

Towards a Pedagogy of Organizational Change

PBL as a Lever for Organizational Development in Higher Education Institutions

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Abstract

The rapidly evolving landscape of higher education demands not only changes in teaching approaches but also organizational transformation. This paper explores the potential of problem-based learning (PBL) as a lever for organizational change, particularly within higher education institutions. Based on a comprehensive organizational development project involving 60 employees at a university library, this study examines the potentials and challenges of PBL in fostering a culture of continuous learning and innovation. Three focus group interviews reveal both opportunities and challenges in translating PBL principles into a professional setting. Key findings include deeper reflection, an appreciation of problem analysis skills, enhanced group collaboration, and the significance of management's role in guiding the process. However, challenges such as organizational culture barriers and the complexity of working life compared to student life highlight the need for tailored PBL approaches to succeed as an organizational change method. This study contributes to the limited literature on PBL's application in organizational contexts, offering insights for fostering sustainable change in higher education.

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Furthermore, the insights gained through the project allow us to revisit PBL in a higher educational setting to discuss which qualities in this pedagogical method could be further developed to promote student learning and development.

Keywords: PBL, Organizational Change, Higher Education (HE), Professional Development, University Library (UL)

Introduction

The Higher Education (HE) landscape is changing rapidly due to societal shifts, increased globalization, and the constant development of digital solutions (Dawo & Sika, 2021; Goh & Abdul-Wahab, 2020). Researchers are calling for HE institutions to change not only their approach to teaching but also their organizational structures to better address the challenges of a rapidly changing world (Geschwind, 2019; Vaira, 2004). The question is how to implement such changes and ensure they are sustainable over time (Hubers, 2020). Various approaches have been explored to govern possible futures for HE institutions. Baker and Baldwin (2015) demonstrate how organizational change in US HE institutions can be perceived from an evolutionary perspective, in which change progresses through a continuous process of feedback and adaptation. Lane (2007) explores the relationship between individual and organizational resistance to change and how to overcome such barriers from a Lewinian perspective. Other researchers examine organizational change in higher education through the lens of organizational learning theory (Boyce, 2003; Akhtar et al., 2011) or draw inspiration from Schein's (1985) work on organizational culture to explore how the distinct culture in HE can encourage or discourage change (Kezar & Eckel, 2002; Trowler, 2008). From an individual perspective, the role of managers as change agents has been the focus of many studies (Adserias et al., 2018; Nordin, 2012), while the importance of faculty as change agents has received less, albeit growing, attention over the last decade (Bond & Blevins, 2019; Geschwind, 2019).

A common theme among the studies mentioned above, and almost all other studies focusing on organizational change in HE, is that they start from organizational theory, treating HE institutions like any other organization. However, HE institutions are unique in that their primary objective and mode of operation are rooted in theories of pedagogy and learning. Penttilä (2016) argues that educational institutions must be understood on their own terms.

Successful change does in most cases require an inside perspective, meaning that the pedagogical foundation should not just serve as a subject of change but as a driver of organizational change as well. Following Penttälä's work, this paper seeks to investigate what happens when pedagogical theories form the basis of an organizational change process. More specifically, this study centers on the pedagogical method of problem-based learning (PBL), which is a central method for the HE institution involved in this study. Furthermore, we aim to acquire new or expanded knowledge about PBL that can be contextualized back to HE. Therefore, we will relate our analytical findings about PBL in an organizational change project to its original educational and pedagogical context and discuss what HE can learn from these new perspectives on PBL in an organizational context. This study contributes to the limited literature on PBL in organizational settings. PBL is a well-known pedagogical method that has proven to be useful and effective in formal educational contexts (Schmidt et al., 2011; Strobel & Van Barneveld, 2009). Equally, researchers have pointed to the effectiveness of the method in continuing education (Author et al., 2013; Hallinger & Bridges, 2017). However, not much research has been done regarding PBL as an approach for promoting organizational learning and change (Thomassen & Jørgensen, 2020), and the literature that does touch upon this topic often discusses how to change organizations by implementing a PBL approach in their organizational repertoire (Kolmos, 2010; Camacho et al., 2018), not how PBL can be used to bring about organizational change.

