Knowledge management: an exploratory study for knowledge transfer in a university

Gestão do conhecimento: um estudo exploratório para transferência de conhecimento em uma universidade

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Abstract

At present time educational and scientific organizations face dynamic and competitive environments that urge for innovation in their knowledge transfer processes. For that, they can count on a set of tools and techniques to better manage knowledge. Thus, the objective of this study is to suggest Knowledge Management tools and techniques that favor the transfer of knowledge in the development of organizational processes. The study carried out in the lato sensu postgraduate sector of a university located in the south of Brazil which started its activities 30 years ago, has a qualitative and exploratory character, as the methodological procedures employed were documentary research and an ethnography study. The primary data was collected through participant observation. The findings show that there are three major organizational processes in Educational institutions: "enrolling students", "accompanying students" and "operationalizing classes". Those processes involve 18 activities resulting in the fragmentation of knowledge. Thus, six Knowledge Management tools and techniques were suggested to support knowledge transfer in the organizational processes namely: benchmarking, practical community, collaboration tools, lessons learned, best practices, and storytelling.

Keywords: Knowledge management. Knowledge transfer. Higher education institution.

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Telma Bertolazo; Rejane Sartori;
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Resumo

Atualmente, as organizações educacionais e científicas enfrentam ambientes dinâmicos e competitivos que exigem inovação em seus processos de transferência de conhecimento. Para isso, contam com um conjunto de ferramentas e técnicas para melhor administrar o conhecimento. Assim, o objetivo deste estudo é sugerir ferramentas e técnicas de Gestão do Conhecimento que favoreçam a transferência de conhecimento no desenvolvimento de processos organizacionais. O estudo realizado no setor de pós-graduação *lato sensu* de uma universidade localizada no sul do Brasil que iniciou suas atividades há 30 anos, tem caráter qualitativo e exploratório, pois os procedimentos metodológicos empregados foram a pesquisa documental e o estudo etnográfico. Os dados primários foram coletados por meio da observação participante. Os resultados mostram que existem três processos organizacionais principais nas instituições de ensino: "matricular alunos", "alunos acompanhantes" e "operacionalizar as aulas". Esses processos envolvem 18 atividades resultando na fragmentação do conhecimento. Assim, seis ferramentas e técnicas de Gestão do Conhecimento foram sugeridas para apoiar a transferência de conhecimento nos processos organizacionais, a saber: *benchmarking*, comunidade prática, ferramentas de colaboração, lições aprendidas, melhores práticas e *storytelling*.

Palavras-chave: Gestão do conhecimento. Transferência de conhecimento. Instituição de ensino superior**.**

1 Introduction

Knowledge is considered an essential factor for the competitiveness of organizations. It is an intangible resource that helps people to perform tasks and activities, make decisions, implement processes, and generate innovation (SILVA; JULIANI; DIAS, 2016).

As knowledge is the fundamental raw material in educational and scientific institutions whose aim is to create and disseminate knowledge, managing is a significant challenge faced by them. It is against this backdrop that Knowledge Management (KM) has stood out as a field of research and studies that aims to manage the intangible capital of organizations. KM consists of the deliberate and systematic coordination of people, technology, processes, strategies, and organizational structure, aiming to add value through the reuse of knowledge and innovation (DALKIR, 2017). It is a cyclical process formed by a set of activities that aims to acquire, store, disseminate, share, and apply knowledge (CEN, 2004).

For organizations to obtain competitive organizational advantages, knowledge creation and transfer are essential (JOSHI; SARKER; SARKER, 2007; SZULANSKI; CAPPETTA; JENSEN, 2004; LATILLA et al., 2018). Knowledge transfer is an exchange process of both explicit and tacit knowledge between two or more agents, during which one of the agents purposely receives such experience, provided by another agent, and applies it to some activity, process, product, or service (LATILLA et al., 2018). Thus, knowledge transfer improves the organization's ability to carry out its activities, increase its value, productivity, and competence (DAVENPORT; PRUSAK, 2003).

