How project knowledge management develops volatile organizational memory

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Abstract

Purpose – This paper discusses the effects of enabling conditions of project knowledge management in building volatile organizational memory. The theoretical rationale underlies a recursive relationship among enabling conditions of project knowledge management, organizational learning and memory.

Design/methodology/approach – This research employs a qualitative descriptive single case study approach to examine a mobile application development project undertaken by a major software company in Brazil. The analysis focuses on the project execution using an abductive analytical framework. The study data were collected through in-depth interviews and company documents.

Findings – Based on the research findings, the factors that facilitate behavior and strategy in managing project knowledge pose a challenge when it comes to fostering organizational learning. While both these factors play a role in organizational learning, the exchange of information from previous experience could be strengthened, and the feedback from the learning process could be improved. These shortcomings arise from emotional tensions that stem from power struggles within knowledge hierarchies.

Practical implications – Based on the research, it is recommended that project-structured organizations should prioritize an individual's professional experience to promote organizational learning. Organizations with well-defined connections between their projects and strategies can better establish interconnections among knowledge creation, sharing and coding.

Originality/value – The primary contribution is to provide a comprehensive view that incorporates the conditions required to manage project knowledge, organizational learning and memory. The findings lead to four propositions that relate to volatile memory, intuitive knowledge, learning and knowledge encoding.

Keywords Project knowledge management, Enabling conditions, Organizational learning, Organizational memory, Intuitive knowledge, Volatile memory

Paper type Research paper

1. Introduction

The literature on knowledge management focuses on organizations that operate on a project-based model (Li, Liu, & Zhou, 2018). Projects are a way of sharing individual knowledge to create and provide new products or services to customers. Project management helps convert

tacit knowledge into explicit knowledge within the project (Oufkir & Kassou, 2019). Project knowledge management is a crucial aspect of organizational learning. When a project is developed to encourage new ideas from individuals and groups, it can create diverse routines that become part of the company's memory (Oh, 2019). This memory acts as a vast store of information that people can retrieve to their performance and enhance their abilities. Organizational learning, which involves a multi-layered approach to knowledge and actions, promotes progressive internal changes that can renew organizational memory for future use by individuals and groups (Antunes & Pinheiro, 2020). By embracing effective project knowledge management, organizations can foster a culture of continuous learning and growth, ensuring their long-term success and sustainability.

According to Basten and Haamann (2018) managing project knowledge management and sustaining organizational learning is a challenging task because projects are unique and temporary. Such a challenge is easily seen in technological environments where knowledge quickly becomes obsolete. To overcome these challenges, scholars suggest implementing several best practices. For instance, Gomes, Oliveira, and Chaves (2018) recommend using structured project planning and problem-solving methodologies, while Canonico, de Nito, Esposito, Pezzillo Iacono, and Consiglio (2020) suggest phase control, time scaling, and active leadership. Implementing these practices strengthen the merger of the classical knowledge creation theory with the organizational learning perspective.

According to recent research, there is a need to focus on how project knowledge drives organizational memory (Moutinho & Silva, 2021). This is because there is evidence that multilevel project-based learning is limited (Wiewiora, Chang, & Smidt, 2020). In this line of reasoning, Nadae and Monteiro de Carvalho (2017) show that the knowledge transferred among individuals, groups, and organizations depends on the conditions that enable project knowledge management. Others, like Oh (2019), point out that organizational knowledge stock impacts feed-forward and feedback learning flows.

The relations among enabling conditions of project knowledge management, organizational learning, and memory could be better explored to understand their interrelatedness. Therefore, this paper raises the following research question: How do the effects of enabling conditions of project knowledge management in building organizational learning and memory take place? A qualitative case study about one of the most important Brazilian companies developing apps for smartphones, tablets, and mobile sites answered the question above. The analysis unit of this study addressed an app project of a large organization that offers benefit cards such as meal, food, and fuel vouchers.

The analyses have considered the processes of creation, sharing, codification, and the use of knowledge in that project. Besides, they have also focused on how project knowledge management promotes organizational learning and memory. The findings suggest that the enabling conditions of project knowledge management underpin a project learning whose feed-forward flows are weak, and the organizational feedback is loose. Frailties can arise from tensions and time pressures in project. When the conditions for good behavior and strategy are lacking, it can lead to a volatile organizational memory and difficulties in institutionalizing project knowledge.