This study centers on the University Library (UL) at Aalborg University, Denmark. The UL participated in a comprehensive organizational development project based on the principles of PBL. For more than half a year, all employees worked with their peers to solve authentic problems relevant to the UL. During the process, employees received a general introduction to PBL as a pedagogical method and continuous supervision on their project work by experienced PBL researchers. Considering the unique theoretical scope of the organizational development project, this study explores the pros and cons of translating a pedagogical method for enhancing student learning into a method for creating organizational learning and development. The study is guided by the research question:

What potentials and challenges arise from a PBL-based approach to organizational development, and what can higher education institutions learn from these expanded perspectives on PBL?

Three focus group interviews and author field notes formed the basis for the analysis, findings, and discussion. The study was conducted with the participation of 60 UL employees.

Conceptual framework

We approach the research question through a conceptual framework grounded in Problem-Based Learning (PBL) and organizational change theory. The linkage between these two domains offers a lens for developing and discussing how PBL can facilitate organizational change.

PBL was first introduced in the late 1960s by a group of doctors at McMaster University Medical School in Canada. These educational innovators, dissatisfied with their academic experiences as students, sought to create a new educational approach (Servant-Miklos, 2019). Over the following decade, other universities (especially medical schools) followed in the footsteps of McMaster University, implementing various pedagogical approaches either inspired by or direct copies of the approach developed at McMaster and made world-renowned by the influential teacher and researcher at this institution, Howard S. Barrows (Neufeld & Barrows, 1974; Barrows & Tamblyn, 1980). Today, PBL is an internationally recognized pedagogical approach adopted by universities worldwide within a wide range of professional subjects such as engineering (Chen et al., 2021), psychology (Wiggins et al., 2016), business (Hermann et al., 2021), and within the liberal arts (Hutchings & O'Rourke, 2002). Evidence for the effectiveness of PBL as a learning approach has been growing over the past decades (Schmidt et al., 2011; Condliffe, 2017). Although further research is still needed (Grant & Tamim, 2019) to strengthen the position of this pedagogical approach within the landscape of HE pedagogical practice, most scholars agree that PBL holds several advantages over more traditional methods when it comes to fostering 21st-century skills such as collaborative skills (Chen, 2021), creative and critical thinking (Camacho & Christiansen, 2018; Ulger, 2018), motivation for learning and study interest (Rotgans & Schmidt, 2019).

Along with the increasing popularity and widespread use across professional fields, the landscape of PBL has, not surprisingly, become increasingly diverse. Thus, pedagogical practices differ to such an extent that researchers argue that we are no longer talking about the same thing (Maudsley, 1999; Servant-Miklos, 2020).

The conceptual understanding of PBL behind this study is based on the definition by Savery (2006:12): "PBL is an instructional (and curricular) learner-centered approach that empowers learners to conduct research, integrate theory and practice, and apply knowledge and skills to develop a viable solution to a defined problem." Furthermore, it encompasses the most common

characteristics of PBL practice, which can be identified by comparing some of the most influential texts within the PBL literature (Barrows, 1996; de Graaff & Kolmos, 2007; Hmelo-Silver, 2004; Savin-Baden & Major, 2004; Schmidt, 1983). As such, PBL can be characterized by the following principles:

- Learning is organized around real and complex problems that link theory to practice.
- The nature of the academic work should be as authentic as possible.
- Knowledge is constructed through active learning processes.
- Learning is a social phenomenon based on students' active participation and involvement.
- Learning is organized in small groups to achieve goals only reachable through collaboration.
- Teachers act as facilitators of learning.
- Students must take responsibility for identifying their own learning needs and organizing their own learning paths.

