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Contrasting Learning and Unlearning in Project Environments

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Abstract

This study utilized a project assignment task within a master's course in project management to investigate the dynamics of learning, unlearning, and adaptation in project-based environments. The assignment aimed to enhance students' understanding of effective project management, raise awareness of associated challenges, and develop crucial soft skills. The students were to plan, develop, and deliver a diverse range of products, emphasizing user value. From 34 groups, five were selected to provide representative reflections on their experiences. This study finds that in project-based tasks, learning is specific to product requirements, while unlearning is broader, impacting mainly beliefs and practices. Unlearning occurs in two forms: permanent and temporary. Permanent unlearning involves discarding outdated beliefs to facilitate deeper learning, aligning with project management literature. Temporary unlearning, however, is about setting aside current practices that don't fit the project but may be useful elsewhere. The findings underscore the importance of continuous reflection in identifying areas where unlearning might be necessary.

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1. Background and Motivation

Despite the considerable attention that project learning has received in leading project management literature, e.g. [1-7], the notion of project unlearning has not received comparable attention since its introduction to organizational and management literature by Hedberg in 1981 [8]. It is therefore fair to suggest that the current body of knowledge on project learning does not provide any insights on unlearning in project environments. The current body of

knowledge does not either provide insights on the how learning and unlearning are contrasted or about the nature of unlearning in project environments. Several scholars indicate that projects as temporary systems are appropriate tools to learn [9-13]. According to Sydow, Lindkvist and DeFillippi [10] projects have unique characteristics related to learning and knowledge such as:

Focus on goal and performance. Project teams need to develop more or less customized solutions within a strictly limited period and budget. These project settings present unique possibilities to learn new skills or knowledge [14]. However, working under time and budget constraints means there will be little time to reflect on and to learn [15]. A project culture of concentrating on immediate project goals – provides no space for individuals to reflect on learning [16].

Autonomous nature of projects. It is also evident that the relative absence of hierarchy and the skills' diversity provide fertile soil for creativity and innovation [17, 18]. Such conclusions suggest that project autonomy is advantageous for learning by allowing the development or discarding of practices that are distinctively different from mainstream organizational practices—on the downside, being autonomous means that individuals or teams may develop into a knowledge silo, not available to members in other projects or the broader organization. Thus, reducing the possibilities of knowledge transfer to other units or projects [19].

Projects require a diverse knowledge base. A solid knowledge base accelerates innovation, exploration, and problem-solving. The downside, however, is that individuals bring their perception of experiences as well as how to interpret former experiences [20]. In such contexts, project teams may need help discarding old beliefs, practices, or methods to develop into a unified group based on shared knowledge [21].

In addition, there is broad consensus in project management literature that learning is beneficial to project-based organizations to remain competitive [22], to achieve better performance [23], help refine existing ways of doing things in the project [24], learning is also essential to create innovative solutions [25, 26], and to improve performance [27, 28]. Secondly, developing learning capabilities benefits future projects or other ongoing projects [29, 30]. In addition, learning provide valuable insights for future projects [31]. Thirdly, projects are sources of recyclable knowledge relevant to the broader organization. Fourthly, developing project learning capabilities could improve existing project management processes and shorten the organization's learning curve [32, 33].