Such findings suggest four propositions, at least. First, the more volatile the organizational memory is, the more intuitive knowledge is stocked. Second, feed-forward learning is inversely related to the volatility of the organizational memory. Third, the greater the centralized knowledge hierarchies in projects, the fewer the project feed-forward learning processes. Fourth, the greater the culture of empowerment of project teams, the smaller the processes of encoding knowledge of projects. Therefore, six sections comprise this paper besides this introduction. They include theoretical review, methodology, findings, analysis, discussion, and final remarks.

2. Theoretical review

Project knowledge management is critical for companies to provide their clients with customized technology. Such management might foster organizational learning (Oh, 2019), traditionally defined as feed-forward and feedback flows (Crossan, Lane, & White, 1999). The former begins with individual intuiting and interpreting (McClory, Read, & Labib, 2017) as mental-cognitive responses to diverse environmental signals or personal foresight (Bootz, Durance, & Monti, 2019). The collective learns by integrating individual knowledge into the groups, contributing to new organizational rules (AlShawabkeh, Abu Rumman, Al-Abbadi, & Abu-Rumman, 2020). Nevertheless, the feedback is a stream from organizational routines and procedures that influence people's behavior (Furlan, Galeazzo, & Paggiaro, 2019). It is worth noting that rules that are too rigid can sometimes mix institutionalized knowledge with organizational memory, as highlighted by Antunes and Pinheiro in their research (2020).

Project knowledge management can help keep an organization's memory alive, according to McClory *et al.* (2017). This is possible if it encourages individual learning that leads to collective and organizational knowledge, as noted by Oufkir and Kassou (2019). The project's internal context, also referred to as the enabling condition, or *'Ba'*, is developed by the interactions of stakeholders. *'Ba'* is a shared mental space that requires integration to be fostered. Nonaka and Konno (1998) recommended developing behavioral dimensions such as solicitude, autonomy, care, trust, and individual commitment. The other dimensions are strategical and informational systems, respectively. The former refers to intended actions, while the latter is concerned with information distribution, which implies bounce-back memory. It involves the ability to retrieve stored information.

The project evolves according to the role of the leadership (Pellegrini, Ciampi, Marzi, & Orlando, 2020) to sustain enabling conditions in the ongoing project (Oh, 2019). The conversion of knowledge from tacit into explicit and vice-versa (Nadae & Monteiro de Carvalho, 2017) leads to the *'Ba'* in each project phase (Karagoz, Whiteside, & Korthaus, 2020). Each step has a specific *'Ba'* socialization, externalization, combination, and internalization (Ni, Cui, Sang, Wang, & Xia, 2018). Originating *'Ba'* captures the range of psycho-emotional reactions in practice (Dreyer, Bown, & Wynn, 2020). Social interaction and earlier experiences have allowed mental model sharing (Ali, Musawir, & Ali, 2018).

In knowledge management the *'Ba'* concept refers to the social space where knowledge is shared and created through interactions among individuals and their environment. This phase is critical for externalizing knowledge and should be approached consciously. When the knowledge gained from a project is clearly documented, it can be used more effectively in future projects (McClory *et al.*, 2017). However, the process of using *'Ba'* helps to convert this knowledge from explicit to tacit through training with senior professionals and colleagues (Sujatha & Krishnaveni, 2018). Project knowledge management contributes to organizational learning if project memory transforms into project working routines legitimized by the organization. Organizational learning involves feed-forward and feedback processes (Wiewiora *et al.*, 2020) mediated by project knowledge management (Ren, Deng, & Liang, 2018).

Koskinen (2010) suggests that there is a recursive relationship between project knowledge management, organizational learning, and memory Clique ou toque aqui para inserir o texto. This relationship can be set up by creating, sharing, codifying, and using project knowledge in new products or services. Project knowledge management promotes the absorptive capacity in projects (Moraes, Silva, & Oliveira, 2020) when it encompasses the ability to recognize, assimilate, transform, and apply a diverse range of information from external sources to produce innovation and expand it organizationally through the project memory (Ali *et al.*, 2018).