Organizational change

Organizational research has pointed to the difficulty of creating significant and lasting organizational change (Longenecker et al., 1999). According to Beer and Nohria (2000), most organizational change projects fail to reach their intended outcomes. This is also true within the educational field, where implementing major development reforms sometimes seems virtually impossible (OECD, 2018; Sahlberg, 2016). Organizational change projects are often described as being either based on a top-down (Ryan et al., 2008) or a bottom-up approach (Yi et al., 2017). Both approaches have pros and cons, and neither has proven especially successful within HE (Fullan, 1994; Mazon et al., 2020). As Hargreaves and Ainscow (2015, p. 94) state, top-down change in education can work when the purpose is straightforward, the results are easily measured, and there is public confidence in the educational institutions—a combination seldom seen in today's educational landscape. Similarly, the success of bottom-up approaches is less than impressive (Loucks and Hall, 1977; Anderson, 2010). Due to these mediocre-at-best results of traditional change approaches, Hargreaves and Ainscow (2015) propose a new way for change projects in educational settings, integrating top-down and bottom-up approaches into a new approach they call Leading From the Middle (LFM). This approach is defined as "a deliberate strategy that increases the capacity and internal coherence of the middle as it becomes a more effective partner upward and downward, in pursuit of greater system performance" (Ibid: 24). LFM is a strategy that sees leadership as an activity instead of a position (Robinson et al., 2007). Thus, leadership resides not in the person but in the task, and therefore

leadership in the project organization can and must be distributed among organizational members (Hamel & Zanini, 2020). Furthermore, LFM practice is aligned with Fullan's (2011) four drivers for whole systems change:

1. Cultivate the intrinsic motivation of teachers and students.
2. Engage teachers and students in continuous improvement of teaching and learning.
3. Inspire cooperation and teamwork.
4. Be sure to involve all teachers and students.

The LFM approach corresponds well with the core principles of problem-based learning (PBL), which requires collaboration, active participation, and self-directedness within project groups. Therefore, the management team at UL and the research group agreed upon a design for organizational development based on a combination of the core PBL principles and the theory of LFM.

Context of the study

The proposed conceptual framework presented above serves as a foundation driving the organizational development project and the research design in the context of the UL. The UL is a service organization within Aalborg University with little less than 60 employees handling a wide range of administrative and practical tasks for the university. Over the last five years, the UL management team had become increasingly aware that the character of the tasks that the UL undertakes has changed from primarily being individual, linear, and instrumental to still more collective, complex, and reflexive. Their conclusion was that the organization needed to change itself into a project-oriented organization (Huemann et al., 2007) to be able to respond to the demands the organization was facing. A project-oriented organization is conceptualized by Gemünden et al. (2018) as an entrepreneurial, future- and stakeholder-oriented innovating organization, which uses projects as temporary, task-focused organizations, to define, develop, and implement its strategies. Furthermore, such organizations are typically characterized by groups of small teams, that work independently, coordinating and collaborating with other teams within and outside of the project matrix (Pedersen et al., 2024). Teams within project-oriented organizations often work quite autonomously, when seeking to identify and implement solutions that can move the project towards its completion (Thesing et al., 2021).

Furthermore, the UL is part of a research-intensive university at which PBL plays a central role as the pedagogical foundation for all educational programs and the UL management shared an ambition to align the organization with the AAU-PBL-model (Fink & Krogh, 2004). Management therefore contacted the research team consisting of PBL researchers with multiple years of experience from practice and research in PBL within formal education (Ryberg et al., 2016; Velmurugan et al., 2021; Stegeager et al., 2013; Scholkmann et al., 2023). An organizational change design based on the principles of PBL was developed. The basic idea was to use the university PBL-model from ordinary education as the basis for the organizational development project. Thus, employees were to learn about their organization and PBL by engaging in a PBL-project under the supervision of experienced university academics.

All UL employees were divided into project groups based upon their primary obligations within the organization and assigned a supervisor. After an introductory PBL course, each group was presented with a problem defined by the managerial team and with specific relevance to group members professional responsibilities. Problems varied from quite open-ended questions such as "What kind of UL services do students actually need and how can the UL improve their ability to provide such services?" to more linear and instrumental "How can we make sure that academic staff actually follows the required journaling procedures?". The task for each group was to work on solving the problem under guidance from their supervisor and their respective line manager. The project was finalized at a joint one-day seminar at which each group presented a product representing their solution to the problem.

Data collection

The study received ethical approval from the Institutional Review Boards (IRBs) of AAU and has been registered in the General Data Protection Regulation (UE) 2016/679 GDPR. All participants were informed that their participation was entirely voluntary, and they were required to give their consent by signing a consent form.