In organizations, transferring knowledge among its employees can avoid fragmentation of organizational expertise and, consequently, its loss. The fragmentation of organizational knowledge has been the subject of study in different areas, such as technology (REFINETTI, 1989; TENÓRIO et al., 2017), health (PORTA et al., 2007), economics

Telma Bertolazo; Rejane Sartori;
Nelson Tenório

(LESLIE, 2002), social sciences (LESLIE, 2003; BEATE, 2017) and ecology (DAWSON et al., 2018). Organizational knowledge, when fragmented, does not flow across the organization, remaining restricted to one person or group of people (BEATE, 2017). Besides, this fragmentation causes loss of knowledge as people tend to not remember the issue discussed, even when using technological tools. Thus, the organization that manages its knowledge is benefited and more likely to innovate in products and services, while remaining sustainable in the market in which it operates (TENÓRIO et al., 2017). Therefore, organizations have been restructuring their processes and activities, and implementing new action strategies, developing and adopting new organizational designs, new instruments, and operational methodologies (LASTRES, 1999) to avoid fragmentation of knowledge.

Within universities, there are several processes and respective activities that must be carried out to guarantee their competitiveness in the market, and thus, transferring knowledge among their collaborators is essential in an attempt to mitigate the fragmentation of organizational expertise which results in its loss. Buchele et al. (2016) argue that educational institutions that employ KM tools and techniques achieve better results, such as the improvement of processes, the advancement of a culture focused on knowledge, and the creation of an innovation dynamic that allows a competitive position in the operating market.

Knowledge represents a fundamental factor for individuals and the organizations, and in our days has become a valuable resource to be managed. Therefore, using the tools and techniques that allow for the optimizing of their processes that results in a better management of the institutional knowledge becomes a necessary action for such institutions. In this sense, this article aims to suggest KM tools and techniques that favor the transfer of knowledge in the development of organizational processes. The study was carried out in the lato sensu postgraduate section with the purpose of how to avoid fragmentation of corporate knowledge.

This article is structured in five sections. In addition to this introduction, the following section contains the theoretical background regarding KM, particularly on knowledge transfer. In the sequence, the third section reports the methodological procedures used, and the fourth presents the results of the research, followed by the discussion. Finally, the fifth and last section contains the conclusions supported by the bibliographic references used in the article.

2 Knowledge management and knowledge transfer

Due to the evolution in the Industrial Age, knowledge became a fundamental source in the competitive process of organizations, being considered as essential for the survival of different types of organizations in the market. Therefore, it represents a fundamental factor in contemporary times, becoming an essential intangible resource to be managed in organizations. As stated by Davenport and Prusak (2003), in today's globalized society, successful organizations are capable of transforming information into knowledge and using it to increase the value of their products and services. In this way, knowledge becomes the main asset of organizations and is understood in two aspects: the first deals with a philosophical perspective, in which knowledge results in the culture of individuals and organizations; the second from a management perspective, in which knowledge is a good that must be managed to obtain benefits through its use (LENZI, 2014).

Telma Bertolazo; Rejane Sartori;
Nelson Tenório

The discussions about KM arose with the need to encourage specialized knowledge, which is intangible and obtained in organizations, to use it optimally from a management perspective in the decision-making process, differentiating it from tangible elements such as information and the data, both abundant in the organization (NONAKA; TAKEUCHI, 2008). The success of KM is related to four pillars made up of the elements people, processes, technology, and strategy. However, the importance of people and the development of a culture focused on knowledge, supported by appropriate and efficient methods through technology (SERVIN; DE BRUN, 2005).

KM consists of a cyclical process that seeks to identify how organizations deal with existing knowledge to generate value. This process is formed by a set of activities that aim to acquire, store, disseminate, share and apply knowledge efficiently and in line with the organization's objectives (DOROW; CALLE; RADOS, 2015).