1.1. Unlearning

Unlearning, which is different than forgetting [34], is often described as an intentional process of discarding or abandoning obsolete knowledge, outdated beliefs, or practices [8, 34-41]. The nature of the relationship between change, learning, and unlearning on organizational and individual levels is still debated [42]. Some scholars suggest that unlearning and learning are mutually exclusive and distinct processes [43, 44]. Others suggest that learning and unlearning are interconnected; unlearning precedes or is a precondition for learning and change [41]. The proponents of this view suggest that organizations and individuals must unlearn first before they can learn new ideas. Unlearning is also essential during organizational crises as a pathway to challenging the statuesque and regeneration. Earlier studies on organizational unlearning discussed unlearning from various perspectives [45]. As a mechanism to avoid crises and enhance efficiency [35], as a condition for building the learning organization [37, 46], to support technological advances [47]. Unlearning is often triggered by doubts [47] and needs for improvements [48] that lead to discarding old practices and beliefs. Similar to learning, critical reflection is necessary for unlearning [49]. Wong, Demertjis, Hardie and Lo [50] developed a conceptual model to explore the relationship between unlearning and organizational learning in the construction industry, the results showed a strong link between unlearning and performance improvement through organizational learning. The findings suggest that construction organizations that actively practice unlearning strategies may be more capable of learning to enhance performance. In project management literature, unlearning is often viewed as an enabler to support learning without further clarifications or details. For example, Russell-Hodge [51] argues that failing to unlearn could inhibit project learning. The author further explains that unlearning is essential for growth without providing additional context on how unlearning could be promoted or what should be unlearned to facilitate learning. In another paper, Holt, Love and Li [52] suggest that much of the basis for learning resides in unlearning and argue that unlearning is a prerequisite for learning. These view may suggest that unlearning is important for learning because it promotes openness to new ideas and searching for new opportunities [53]. The following question then arises: what behaviors,

methods, or mindsets do individuals and teams need to discard to facilitate effective learning? Moreover, how does the process of unlearning contrast with learning within project-based organizations?

Unraveling these questions is pivotal for several reasons. Firstly, understanding what needs to be unlearned can provide clarity on potential hindrances that could stifle growth or efficiency within teams. It could include ineffective habits or misconceptions that may hamper the success of the project or the team's collaborative efforts. Secondly, comprehending how unlearning differentiates from learning offers a more holistic view of the learning process in project-based organizations. While learning typically involves acquiring new knowledge or skills, unlearning refers to intentionally discarding something either temporally or permanently. Recognizing this distinction can help individuals and teams better navigate the project landscape, as they can focus on not only gaining new knowledge but also actively identifying and eliminating ineffective practices or beliefs. Thus, this paper aims to delve into these inquiries, striving to shed light on the intricate processes of unlearning and learning within project-based organizations. In doing so, it hopes to offer valuable insights that can enhance the understanding and implementation of effective learning strategies in these contexts.

2. Methodology

The study was conducted using an experimental approach through a project assignment task that was given to students attending a master course in project management. The objectives of this project-based assignment, are manifold and include: 1) The assignment is aimed at broadening the students' comprehension of the conditions necessary for effective project management, 2) improving their awareness of the challenges often encountered in project management, and 3) enhancing their soft-skills essential for fruitful collaboration. Furthermore, the assignment seeks to develop students' familiarity with the project life cycle from its inception to delivery. The end goal of this assignment is to facilitate the planning, development, and production of a deliverable product. The nature of the product can be diverse, ranging from a computer game or simulation, an application, an interactive e-book, any digital-based product, or a physical device chosen by the students. The fundamental criterion for the product choice is that it should offer value to its users. The final deliverables for this project assignment include:

- A fully functional product.
- A report that details project's evaluation and reflections on learning and unlearning.

3. Findings

The assignment involved a total of 34 groups, each tasked with developing a specific product. Due to space limitations, we have chosen to present summary of groups reflections on learning and unlearning of only five groups in Table 1. These selected groups were chosen to provide a representative sample of the overall work conducted by all groups.

Table 1: Reflections on learning and unlearning from selected groups.

Group	Reflections on learning	Reflections on unlearning
1	The group's diverse backgrounds led to exploring individual skill sets and assigning roles accordingly, fostering collective learning. They emphasized both technical and soft skills during the learning process. Technical skills included scheduling, risk management, preparation and planning, reporting, literature review, research methods, and integration. The group also recognized the importance of soft skills like leadership, teamwork, and communication, which were especially crucial given their diverse cultural backgrounds. They believed that these soft skills played a more significant role than technical skills in the project's success.	In contrast, the group realized that not all team members needed to be competent in all project-related areas. They also found it unnecessary to have a project manager with traditional responsibilities, opting instead for a leadership approach where all team members were responsible for the results. Lastly, they let go of conventional project management methods, like the waterfall model, in favor of newer approaches such as agile methodologies. In essence. Both processes were crucial for the group's growth and the project's success.
2	The project offered substantial learning opportunities for the group, particularly about the construction industry and its approach towards recycling and reuse of materials, a sector previously unknown to them. Their understanding of the industry's	In terms of unlearning, the group realized that their common practice of conducting team meetings as "checkpoints" and then primarily communicating via technological platforms such as Teams wasn't effective for