Two months after the end of the project, three focus group interviews were conducted with 5-7 UL employees. Participants were recruited based on random sampling. The interviews were based on an interview guide prepared by the researchers based on the conceptual framework of the study. Interviews lasted approximately an hour. All interviews were recorded and transcribed subsequently by the first author. Only employees were interviewed as the study sought to explore the perspectives of this group. In hindsight it would have

been valuable to interview management as well, since managerial actions and decisions were an often debated subject in the interviews.

The analysis of the data is inspired by thematic analysis procedure (Braun & Clarke, 2006). Interviews were transcribed and coded by the first author based on an inductive approach (Coffey & Atkinson, 1996). The primary inspiration for the coding is a four- phase matrix model developed by Glaser & Strauss (1967): Conceptualization of the overall theme, rough division of data into general categories, division into subcategories and further division into finer categories. In this case, data were categorized into four broad categories, 17 subcategories, and 38 finer categories. Furthermore, the finer categories were analyzed based on Boeije's (2002) five-step comparative approach, in which he emphasizes the importance of patterns and combinations of categories and codes (Ibid., p. 397). Themes and categories were subsequently examined and discussed amongst the group of authors until consensus was obtained.

Apart from the interviews, the authors wrote field notes during the process period. Notes were taken after each meeting with library members (employees and/or management). The foundations of the notes were a thorough description of authors experiences and reflections during meetings and seminars. Field notes are used in the paper as background material and are thus not directly part of the analysis.

Findings

In the following section, we will examine the potential challenges of PBL as a method for fostering organizational development. This analysis begins by delving into the perspectives of employees, focusing on the knowledge and competencies they have acquired throughout the project period and how they find that these newly developed skills contribute to the improvement of their execution of everyday tasks. The results are structured around four themes:

- Problem analysis – reflection before action.
- Group work and supervision.
- Barriers to PBL in an administrative unit.
- Managerial roles and responsibilities

Problem analysis – reflection before action

In the focus group interviews, employees describe their practice as characterized by high working tempo, quick decision-making, and a high probability of missing important aspects of the issue they currently are engaged in due to limited time that can be attributed to each task. In this regard, the PBL project forced them to face old habits and reflect upon their traditional approach to problem-based work. This is reflected in the statement below, in which an employee reflects upon the differences between their ordinary practice and their experience during the PBL project period.

“When we face problems, our discussion is about finding a solution. ‘You could do it this way or that way’. But during this project, we had to spend more energy simply focusing on the problem itself: ‘How to understand the problem? Is this the right way to frame it? Is this what we want to work on?’. Finding peace in staying with the problem is very different from what we usually do¹.” (Participant D, Group 1)

Even though several employees report that they found it difficult to remain in the analytical phase, a frequently mentioned outcome of the project is that the process prompted an increased appreciation for the analytical and investigative part of their work. A newfound appreciation for a prolonged reflective period before jumping to solutions. Furthermore, employees enjoyed the experience of working 'around the issue', as it made them aware of how their task performance and work in general could be enhanced by spending more time on reflection and incorporating other perspectives.

“[...] I think we sometimes walk around in our own bubbles thinking we know what the students need. But during this process we gave ourselves the challenge to actually involve them thereby getting their perspective. The solution we landed upon was of a kind we definitely had not thought of before.” (Participant 4, Group 1)

Apart from asking students, UL employees noted that in some situations, they also found it beneficial to involve teams or colleagues from the UL or even from other areas of the university in the problem analysis. Insisting on the inclusion of multiple perspectives not only improved the problem analysis and the eventual solution but also created openings for developing mutual understanding—a common language of PBL. Several employees state that they have acquired a more nuanced understanding of the challenges that students face when engaged in project work after going through a similar process themselves, thereby gaining insight into workflows they were not familiar with before.

Despite these positive experiences regarding the exploratory and reflective approach to problem-solving, most employees agree that the time-consuming nature of this method necessitates a thorough analysis of when, in a busy workday, to engage in the slower PBL approach. Generally, employees describe the approach as meaningful for innovative processes but acknowledge that the process can become protracted and unfruitfully time-consuming when dealing with practical problems and operational tasks. Thus, many respondents asked the managerial team to determine how and when (and thus when not) PBL should be the preferred working method in the department.