Knowledge transfer is an act of sharing, internalizing, and using knowledge between people. However, access to knowledge depends on people willing to give it up, make it explicit, share it (NONAKA; TAKEUCHI, 1997). Therefore, the difficulty of transferring knowledge depends on the type of experience that will be treated. The knowledge that has an incidence of more or less specific aspects can be expressed in procedures, represented in documents, databases, and transferred more quickly. However, it appears that the transfer of tacit knowledge usually requires personal contact (DAVENPORT; PRUSAK, 2003).

The efficiency of knowledge transfer is related to the participation of appropriate means that facilitate this process. These means include both the presence of qualified people to teach and the technological resources and mechanisms applicable to the transfer (SUN; SCOTT, 2005; SZULANSKI; RINGOV; JENSEN, 2016). For Scott and Sarker (2010), the successful transfer of knowledge requires not only that the receiver has internalized the new knowledge, but also that the company can apply it. Thus, the simple availability of expertise does not mean its effective transfer (DAVENPORT; PRUSAK, 2003).

Knowledge transfer is not a simple process, and the result cannot be considered accurate since several factors can intervene in the final result (SZULANSKI, 2000). Thus, Disterer (2001) and Bock, Kankanhalli and Sharma (2006) suggest that KM practices, once structured, can contribute to a successful transfer of knowledge in organizations. Therefore, the fundamental for this process is the change of culture existing in the organization, considering the evolution of the relationships between individuals, to be possible to transfer knowledge through KM tools and techniques.

In his studies on knowledge sharing in the educational sector, Lenzi (2014) identified that authors such as Rao (2005) and Orofino (2011) report that it is necessary to use methods and techniques to support the KM process. Rao (2005), for example, suggests KM tools to:

a) Encode knowledge, in which knowledge is preserved in a structured way, which is represented in the form of images, text files, database, video;
b) recover knowledge, which occurs from computer systems for data recovery and virtual environments for searching and collecting information;
c) transfer knowledge, making it possible to share knowledge in collaborative online or face-to-face, information and communication technology environments;

d)   create knowledge, which helps and supports the group decision, the emergence of new creative ideas.

In turn, Davenport and Prusak (2003) argue that KM tools are resources used in the application of practices, to model part of the knowledge that exists in people and corporate documents, making it available to the entire organization. In this way, they can favor the knowledge transfer process in organizations, since it provides better treatment and use of knowledge, thus contributing to leveraging the organizations' competitiveness.

The Asian Productivity Organization (APO), to support the implementation of KM, published a manual prepared by KM experts and professionals from Asia, Europe, and the United States with KM tools and techniques to assist small and medium-sized companies. Thus, for each KM process identified by APO, that is, identification, creation, storage, sharing, and application of knowledge, KM tools and techniques were listed (APO, 2020), systematized in Table 1.

Table 1 - APO KM Tools and Techniques

Stage	Tools and Techniques
Identification of Knowledge	Knowledge Cafés, communities of practice, knowledge clusters, virtual collaborative workspaces, KM assessment tools, advanced search tools, expert finder, knowledge mapping, mentoring, and KM maturity model.
Creation of Knowledge	Learning and capturing ideas, knowledge bases, blogs, brainstorming, advanced search, knowledge cafe, knowledge clusters, video sharing, communities of practice, physical collaborative workspaces, virtual collaborative workspaces, expert finder, mentoring, learning reviews, post-action review, knowledge of voice portal and voice protocol over the internet.
Storage of Knowledge	Knowledge bases, document library, blogs, knowledge café, knowledge clusters, communities of practice, virtual collaborative workspaces, expert finder, knowledge portal, video sharing, learning reviews, post-action review, taxonomy, and VOIP.
Sharing of Knowledge	Peer assistance, knowledge bases, document library, blogs, knowledge café, knowledge clusters, communities of practice, video sharing, physical and virtual spaces for collaborative work, expert finder, mentoring, knowledge portal, reviews of learning, post-action review, social networking services, storytelling, taxonomy, and VOIP.
Application of Knowledge	Peer assistance, knowledge bases, document library, blogs, advanced search, knowledge café, knowledge clusters, communities of practice, physical and virtual spaces for collaborative work, specialist finder, mentoring, knowledge worker skills plan, knowledge portal, and taxonomy.