The organization spreads the knowledge gained from its earlier projects and uses it to improve the execution of new ones (Antunes & Pinheiro, 2020). Organizational learning takes

place when the company absorbs the lessons learned from earlier projects, such as the rules of behavior, strategic goals, and informational systems (McClory *et al.*, 2017). The organization incorporates the knowledge obtained from previous projects (Tizkar Sadabadi & Abdul Manaf, 2018) to provide feedback and improve the learning process for future projects (Heaton, Skok, & Kovela, 2016).

Organizational memory pertains to the data and knowledge that a company has gathered and accumulated over a period. This knowledge plays a crucial role in stabilizing the internal behavior of the organization and can ease the renewal of business through various learning processes. Figure 1 provides an overview of the relationships between the enabling conditions of project knowledge management, organizational learning, organizational memory, and how all three components encourage and support each other.

3. Research design and setting

The research aims to understand the effects of enabling conditions of project knowledge management in building organizational learning and memory. For this reason, the research design followed the descriptive qualitative research design harnessed to a single case. Such method is suitable because it describes the data deeply from the interviewees' point of view. The data source that is most closely connected to the primary source of information is the one that values individuals' emotional, symbolic, and meaningful experiences, which are central to knowledge theories. The method is used to observe the essence of a phenomenon in a uniquely qualitative case study. It has been increasingly employed in studies related to the information technology sector to provide a more sensitive perspective (Pozzebon & Petrini, 2013).

According to ABES - Brazilian Association of Software Companies (2022), in Brazil, there are around 7,642 firms engaged in developing and producing software and apps. Of these, 95% are micro and small enterprises, which hire up to ninety-nine workers. These firms projects mainly work on demand, and their projects are essential for competitiveness. The
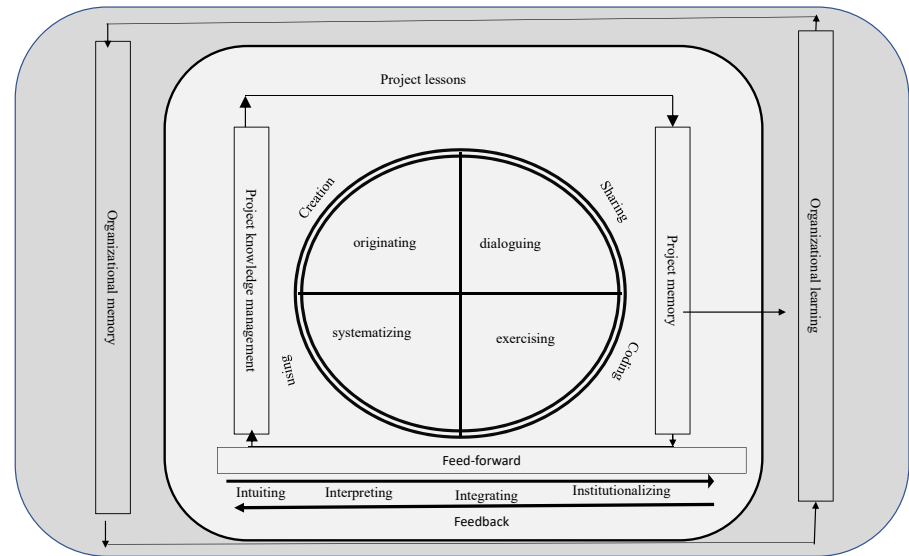

Figure 1.
Theoretical
background

Source(s): Authors

software market in the region experienced a significant growth of 19.5% in 2021, surpassing the services sector. In light of this, the research focused on a mobile application project of a software company, called "Alpha". The project is named "Mobile Cart".

Alpha is a company that was set up in 2007 and has had a turnover of approximately BRL 30 million since 2014. The company has grown significantly compared to others in the same sector. Alpha's success is attributed to their 'Mobile Cart' project, as it allowed the organization to conquer the largest Brazilian mobile advertising network. According to the Chief Executive Officer, this project was strategic and had a significant Return On Investment (ROI). Furthermore, the project had completed its life cycle so the authors could focus on all the steps involved. These factors led to the selection of this project as the analysis unit for this research.

3.1 Data collection

Both the semi-structured interviews and document analysis were the instruments to collect data. The former had open questions which related to three specific research goals. The first goal described how the projects functioned. The second goal found its enabling conditions, whose inquiries addressed project implementation. Finally, the third goal showed the organizational requirements for its execution and whether the organization changed them after the project.