Group work and supervision

As described earlier, group work and collaboration with a supervisor are fundamental activities in PBL. In an organizational context, teamwork and collaborative activities are likewise a natural part of working life. Even so, UL employees were somewhat surprised by the impact – both positive and negative – that group work in the PBL project had on their learning and understanding of their organization. By and large, most employees describe the group work experience as pleasant, motivating, and enlightening.

Participants report that they have gained increased awareness of areas for possible organizational development, especially regarding feedback and knowledge sharing across teams. Furthermore, even though some groups were based on the existing team structure, other groups were formed across different teams in the organization. This provided employees with the opportunity to see different competencies within their colleagues' repertoires that they did not previously know existed.

Several respondents reported that teams based on the existing structure often found that they lacked an 'outside' perspective that could help move their professional discussions along. In these groups, the supervisor played a crucial role, contributing with new perspectives and “annoying questions, which would help open our eyes to new possibilities” (Participant C, Group 3). In this way, the supervisor could pose questions to the existing order and challenge perceptions of what is possible and not.

Although most employees found the group work to be a pleasant and stimulating activity, some experienced the challenges that is often a part of the PBL experience. Several groups encountered internal tensions during the project period regarding such things as alignment of expectations, distribution of responsibilities, and variations in the level of engagement among group members.

“Sometimes discussions came down to ‘who has the ball?’ We all had our “real” work on top of the project. And sometimes, someone felt pressured by the amount of chores on their table, forcing them to prioritize something else than the project, and maybe it didn't quite sit well with the rest of the group that not everyone could move at the same pace.” (Participant B, Group 2)

In addition to tensions arising from discussions centered on tasks and responsibilities, several groups reported not having the necessary project management tools to help structure the group process and facilitate effective meetings. Although some employees had received training in project management, they found it quite difficult to apply their skills in this particular context, where their colleagues were part of the project. These challenges were often addressed in supervisor meetings, as almost all groups found that an external supervisor with no attachment to the workplace was a valuable asset.

However, groups with higher conflict levels especially found it difficult to transfer the working spirit from supervisor-facilitated group meetings to everyday working life.

Barriers to PBL-implementation in an administrative department

Working with complex and authentic problems is a fundamental element of PBL. In this project, each UL group was presented with different problems, providing a defined framework for their project work. Some groups instantly found the problem meaningful and engaging, resulting in constructive processes and useful outcomes. Other groups experienced problems getting started, as they found it difficult to agree on how to approach the project, requiring guidance to make the problem more concrete. According to the statements of the employees, it appears that some problems are easier to work with than others. Generally, good projects emerged from development-oriented problems necessitating new initiatives and new collaborations. Problems that encouraged dialogue with users or collaborators outside the UL were especially perceived as meaningful. However, if the problem was more instrumental at its core—often focusing on changing or optimizing already existing processes in the unit—various challenges arose. In particular, employees experienced challenges when working with internal operational problems that concerned specific functions and existing workflows.

“We were presented a problem we all were deeply involved in. We had established roles, both in terms of work distribution, but also on a more personal level in relation to each other.” (Participant A, Group 1)

When employees are personally involved in a specific problem, they might experience the group work as an intrusive act, with people stepping over some hidden organizational boundaries. Thus, the project work risks becoming quite personal, raising questions not only about future organizational procedures but also about core elements of the participants' working lives and professional identities. For such projects to succeed, the group must establish high levels of psychological safety. This means creating an environment of openness and mutual trust, where a willingness to show more vulnerable aspects of oneself is a norm within the group. Some groups worked very explicitly to establish such a "space of confidentiality," discussing the requirements for group cohesion when working with internal issues.

"In our group, we didn't have to create something new in that way, since our task was to improve existing procedures. However, the "newness" was our approach to the optimization process. This meant that we had to look into each other's working obligations and professional roles. Simply speaking, we had to cross some boundaries during the process." (Participant B, Group 3)

Through the project, many participants experienced how challenging it can be to do project work in their own organization, focusing on very authentic problems—namely, their own working life and tasks related to their professionalism. Such processes often provoke group tension and insecurity and can sometimes lead to open conflict between employees. Even though group dynamics are part of the "PBL experience," and participants had been informed about this before engaging in the project, several employees with prior PBL experience from their own formal education pointed out the significant discrepancy between doing PBL within an educational setting with fellow students and doing it at a workplace with colleagues with whom they are professionally connected and expected to maintain a relationship with after the end of the project. As one employee said, "You cannot change to a new group after the summer break."