Source: Authors.

In turn, Ghani (2009) considers that KM tools are needed for knowledge to reach everyone in organizations. These tools help to collect, catalog, organize and share knowledge. Thus, there are numerous tools reported by the author that can support KM processes, namely:

a) Tools to connect to knowledge, which promote the reach of explicit knowledge, which can be shared by the organization through information systems;

b) tools for semantic mapping, which are designed to quickly support the presence of information, analysis, and decision-making;

c) tools for knowledge extraction, which investigate structured questions and answers; assist text exploration, interpreting familiarities between different elements and documents;

d) tools for locating specialists, which make it possible to promptly find knowledge holders in the organization and facilitate collaboration and knowledge exchange;

e) tools for collaborative work, which help teams to share spaces dedicated to managing the project life cycle, editing and publishing materials, conducting live debates and interactions, as well as maintaining a repository of documents associated with each process step.

Therefore, the effective use of KM tools and techniques is important because it can contribute to improving the performance of organizational processes and assist in the knowledge transfer process, thus avoiding the fragmentation of knowledge and, consequently, its loss. As reported by Szulanski (2000), knowledge transfer is recognized as a fundamental element of KM processes, making it a more appropriate way to use organizational knowledge.

3 Research method

To suggest KM tools and techniques that favor the transfer of knowledge in the development of organizational processes, and to avoid fragmentation of knowledge, this research is configured as an applied nature, with a qualitative approach and an exploratory objective, doing ethnographic interviews and participant observation as methodologies for data collection. Participant observation is a technique that makes use of the senses to apprehend certain aspects of reality and, therefore, consists of seeing, hearing, and examining the facts/phenomena that are intended to be investigated. This technique forces the researcher to have direct contact with the object of study, thus obtaining information about the reality of social actors in their contexts (GERHARDT; SILVEIRA, 2009). Thus, it is justified to choose ethnography as a strategy for obtaining descriptive data that occurs in the face of direct observation in the lato sensu graduate sector object of this study.

3.1 Characterization of the study object

For this research, a university located in the State of Paraná, south region of Brazil, was selected, which started its activities 30 years ago with two undergraduate courses and 180 students. It currently comprises four campuses, has more than 500 Distance Education hubs distributed across the country, dozens of undergraduate and graduate courses lato sensu and stricto sensu, and more than 120,000 students spread across Brazil. The Institution has its name omitted due to the preservation of the organizational identity. The lato sensu

postgraduate sector of this Institution in which this research was carried out has the main objective of offering courses for professional training in specific areas. Thus, approximately 50 lato sensu graduate courses are offered annually in the most diverse fields of knowledge - Applied Human and Social Sciences, Biological and Health Sciences and Exact, Technological and Agrarian Sciences. The average number of students enrolled in these courses is 2,000 annually.

For the execution of its activities, the sector has a formalized structure: comprising a board, a secretariat, and course coordination. Currently, it has seven employees, being a director, a commercial analyst, and five secretarial assistants.

3.2 Data collection

Data were collected through ethnography, documentary research, and interviews. The observations took 240 hours and were recorded in a research diary. The documentary research was carried out by reading a document that contains in detail the mapping of processes in the sector. Finally, with all this empirical material in hand, the researchers validated the data collected with the person in charge of the sector through a face-to-face interview.

3.3 Data analysis

After data collection, these were analyzed and systematized based on the "student enrollment" process, since without the student enrollment, the following methods are not performed. These data were organized in spreadsheets using the MS-Excel tool.

Subsequently, we identified the execution of two processes that were not documented in the sector's flowchart, namely "accompanying students" and "operationalizing classes." Therefore, it was concluded that the functions of the lato sensu postgraduate sector are structured in three organizational processes, "enrolling students," "accompanying students" and "operationalizing classes," as shown in Table 2 that presents these processes and several activities.