The Mobile Cart project lasted ten months and involved the direct participation of 25 professionals from various company sectors, such as commercial, creative, project management, and the information technology (IT) departments. However, some of the participants were no longer employed by the company, which made it difficult to locate them. Consequently, the final sample was narrowed down to only twelve respondents. These twelve respondents had different university majors and had worked at the company for 1 to 8 years. There were a total of 12 people involved in the project. Seven of them worked as system analysts, two were designers, one was an information architect, one was a project coordinator, and one was the company's business director. The interviews were conducted in two ways: six of them were held face-to-face at the company, while the other six were conducted via Skype. Each interview lasted 45 minutes and was recorded and transcribed verbatim (*ipsis litteris*), generating 171 typed pages. The contents of the consulted documents were part of the transcription and involved the reports available on the company's website and public project files.

3.2 Data analysis

The data analysis included four steps. First, the researchers organized the interviews (E1, E2, E3. . .) defined as the first-order code in N-Vivo software. Then, they extracted messages from the answers and retrieved the respondents' interpretations, motives, and explanations about their experiences in the project and the daily life in the organization (Locke, Feldman, & Golden-Biddle, 2022). The second step was to apply the abductive research strategy (Blaikie, 2007). The researchers built a narrative of the project management steps reported by the interviewees and identified the enabling conditions of each project phase.

The analysis went ahead to the third step. Firstly, the researchers found the organizational conditions that were influencing the interviewees' perspectives on corporate practices. They then classified these conditions as favorable or unfavorable based on the theoretical framework used. Next, they compared the organization's enabling context before and after the project execution. The analysis found eight categories and three groupings interrelated to the theoretical background. This led to the emergence of second-order codes. The analysis has progressed, associating the second order with the theoretical framework, and promoting

Figure 2.
Data analysis
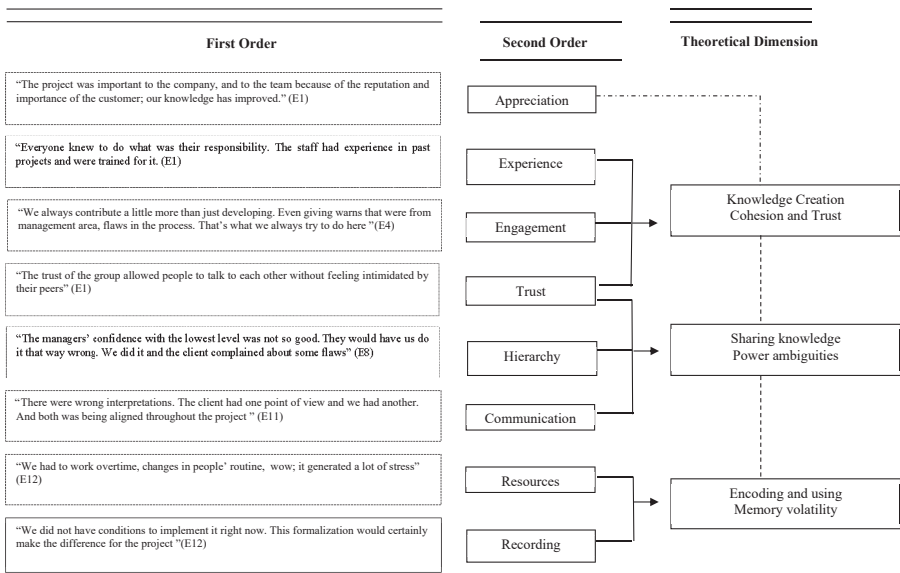
Source(s): Research data

new insights into such references. This process is labeled as the theoretical dimension of the analysis (Figure 2).

In the fourth step of the study, the researchers aimed to understand the psychological and social processes of organizational learning during each stage of project knowledge management. They interviewed participants and compared their responses with the theoretical model of Crossan *et al.* (1999). Through this comparison, they were able to identify the association between the model and the organizational learning cycle, as shown in see Figure 3.

