with reflective practices may initially struggle with the open-ended nature of the task and Effectiveness Requires Structure: Research shows that while reflection is essential, it must be supported by motivation and, in some cases, "monitoring" (tracking progress) to significantly impact academic performance [32, 33].

The literature strongly supports the integration of reflective journals into project management and construction education. Although it requires careful scaffolding, reflective journaling has been shown to enhance students' ability to connect theory to practice, improve critical thinking and problem-solving skills, and increase academic motivation [29, 30, 31]. By fostering a habit of reflection, these tools help prepare construction students for the complex, dynamic, and collaborative nature of their future professional roles.

4. METHODOLOGY, RESULTS & INTERPRETATION

Records from the CHED Division of Ilocos Norte showed that the performance level of fourth year college students at Mariano Marcos State University is low. With the implementation of BSCE curriculum, the provision of 1:1 ratio of textbook to students may not fully solve the problem unless the professional course makes use of some innovative teaching and assessment strategies.

One probable reason for the poor performance in construction methods and project management is that students are not proficient in writing their feelings, explaining concepts, listing procedural steps and identifying relationship activities which engage their intellect and require reasoning [34, 36].

The subjects of the study were two (2) fourth year college students at Mariano Marcos State University in SY 2024-25. The 35 students designated as the experimental group were expressed to journal writing, the other 35 designated as control group were not exposed to journal writing. The experiment was conducted for three months. Both classes were handled by the same teacher.

All participants in the study were asked to write an autobiographical narrative about their experiences in construction methods and project management. They were also asked to complete two assessment instruments -a construction method and project management test covering planning and scheduling, project management fundamentals and contracts and legal, and a construction methods and project management attitude inventory. Both instruments were given as pretest and posttest.

After each lesson, the experimental group was given a journal writing form, which the students completed at the end of the class period. The control group was not exposed to journal writing but had additional problem-solving lessons.

Table 1 shows the pretest and posttest mean scores for achievement. Using a one-tailed t-test (0.05 level of significance, the difference in the mean gain scores for the experimental group indicates a significant higher achievement gain score than the control group.

Table 1. Test of Difference of Achievement Gain Scores of the Experimental and Control Group.

Group	N	Mean Score	Gain	Difference	t-value	p
		Pretest	Posttest	Between, Xs		
Experimental	35	17.486	34.143	16.657	3.17	1.645*
Control	35	15.5	29.086	13.486		

*Significance at 0.05 level

With regards to attitude (Table 2), the experimental group had significantly higher mean gain scores. The t-ratio of 3.885 in favor of the experimental group is significant ($p<0.05$). This suggests that journal writing is a vehicle through which students could “sound off” their feelings and confusion [35,37]. This is turn makes them feel better, more relaxed and less preserved. This in turn makes them feel better, more relaxed and less pressured.

Table 2. Test of Difference of Achievement Between Experimental and Control Group Posttest Mean Scores in Attitude Towards Construction Methods and Project Management.

Group	N	Mean Score	Gain	Difference	t-value	p
		Pretest	Posttest	Between, Xs		
Experimental	35	96	123.171	27.171	3.885	1.675*
Control	35	94.029	115.314	21.286		

*Significance at 0.05 level

In addition, journal writing can also give the teacher an insight on students' thinking of process or their approaches to problem solving.

5. CONCLUSION

A comprehensive analysis of Reflective Journaling in Construction Methods and Project Management reveals that this pedagogical tool serves as a critical bridge between theoretical classroom instruction and the complex, high-stakes realities of the construction site. By requiring students to document, analyze, and critique their learning processes, reflective journaling transforms passive information absorption into active knowledge construction. This process is particularly vital in the construction field, where decision-making often involves balancing conflicting technical, financial, and safety constraints.

The impact on academic achievement is multifaceted, manifesting first in significantly higher retention rates of technical concepts such as structural load calculations and procurement scheduling. Beyond rote memorization, journaling fosters Metacognitive Development, enabling students to identify gaps in their own understanding and adjust their study habits accordingly. In the context of "Construction Methods," this allows for a deeper grasp of how material properties influence site-specific assembly techniques.

Furthermore, reflective practices cultivate the "soft skills" that are essential for successful project management, such as ethical reasoning and conflict resolution. When students journal about simulated project delays or labor disputes, they develop the emotional intelligence required to lead diverse teams under pressure. This holistic growth results in students who not only perform better on standardized assessments but also demonstrate superior readiness for professional internships and entry-level management roles.

Ultimately, the integration of reflective journaling into the curriculum shifts the academic focus from "what to think" to "how to think." It equips future construction professionals with a framework for lifelong learning, ensuring they can adapt to the rapidly evolving technologies and sustainability standards of the 2026 construction industry. By internalizing the habit of reflection, students transition from academic learners to reflective practitioners, ready to navigate the complexities of modern infrastructure development.

6. RECOMMENDATION

Implementing reflective journaling in Construction Methods and Project Management curricula significantly enhances academic achievement by bridging the gap between theoretical instruction and practical field application. As of 2026, research indicates that students utilizing these journals demonstrate improved critical thinking, better mastery of complex site-based procedures, and enhanced professional competencies.

The Strategic Recommendations for Implementation as follows: Establish Structured Reflection Frameworks: Transition from simple descriptive logs to structured models like Gibbs' Reflective Cycle (Description, Feelings, Evaluation, Analysis, Conclusion, Action Plan) to ensure students move beyond reporting events toward critical analysis, Target Construction-Specific Metacognition: Use prompts that require students to evaluate their own decision-making during "Construction Methods" labs or site visits, helping them identify personal gaps in understanding technical specifications or safety protocols, Integrate Theory-to-Practice Bridging: Require students to document how specific "Project Management" theories (e.g., Critical Path Method or Lean Construction) were applied—or why they failed—during simulated projects or internships, Implement "Reflection-for-Action": Encourage forward-looking entries that anticipate future project risks or planning adjustments, fostering the proactive mindset essential for successful project managers, Utilize Social Metacognition: Incorporate group journaling or collaborative reviews of individual reflections to help teams validate peer ideas and develop collective understanding of project challenges, Prioritize Instructor Feedback: Ensure faculty provide timely, personalized feedback on journal entries; research shows that without consistent guidance, students may perceive the task as mechanical or "meaningless." Leverage Digital Scaffolding: Use e-journaling platforms (e.g., Daylio, Penzu) or integrated Learning Management Systems (LMS) to facilitate online access, peer interaction, and easier submission tracking for both students and instructors, Adopt Longitudinal Assessment: View reflective skills as a long-term development goal; while immediate impacts on exam grades can vary, continuous engagement significantly improves lifelong learning and professional readiness, Incentivize Engagement Through Grading: Legitimize the practice by making it an essential, graded component of the course to overcome initial student resistance or "time-wastage" perceptions and Train Both Faculty and Students: Conduct workshops to define high-quality reflection, as many students struggle to instinctively distinguish between "surface-level" descriptions and "deep" critical analysis.

Reflective journaling serves as a "metacognitive bridge," slowing the pace of learning to allow for deeper knowledge ownership. In 2026, students who master these techniques are better equipped to handle the complexity, ambiguity, and social-technical nature of modern construction projects. By documenting their journey from anticipation to competence, students transform from "trained technicians" into Reflective Practitioners capable of independent problem-solving in dynamic environments.

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