	efforts towards implementing a circular economy, despite resistance and challenges, increased. They discovered that while the willingness to implement sustainable measures was high, there were issues with the practicality of reusing products due to burdensome or non-existent paperwork. Moreover, the group learned more about their own performance through introspection and mutual feedback. This reflective practice aimed to help them improve their roles and contributions in the future.	this particular project. They had to let go of the belief that this method would suffice, especially when facing complex tasks and tight deadlines. Instead, they found that physically sitting together, fostering direct communication and collaboration, proved more beneficial for a project that heavily relied on creativity. So, while the learning component involved gaining new knowledge about a new industry and self-improvement, unlearning required the group to reconsider and abandon some of their previous habits and methods of working.
3	In the learning segment, the group emphasized that analytical and research skills enabled them to assess different scenarios and conduct required analyses. They also developed better understanding for the need of flexibility and adaptability, which allowed them to work efficiently under changing circumstances. Interpersonal abilities were crucial in building a conducive work environment and maintaining trust throughout the project. They refined problem-solving skills to identify complex problems, develop and evaluate solutions, and enhanced their planning, organization, and prioritization skills to meet deadlines. Management skills came into play for guiding the team and monitoring progress, and they also developed technical competencies like building a website.	Regarding the unlearning aspect, the group discovered that some preconceived practices or beliefs they held were not always valid for all projects. Before the project, they believed that having predominantly convergent ideas among team members would simplify decision-making. However, they realized that decision-making often requires compromise and can be a lengthy process, which contradicted their initial belief. They navigated this by listing the advantages and disadvantages of each member's ideas and then reaching a consensus, which led to a mixture of all the proposed ideas being adopted. Thus, their unlearning involved discarding their original belief about the simplicity and speed of decision-making when team members share similar ideas.
4	The team had to learn new skills and unlearn preconceived notions to effectively manage their project. During the learning phase, the team acquired new knowledge in working with new systems and technologies. One crucial learning aspect was the importance of careful planning and fair task allocation to ensure balanced workload among team members. The students who held managerial positions, despite having different educational backgrounds, had to learn some key aspects of app development to effectively communicate with the developers. Project management also learned the importance of maintaining a constant flow of information and promptly addressing emerging issues. Lastly, recognizing the appropriate time to ask for help and involving the right people for faster, higher-quality decision-making was another important learning.	Initially, the team believed that end-user interviews and surveys were sufficient for product development. However, they later recognized the importance of market research and comparing their product with similar ones in the market. They also let go of the notion that weekly team meetings were essential for progress tracking, realizing that frequent small updates via online communication could be equally effective. Additionally, they unlearned the belief that mobile applications must be distributed exclusively through official app stores. Instead, they discovered the efficiency of using PWA technology, allowing them to serve the application as a website that could be downloaded as an app. This streamlined the distribution process and saved time. Furthermore, they found that replacing in-person meetings with quick Discord updates during high workloads improved productivity and reduced stress.

3.1. What did the students unlearn?

The students reported that the assignment helped them to unlearn practices, beliefs and knowledge that were hindering their progress and effectiveness. The following points highlight the key areas in which the students experienced significant unlearning divided into beliefs, practices and knowledge:

- **Preconceived Notions:** Groups had to let go of certain preconceptions that were limiting their perspectives. They unlearned the belief that decision-making in a homogeneous team is simple and recognized the importance of diverse viewpoints. They also discovered that user interviews alone were insufficient for comprehensive product development and that alternative distribution channels could be explored beyond official app stores.
- **Information:** Some groups had to unlearn the notion that more information is always beneficial. They realized that excessive information could hinder user-friendliness or prove impractical for specific formats. They learned to filter and prioritize information effectively, focusing on what was truly relevant and valuable for their projects.
- **Hierarchical Team Structure:** Groups let go of the hierarchical approach that assumed seniority or extensive experience equated to expertise in all areas. They recognized the benefits of creating an informal environment

and adopting non-authoritarian roles for project managers. This shift empowered team members to contribute their unique perspectives and skills, leading to more effective collaboration.