Figure 3.
Project knowledge management and organizational learning
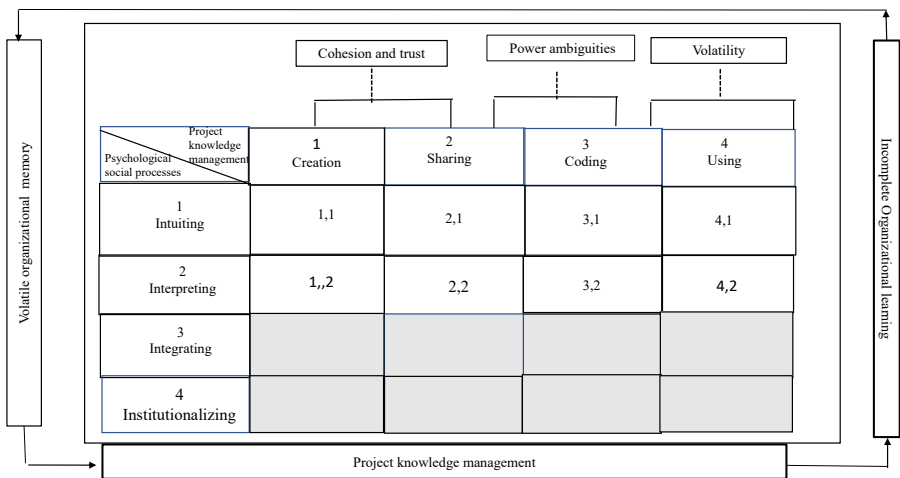
Source(s): Data analysis

3.3 Procedure's methodological quality
This research's scope and data analysis were guided by phenomenology and interpretive approaches. These options align with theories of learning as they depend on the context. The methodological choices were based on underlying principles that require studies to be sensitive to the experiences of the subjects interviewed. Thus, the objective of this research was to seek the truth of the interviewees according to the meaning they gave to the experienced context. According to Pozzebon and Petrini (2013), these criteria align with the principles of contextualization, authenticity, and credibility because the researchers highlight the interviewees' beliefs based on their lived practices.

The meanings in this research were developed through a dialogue process between the researchers and the respondents. The researchers expressed the voices of the respondents and created a discursive narrative in a historical format. The purpose of the research was to understand the reality of the interviewee's statements. The researchers adopted a realistic orientation, which is opposite to the phenomenological paradigm related to solipsism. According to Perry (1998), this approach involves interpretive analysis that goes beyond a mere description. The work also acknowledges that phenomenology includes causalities. To assess the credibility and criticality of the analysis, Pozzebon (2018) suggests comparing the theoretical framework with the real-life examples that are illustrated.

4. Findings
The findings show the project knowledge management found by the interviewees and their evaluations.

4.1 Project and management appraisals
The team members have improved their technical skills in executing the project. The company provided the necessary material and human resources for developing this project and others. The manager of the Mobile Cart created an environment that encouraged reflection and participation in all stages. "The organizational mood was friendly, and resources were available to execute the project. The company's border has shown a commitment to disseminating the learning of each project to avoid repeating past mistakes" (E1, E7, E12).

4.2 Knowledge creation
The knowledge creation has shown cohesive and trustful relations.

4.2.1 Experience and team participation. The managers of various departments have assigned professionals to work on the Mobile Cart project based on formal and technical requirements. All the professionals had earlier experiences in projects and were committed to finding external sources of information to suggest innovative solutions (E2, E4, E7). Among such solutions was the development of a new App functionality called Augmented Reality. Since the company did not provide training in the new knowledge technology, the developers took the initiative to learn it themselves. They helped each other out when problems arose (E3, E8, E11). Informal dialogues made up the means to information flows (E1, E3, E9).

4.2.2 Trust and hierarchy. The team members had positive working relationships, having worked together in the past (E1, E5, E9). They relied on the project scope document provided to them to carry out their daily tasks, which technical leaders and the project manager supervised. However, the project scope document did not meet the client's new requirements. Only the professionals directly involved with the client were aware of the changes. However, the lack of documentation has triggered a feeling of insecurity among the team. Informality has caused misunderstandings and misconceptions about what needed to be done (E2, E10,

E11). In some team members' words: "Guess what happened! We were not happy because managers and technical leaders did not accept our opinions (E1, E6, E3)". "We got outraged with the despise of our suggestions because we were right (E7). These clashes have triggered mistakes in the project, requiring overwork. Those issues deepened the participants' resentment even further once we respected the hierarchy to foster collective decisions" (E5, E6, E8).

4.2.3 Communication and resources. There were several errors in this project due to misunderstandings between the client's and the developers' teams (E1, E3, E4). The project manager had to change working procedures regularly to meet the client's demands. As a result, more resources were needed than initially planned, and the team had to work overtime. This situation led to increased emotional distress and insecurity among the developers (E1, E7, E9).