In the focus group interviews, participants further discussed why they experienced difficulties allowing others into discussions regarding their own work obligations, especially in situations involving challenges and possible mistakes. Based on these reflections, it seems as though many employees in this particular organization perceive it as a sign of weakness to ask their colleagues for professional advice. Perspectives on this vary among the groups, but a narrative regarding "professionalism," suggesting that if you are an experienced employee, you should be able to solve your work tasks independently seems to exist. This perspective could indicate that the

organization promotes a culture where independent decision-making is highly valued. Based on these reflections, employees in the focus group interviews began to discuss the obstacles the organizational culture might have set in place for a PBL project that requires a curious and experimental approach to learning.

“You are in some ways exposed in a group setting. I mean, you have to acknowledge that you do not know everything about the subject even though it is your specialty. I think for some, that can be difficult. I mean, displaying that kind of uncertainty. I think many of us are like that, we just want to have things under control.” (Participant F, Group 1)

Managerial roles and responsibilities

During the interviews, the role of the management team was frequently discussed, even though they were not represented in the focus groups. It is quite obvious from the statements of the employees that management plays a crucial role, if PBL pedagogy is to be successful as a tool for organizational development. Throughout the project period, the supervisors acted as the primary support for the project groups. However, some employees stated that the group work and the projects themselves might have been more impactful had the management team from the onset clearly communicated intentions and purpose of the project. Especially, a more thorough understanding of the long-term desired impact of the project was a common request in the interviews.

Employees were left speculating about the role PBL should play in the organization moving forward: “Are we practising PBL because this is the new way to structure all or most organizational activities, or is this a method that is only relevant in certain areas and at special times?” This perceived lack of clarity made it difficult for some employees to engage fully in the process, as it created uncertainty about the seriousness of the project, indirectly raising questions about whether it was actually worth investing time and energy in the process.

“For such a process to succeed strong leadership is required. Management must be aware that PBL simply works differently in a workplace than it does in the classroom. It is a very important managerial task, clearly to communicate intentions and expectations to us as employees: “What are we to do? What is the goal of the project?” and most importantly, “Where does the project lead?”” (Participant B, Group 3)

Furthermore, many employees voiced concerns regarding the retention of their newly acquired skills and competencies. As mentioned above, almost all employees felt that the projects had provided them with useful skills and

insights, but the interviews also revealed a fear that this knowledge might fizzle out over time. Skills need to be continuously practiced over a prolonged period to become part of the employees' repertoire. Thus, management must ensure ample opportunities to revisit tasks that require the use of a PBL skillset.

In relation to securing retention, some employees pointed to the opportunities that a common course for all employees could hold. They perceived it as a clear organizational advantage that everyone had come to possess the same knowledge, having all been participants in the same course. However, some ask how the organization can move from individual knowledge (where all employees know the same) to organizational knowledge (where employees are able to collectively use their knowledge to help the organization improve performance goals).

"I am actually a strong advocate for all of us acquiring the same skills, so we all understand what each other is talking about. I think that's really great. But I think what's crucial for something like this to succeed is that the management team must say: 'This is how you need to work now, so we can make progress.'" (Participant A, Group 3)

Even though management plays a crucial role in ensuring the course will leave a permanent mark on organizational practice, some employees recognize that management cannot do it alone. While employees call for managerial action, they are also aware that not everything that comes from management is immediately accepted by the staff. As one employee mentioned, top-down decisions are easy to implement but hard to love. This poses an interesting dilemma: On the one hand, employees call on management to make decisions, point out directions, and set clear targets; on the other hand, these same employees ask for independence and autonomy.

Discussion

Integrating PBL into a workplace setting shifts its application from an academic training ground to a complex environment where real-world problems directly impact professional roles, identities, and the organization's operational efficiency. This shift necessitates a nuanced discussion centered around several themes that highlight the challenges and opportunities of interpreting PBL as a pedagogy for organizational development. Based on the findings presented in the previous section, we now discuss the central themes emerging from this study and relate them to PBL-pedagogy in higher education.