- **Assumptions:** Assumptions about stakeholder management, risk assessment, and project impacts were revisited and discarded. Students realized that treating all stakeholders equally might not be the most effective approach and that tailoring communication and engagement strategies based on stakeholders' interests and influence levels was crucial. They also recognized that project failure could result from minor mistakes and that continuous monitoring and adaptation were necessary.

Mindsets: Students identified various attitudes that required unlearning to foster personal and team growth. They challenged fixed mindsets, certain leadership styles that hindered collaboration, overemphasis on planning at the expense of execution, perfectionism that hindered progress, overconfidence that limited learning opportunities, individualism that hindered teamwork, and viewing the project as merely a school task rather than a real-world application. Through unlearning these attitudes and mindsets, students embraced a more open, adaptable, and growth-oriented approach.

In summary, the assignment created opportunities for students to unlearn outdated practices and beliefs, that were impeding their progress. Unlearning primarily pertains to the dismissal of established habits and practices.

3.2. *What did the students learn?*

Now we turn our attention to contrasting learning and unlearning. In order to do so we have analyzed what the students reported on learning. The students reported that the assignment helped them to learn a wide range of practices, knowledge, and skills, contributing to the execution of their projects. The following points highlight the key areas in which the students experienced significant learning:

- **Technical Skills:** The students emphasized the acquisition of various technical skills relevant to their specific projects. These included mastering tools such as Adobe Illustrator for graphic design, website development and coding techniques, utilizing Microsoft Excel for data analysis, applying CAD design principles for architectural projects, and becoming proficient in software like "Animaker" for animation purposes. In addition, they learned to design booklets using Canvas, establish websites, utilize project management tools like Trello, and explore new technologies such as video editing and social media content dissemination. These skills empowered them to enhance project outcomes. The acquisition of these technical skills equipped the students with practical abilities necessary for project implementation.
- **Collaboration:** Working collaboratively and leveraging the diverse backgrounds and strengths of team members were identified as essential learning points. The students acknowledged the significance of dividing tasks fairly, involving the right individuals in decision-making processes, and adapting to work efficiently under changing circumstances. They learned the importance of sharing important information, actively listening to different perspectives, engaging in meaningful discussions about project-related topics, and even adapting their communication style when interacting with individuals from diverse cultural backgrounds that successful teamwork requires effective communication, active listening, and mutual respect.
- **Product Domain Specific:** The students gained specific knowledge related to their product domains. For example, they deepened their understanding of board game structures, explored recycling practices within the construction industry, familiarized themselves with modern building standards, and acquired knowledge of similar products available in the market. This domain-specific knowledge enhanced their expertise and ability to address the unique challenges posed by their projects.
- **Project management:** The students developed skills in prioritizing tasks, allocating resources effectively, and improving time management capabilities. They learned to focus on significant aspects of a project, assign roles and responsibilities accordingly, and engage in planning, analyzing, and prioritizing tasks to meet project deadlines. In addition, the students learned to apply theoretical knowledge to practical situations by focusing on the specific requirements and constraints of their projects. They acquired problem-solving skills, developed solutions for potential risks, and gained a deeper understanding of the companies or industries they were studying. The students recognized the importance of involving end-users and stakeholders from the outset of a project. They learned to consider stakeholders' interests and influence levels, and they emphasized the need for empathy when designing products for specific user groups, such as people with hemiplegia. Engaging with

stakeholders effectively became a priority for the students, ensuring their projects addressed the needs and desires of the target audience.