4.3 Knowledge sharing
The ambiguities of power marked knowledge sharing.

4.3.1 Trust and hierarchy. Although the company's layout provided an environment that enabled dialogue and idea-sharing, the communication flow was slow due to hierarchical barriers. The access to the client was exclusive to the manager and the technical leaders. Then, this process took longer than expected. Customer meetings were not registered. There were discrepancies in the decisions made by the participants. The ideas and opinions of the superior hierarchy prevailed over the other participants' points of view (E7, E8, E11).

The company developed devices and software for remote communication between clients and customers. However, after several remote meetings, the client requested a face-to-face demonstration of the App (E3, E6, E12).

4.4 Knowledge coding and using
The codification and the use of knowledge are volatile.

4.4.1 Resources and recording. The team of developers created a spreadsheet to keep track of the lessons learned during the project. However, due to time constraints imposed by the customer, the team could not update the document thoroughly. The respondents have informed us that no previous project had defined the design of this document, which weakened the continuity of this System Of Record (SOR). The lack of events recorded during the project and feedback during evaluation meetings could have helped the project's progress (E8, E10, E12). The tight project deadline also hindered knowledge sharing with other departments in the company. If the manager had assigned the tasks at the start of the project, the team would have felt more secure. Despite the company's recognition of the importance of sharing knowledge from previous projects, mistakes from past projects still happen (E2, E7, E10).

5. Analysis
Cohesion and trust have influenced the success of project knowledge management's creation and sharing process. The data showed that the team members helped each other obtain new technological knowledge. They valued the exchange of knowledge and helped each other find solutions to problems. They also respected the project leaders. The project manager should have addressed the opinions of the team members, which could have prevented mistakes. He made all the decisions himself and controlled the flow of information from the clients, even though he knew the team's capabilities to handle them. This behavior made the team members feel undervalued and underappreciated, leading to emotional tensions.

In the knowledge management stages of the project (creation, sharing, coding, use), intuitive and interpretive knowledge prevailed, which are essentially personal. The ambiguities of power arose and won in the stages of knowledge sharing preventing its codification at the organizational level. The organization is facing challenges related to managing knowledge in projects, particularly in the areas of behavior and strategy. This has made it difficult to share and organize information effectively. Therefore, it is essential to adopt a more institutionalized approach to feed-forward learning to ensure the successful completion of the organizational learning process (see Figure 3).

The feed-forward project learning is limited to the personal understanding of specialists. The project knowledge did not follow the institutionalized path for three reasons (Figure 4). Firstly, the centralized knowledge hierarchies hindered knowledge sharing and codification flows. Secondly, time pressures on the project caused emotional tensions to rise. Thirdly, codifying the lessons learned from the project knowledge caused further damage to it.

The organization's valuable tacit and intuitive insights strengthened the rapidly changing innovation environment. However, there was a need for a clear framework to share project knowledge to complete the feedback loop for organizational learning. The failure to manage the behavioral and strategic aspects of project knowledge led to the development of a, organizational memory that depended solely on the expertise of specialists. This type of memory is known as volatile corporate memory.

6. Discussion
According to Bullini Orlandi and Pierce (2020), the system used in the project could have been more effective in creating the necessary conditions for organizational learning. As a result, the learning that did take place was primarily based on tacit and intuitive knowledge, which can be unpredictable and challenging to manage. Clique ou toque aqui para inserir o texto. This type of learning resulted in a corporate memory that was volatile and unpredictable, as discussed by Barbosa, Carvalho, Choo, Versiani, and Pedron (2022). Additionally, the
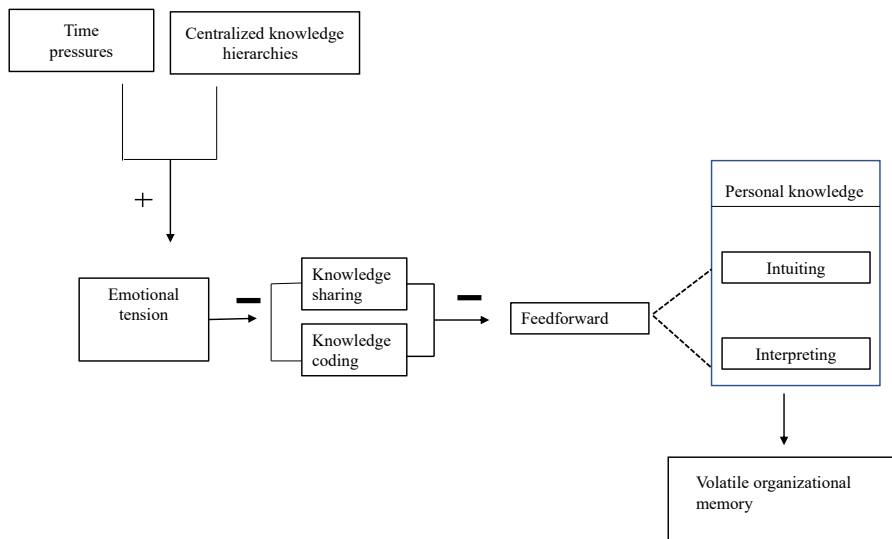
Source(s): Data analysis