Transition from Educational to Professional Context

The move from viewing projects as a form of "play" or "training" in an educational setting to addressing real problems in the workplace marks a significant transition. In student life, the primary focus is on learning, exploration, and learning-how-to-learn, often within a safe and controlled environment where mistakes are part of the learning process.

Conversely, in the workplace, problems are not hypothetical scenarios but real issues that affect daily operations, professional relationships, and the organization's overall success. This transition underscores the need for PBL approaches that acknowledge the stakes involved and adapt to the complexities of professional life, including the pressures and responsibilities that come with it.

Although, as we saw in our analysis, this extra layer of seriousness seems to multiply the stakes of the PBL work and thus the potential for destructive group processes, it also creates enormous motivation to succeed, striving for the best result possible as project success is directly connected to professional success. In this regard, it could be beneficial for educational planners to consider how the "playfulness" in an educational setting can, in some ways, resemble the seriousness of the workplace to increase motivation and effort in PBL work.

Group Work in the Workplace

Group work in the workplace transcends the concept of project groups in an academic setting. It involves ongoing collaboration and communication, with team members often working together on a series of projects or continuous operational tasks. The dynamics of workplace group work require a balance between individual responsibilities and team goals, with a focus on long-term relationships and organizational objectives. Effective group work in this context relies on clear roles, shared goals, and a culture of mutual respect and support. Group work in a workplace setting can also lead to conflicts, given the diverse backgrounds, expertise, and professional stakes involved. Unlike academic projects, workplace conflicts can have immediate implications for job performance and organizational culture. Addressing these conflicts requires a mature and open approach to collaboration, emphasizing communication, empathy, and conflict resolution skills.

Leadership and facilitation become crucial in navigating these challenges, ensuring that group dynamics contribute positively to problem-solving and team cohesion. The diversity within a workplace encompasses a broader range of experiences, expertise, and perspectives than typically found in academic settings. This diversity can potentially enrich the PBL process, bringing a wealth of ideas and solutions to the table. However, it also requires careful consideration of group dynamics and the inclusion of diverse voices to ensure

that all employees feel valued and heard. Leveraging this diversity effectively can lead to more innovative and comprehensive solutions to problems.

When experiencing PBL in an organizational context, factors that we might take for granted in an educational setting become apparent. Among these are the importance of frameworks for group work and tools for project management, all of which are significant skills to have in group work, whether it's project work in a workplace or in HE. Even though time is often scarce in an educational context, the findings from this project remind us to prioritize a continuous focus on the process of PBL rather than rushing toward a certain and desired end state (the product). While every pedagogical intervention should be based on a desired learning outcome, it is important to remember that the process and the outcome are tightly interconnected and thus should be seen as two sides of the same coin.

Supervision in PBL

Supervision proved essential in supporting the employees as they adapted to the PBL approach. This was especially true for those who were accustomed to more traditional, directive work environments. The support that a mentor can provide might include training sessions, mentoring, and presenting participants with resources that can guide them through the PBL process. Supervision should help employees build the skills and confidence needed to navigate complex problems, encouraging autonomy while providing the necessary support structures to ensure success. It is also evident that staff do not have the same freedom to explore methods and alternative tracks in their project work compared to students in HE. In higher education, students often have the opportunity to engage in 'serious' and 'playful' learning contexts, allowing them to experiment more freely with different approaches. In contrast, employees working on organizational projects must adhere to more structured and goal-oriented processes, limiting their scope for experimentation. Even though the supervisor plays an important role in HE as well, literature often stresses that one of the most important tasks of the supervisor is to facilitate student meta-learning. However, the concept of learning to learn is clearly different in the two contexts. In higher education, meta-learning involves helping students develop their ability to understand and regulate their own learning processes, fostering independence and critical thinking. In an organizational context, learning to learn is more focused on practical application and immediate problem-solving within the constraints of the workplace. Understanding these differences could provide valuable insights for future developments of PBL.