Findings suggest that learning predominantly was centered on the acquisition of knowledge and technical skills related to the project's domain or developing proficiency in project management practices.

3.3. *Contrasting learning and unlearning*

The findings provide an opportunity to understand learning and unlearning within project-based environments, highlighting both their parallels and differences. This comprehension is crucial as it illuminates the dynamics of the learning-unlearning process inherent in project settings. The key insights gleaned from these findings can be summarized as follows:

- **Product-Specific Learning:** The findings makes evident the contextual nature of learning in project-based environments. While all groups reported common learning themes, the specifics of their learnings diverged, dependent on the unique demands of their respective products. For instance, different groups accentuated the development of communication, teamwork, and technical skills. However, the precise skills harnessed were uniquely adapted to meet the challenges presented by each project. This underscores the need for tailored learning approaches to match each project's unique set of challenges.

- **Character of unlearning.** Unlike learning, unlearning tends to have a more individualized and diverse character within project-based contexts. Unlearning can be either permanent or temporary. Permanent unlearning occur when individuals or groups recognize the inefficiencies of their old methods or practices. Then they have to break free from the constraints of these old methods and explore new ideas, technologies, or strategies. This permanent unlearning can lead to more creative and effective solutions to project challenges (double loop learning). Unlearning can also be temporary, when groups or individuals recognize that their existing approaches do not align with the requirements of a particular project. In this case, each group is compelled to disengage from entrenched beliefs, practices, or strategies that hampered their project progression. This type of unlearning might not result in gained new learning. This type of unlearning might therefore be important to support single-loop learning that results in adaptations to achieve desired performance.

Diversity of unlearning: The discarded practices and beliefs varied widely among groups, spanning from traditional study habits and project management approaches to tool utilization perspectives and perceptions of project scope. This highlights the importance of identifying and overcoming project-specific challenges, emphasizing the personalized nature of the unlearning process. Unlearning primarily pertains to the dismissal of established habits and practices, while learning predominantly focuses on the acquisition of knowledge and skills.

- Similar to learning, unlearning requires reflection by regularly reflecting on project progress, team relations, and individual performance, team members identify areas where unlearning may be necessary. Encouraging self-awareness and personal growth can also contribute to a willingness to unlearn outdated habits and beliefs.

- **Adaptation:** The analysis places a spotlight on the paramount role of adaptation in both learning and unlearning processes within project-based environments. Each group had to acquire new skills and discard old habits or beliefs to align with the specific demands of their projects.

4. **Conclusion**

The findings from this study indicate that in project-based tasks, learning is custom-fitted to the unique requirements of a given product and evolves from addressing specific challenges or opportunities. In contrast, unlearning spans a broader spectrum, involving a variety of beliefs and practices. Within the context of projects, unlearning manifests in two distinct forms: 1) permanent and 2) temporary.

Permanent unlearning occurs when team members recognize that their previous beliefs and practices are incongruent with new evidence or insights gained during the project. Acknowledging this misalignment, they discard these outdated notions to create space for new learning. This form of unlearning serves as a crucial prerequisite for deeper, more transformative learning. This concept aligns well with existing literature on the interrelationship between learning and unlearning in project management. Permanent unlearning essentially involves shedding beliefs and mindsets that demonstrably hinder future learning and growth.

On the other hand, temporary unlearning happens when teams identify that their standard practices are not apt for the current challenge and should be set aside temporarily. This allows them to explore alternative ideas, insights, or practices to meet project objectives or improve performance, without necessarily altering their core beliefs. In this context, temporary unlearning is mainly about abandoning specific practices or dated knowledge that, while unsuitable for the current project, may still be relevant in other scenarios. In addition, evidence suggests that both forms of unlearning necessitate a level of thoughtful reflection and are integral to effective adaptation within project-based environments. The processes and factors facilitating both permanent and temporary unlearning remain unclear and warrant further study. Specifically, an area of ambiguity is how team members decide what should be permanently discarded versus what should be temporarily shelved. The level of certainty in their judgment also needs exploration.

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