Figure 4.
Volatile organizational
memory formation

knowledge system's hierarchical structure limited the organization's ability to learn from feedback and implement changes promptly, as McClory *et al.* (2017) noted.

6.1 Cohesion and trust in knowledge creation processes

The project leader selected team members based on their technical skills and professional experiences. This situation highlights the importance of intuitive knowledge in a project. Intuitive knowledge is a cognitive process based on earlier experience and emotional inputs (Mitchell, Friga, & Mitchell, 2005). It enables individuals to make a conclusive leap (Raidl & Lubart, 2000). The team members' specialist knowledge and professional experiences were the foundation of their commitment and promoted cohesive group relationships.

During the socialization phase of knowledge management, a psycho-emotional space is created based on technical trust (Oh, 2019). This is according to a study conducted by Dreyer *et al.* in 2020. In the project knowledge creation step, the behavioral enabling dimension has been proven to be more crucial, as highlighted by Ali & Ali in 2018. The importance of intuitive knowledge in innovation discoveries is also emphasized in a 2020 study by Bullini Orlandi and Pierce. Clique ou toque aqui para inserir o texto. These findings support Sujatha and Krishnaveni's 2018 claim that the level of trust among team members directly impacts the ease of tacit knowledge transfer.

The members of the team recognized the importance of the project and its significance to the company. Formal planning and clear communication were crucial in creating value for the project. Initially, the project manager was significant in easing understanding and guiding the team (Zia, 2020). He has created a shared mental space between the team and the organization (Beste, 2021). This case confirms studies that have set up a positive relationship between the clarity of project objectives and the team's commitment (Zia, 2020). The project leader is also responsible for moderating this relationship (Bjorvatn and Wald, 2020).

The case study indicates that the team members were driven by the values of self-development and personal initiative, which led them to take actions that were in line with these values. The culture of empowerment was prevalent throughout the project. This finding supports the argument made by Wiewora *et al.* (2020), that an empowerment culture helps to bridge the gap between learning at different levels of an organizational. The team members could independently seek out and acquire external knowledge without corporate guidance. As a result, the coding knowledge process was streamlined, and the team's collective stock of organizational knowledge was fortified.

6.2 Ambiguities of power and hierarchy in the knowledge sharing processes

The team members have expressed discontent with how managers and technical leaders formed have established centralized power structures based on knowledge. The bridge between project knowledge sharing and coding was harmed. Such evidence aligns with assertions that the power position of the leaders has influenced the learning dynamics and how knowledge is acquired and shared within a team (Latif, Afzal, Saqib, Sahibzada, & Alam, 2021).

Due to their keen sense of responsibility, the team took it upon themselves to register the mistakes made during the project. However, the project manager should have encouraged them to do so. Unforeseen and unplanned client pressures made codifying the knowledge gained during the project quite challenging. It resulted in increased tensions between the team and the project manager. As a result, the process of coding the project knowledge was left aside. It can be said that the relationship between sharing project knowledge and coding was limited to the knowledge of the project itself due to the unstable nature of its resources. These findings are in line with previous studies that have identified knowledge codification

as the most challenging step in project knowledge management (Bjorvatn & Wald, 2020). Therefore, the instability of resources has weakened the flow of feed-forward learning.