The Complexity of Working Life vs. Student Life

“The problem-based learning of the 21st Century needs to move away from standardization, striation and repression; it needs to move out of the shadows.” (Savin-Baden, 2020: 4)

The complexity of working life, compared to student life, presents unique challenges in applying PBL in the workplace. In formal education, the problem-based project is the only activity that the participants perform together, whereas the staff in this project had to carry on with all their other activities and tasks. Furthermore, while students can take a break from their group activities, employees are forced to continue their work and daily tasks. In the workplace, problems are multifaceted, often requiring interdisciplinary knowledge and collaboration across different employee groups. The stakes are higher, with solutions impacting the organization's bottom line, employee morale, and customer satisfaction. This complexity calls for a sophisticated application of PBL, one that can accommodate diverse perspectives and the realities of organizational constraints.

For quite some years, educational developers have strongly suggested that educational activities, learning goals, and assessment methods are aligned (Biggs, 1996). Thus, education should be structured following a clear and obvious logic easily explained to the students, and students should know from the onset of a semester what is expected of them and which actions they should take to reach and demonstrate the overall intended learning outcomes. Even though we acknowledge that such clarity can often lead to beneficial learning, it is important to remember that “real-life problems” almost never provide such a stringent sequence of logic. Thus, if we only teach our students to operate under conditions governed by clearly formulated rules and demands, their learning will, in some ways, become limited. Sometimes education needs to be complex — even chaotic (Trowler, 2015). As an educational designer, one might not become very popular among either students or fellow educators when insisting on increasing the complexity in the educational context. Students often appreciate clarity and well-structured courses.

However, learning does not always spring from what we find pleasing but rather from reflection caused by the surprises (sometimes more and sometimes less pleasant) that arise when we experience something unexpected. This is the power of PBL; it allows for complexity, uncertainty, and frustration, and in this way, it opens up other forms of learning potentialities.

Conclusion

In conclusion, adapting PBL to the workplace involves recognizing the significant differences between academic and professional settings. It requires tailored approaches that consider the complexity of work life, the diversity of the workforce, and the need for scaffolding to support employee development. With thoughtful implementation, PBL can become a meaningful and effective approach to solving real-world problems and fostering a culture of continuous learning and innovation in the workplace.

This study underscores several key themes essential for successful integration of PBL into organizational contexts. First, the transition from educational to professional settings marks a critical shift, where problems impact daily operations, professional relationships, and organizational success. This shift necessitates PBL approaches that acknowledge the higher stakes and adapt to the complexities of professional life. Second, PBL can significantly contribute to employee development by fostering a culture of continuous learning, critical thinking, and innovative problem-solving. Employees engaged in PBL can develop a deeper understanding of their work, enhancing their professional competencies and bridging the gap between theory and practice. However, it is crucial to recognize the varying degrees of ease with which different employees can integrate PBL into their daily practice, influenced by individual and organizational structures. Third, group work in the workplace differs from academic settings, involving ongoing collaboration and communication with long-term relationships and organizational objectives. Effective group work relies on clear roles, shared goals, and a culture of mutual respect and support. Addressing conflicts and leveraging the diversity within the workplace is vital for enriching the PBL process and ensuring all voices are valued.

Fourth, supervision plays an essential role in supporting employees adapting to PBL, especially those accustomed to traditional, directive work environments. Supervisors must help employees build the skills and confidence needed to navigate complex problems, balancing autonomy with necessary support structures. Additionally, the complexity of working life compared to student life presents unique challenges for applying PBL in the workplace. The multifaceted nature of workplace problems requires interdisciplinary knowledge and collaboration, demanding a sophisticated application of PBL that accommodates diverse perspectives and organizational constraints. Finally, this study highlights some of the themes often taken for granted in formal education, such as the focused nature of student projects. In the workplace, employees must juggle multiple responsibilities alongside PBL

projects, necessitating frameworks for group work and project management tools. Emphasizing the process of PBL rather than rushing toward outcomes is crucial for meaningful learning and development. Overall, while integrating PBL into the workplace presents challenges, it also offers significant opportunities for enhancing organizational development and employee growth. By understanding and addressing the differences between educational and professional contexts, organizations can harness the power of PBL to drive innovation, improve problem-solving capabilities, and cultivate a culture of continuous improvement.

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¹ All interview quotations are translated by the authors.