6.3 Volatility in coding processes

The company has not developed routines to code the new knowledge from the project, although its participants have recognized how important it was for the organization. There has yet to be formal company policy or leadership guidance to promote these routines. The project manager did not provide a fair distribution of knowledge. He has been power-centered, and his unpredictable behavior has contributed to the team's emotional strain. The pressure of completing the project on time worsened the emotional tensions among the team members. As a result, the team members could not take the initiative to code the lessons learned from the project. This evidence confirms the findings of Basten, Schneider, and Pankratz's (2017) study that managing project knowledge is challenging when it comes to storing lessons learned while performing tasks.

Project knowledge needs to be shared within an organization. If it is not shared, individuals and teams will not learn effectively (Crossan *et al.*, 1999). It means that the organization's overall learning will be incomplete. In such cases, project knowledge management must focus more on the strategic aspect of transferring knowledge from project lessons to new organizational processes. The case suggests that when project managers do not promote knowledge dissemination, there are fewer opportunities for feed-forward learning processes take place (Zia, 2020).

Organizational learning is essential for developing corporate memory, which is mainly based on tacit knowledge and skills of specialists. Such memory is recognized as volatile, meaning that it can be easily lost over time. However, it could be more stable so that it is not lost over time. According to Barbosa *et al.* (2022), volatile memory implies that knowledge is based on personal ability, which makes it challenging to access and retrieve project knowledge. As a result, the feed-forward process is affected, and feedback is obstructed. This case highlights that the more volatile the organizational memory is, the fewer the organization's feedback learning flows.

6.4 Theoretical contributions and managerial practices

This study highlights the importance of behavioral enabling conditions in project knowledge management. To turn individual learning into group learning, it is necessary to create knowledge based on cohesion and trust. The technical reputation of professionals can support the behavioral enabling dimension. The findings of the study indicate that experience and professional background play a crucial role in the success of a project and its integration into the organization's overall learning. Therefore, intuitive knowledge is the most effective tool for creating organizational learning. From a managerial perspective, organizations that are structured around projects should prioritize the professional experience to help individuals and groups and to achieve success.

The project's process of creating and sharing knowledge is affected by two dimensions. The first dimension, the behavioral enabling dimension, directly eases this process. The second dimension, referred to as strategic dimension, has a more significant impact on the team's involvement. In other words, the strategic dimension affects the knowledge-sharing process more than its creation. Thus, the more reputable the technical professionals are, the more crucial the strategic dimension becomes in ensuring effective knowledge-sharing processes. In practical terms, this implies that organizations that establish clear links between projects and their strategies can more easily integrate the creation, sharing, and coding of knowledge.

Indeed, this case highlights the importance of project managers throughout the knowledge-sharing process. They can make it easier or more challenging to share and codify knowledge. When project managers make all the decisions and communicate directly with customers, it can negatively impact the organization's ability to share and encode knowledge. Theoretically, such results suggest that when project managers hold too much power and knowledge, it is less likely that other individual's expertise will be incorporated into organizational procedures. Therefore, it is essential to balance external pressures on the project by distributing power more equitably.

The ease of sharing and coding links appears to be strongly influenced by the strategic dimension of the project's organizational context. Having a clear strategic direction helps avoid the negative consequences of standardization and resource volatility. Therefore, the codification of project knowledge should be implemented within the strategic dimension of supportive organizational contexts.

7. Final remarks

This paper explores the relationship between the enabling conditions of project knowledge management, organizational learning, and memory. The study concludes that there needs to be more institutionalization of the project knowledge due to the centralized hierarchies and project time pressures that increase emotional tensions during its execution. Both factors hinder the learning spreading processes throughout the organization and contribute to a volatile organizational memory.

Despite the importance of such a conclusion, it came from one specific project. Besides, the sample chosen was for convenience. Therefore, the saturation of the interviews was not exhaustive, it could have been more comprehensive. The research design has narrowed its generalization. Therefore, both comparative qualitative and quantitative studies are recommended. Studies should assess how knowledge transfer occurs in simultaneous projects within an organization and their impacts on memory. They also should compare the enabling context of several projects in the same organization and its legitimization by the team members.

It is important to note that using volatile memory can significantly benefit organizations when speeding up their innovation processes. As a result, it is essential to find the right balance between the advantages and disadvantages of using it. Additionally, researching the role of managers in encoding project learning into organization can help in better understanding how it affects the organization's memory.

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