Table 2 - Organizational processes and activities in the lato sensu graduate sector

Processes	Activities
Enroll student	Attend student; check documents; sign contract; register student in the system; send the student the academic record number and password.
Accompany student	Receive and control requests; deliver student cards; provide class schedule; receive discipline equivalence; receive a course completion article; inform the student of the certificate's arrival; deliver the certificate.
Operate classes	Reserve a classroom, auditorium, and laboratory; provide passage and accommodation for external teachers; print assessment and lesson materials; publicize lessons on the website; make class diaries available to teachers; request a coffee break.

Source: Research Data.

With the analysis of the collected data, we identified the occurrence of knowledge fragmentation in the three processes. This analysis led us to infer possible consequences that could be due to this fragmentation. The research findings were validated with the person in charge of the sector through a checklist containing the descriptions of the processes and respective activities, the possible fragmented knowledge, and the potential consequences resulting from this fragmentation. The findings of this validation confirmed our analyzes, which revealed two new processes, 13 other activities, totaling 18 activities, and fragmentation of knowledge in all three methods.

Finally, KM tools and techniques identified in the literature were suggested to support the transfer of knowledge in the organizational processes of the university's lato sensu graduate sector.

4 Findings and discussion

Through participant observation, each of the organizational processes of the lato sensu graduate sector was analyzed to identify the fragmentation points of knowledge. A synthesis of the knowledge fragmentation identified in each process activity is presented in Table 3.

Table 3 - Fragmentation of knowledge in organizational processes

Process	Activity	Knowledge Fragmentation	Consequence
Enroll Student	Check documents	It occurs because the attendant receives the documentation, even pending, and does not register in the system, leaving the knowledge retained with an individual.	The absence of documentation in the system interferes with the issuance of the certificate of completion of the course.
	Register student in the online administrative system	It occurs when the attendant has doubts about how to register the student in the online administrative system and does not have a consultation resource.	For students not registered in the online administrative system, no registration number and password to access the online environment is generated.
	Send registration number and password	It occurs when an inexperienced attendant does not send an e-mail to the student with his registration number and password to access the online administrative system.	Students not receiving registration and password to access the online administrative system cannot access information about the course.
	Receive and control requests	It occurs when the application received is not registered in the online administrative system.	The student's application is not recorded and analyzed.
Accompany student	Inform the student of the certificate's arrival	Upon completion of the course, the student is not informed of the receipt of the certificate.	Student contacts the secretariat to verify that the certificate has been issued.
	Book room, auditorium and/or laboratory for classes	It occurs when reservations for the place where classes happen are sent to the responsible department after the deadline.	The teacher has no physical space to teach his classes, which may cause them to be canceled or exchanged for another place that does not include the number of students.
Operate Classes	Lack of classes information on the website	This occurs when the sector's website is not updated periodically.	The student does not find information related to the class, which can cause the delay or absence of that student.

Source: Research Data

For the activities of each of the sector's organizational processes in which knowledge fragmentation was identified, KM tools and techniques were indicated that can contribute to the transfer of this knowledge. Thus, Table 4 summarizes these organizational

processes and respective activities, the suggested KM tools and techniques, and the results that are expected to be achieved with their implementation.

Table 4 - KM tools and techniques for organizational processes

Process	Activity	Tools and techniques of KM	Result Expectation
Enroll Student	Check documents	Benchmarking	Enable process improvement and competitive advantage. Implement best practices through comparison with the reference market.
		Storytelling	Stimulate the relationship between people in the sector, seeking information, stimuli, and experiences from previous cases.
	Register student	Benchmarking	Ensure adequate practices to meet the needs of the sector's demand.
		Practice Community	Ensure punctuality in the process.
	Send registration number and password	Storytelling	Encourage tacit knowledge exchange and bring them closer to the sector's reality.
		Benchmarking	Ensure adequate practices to meet the needs of the sector's demand.
		Practice Community	Provide other resources for sending the student the password record to access the online administrative system.
	Receive and control requests	Benchmarking	Ensure adequate practices to meet the needs of the sector's demand.
		Collaboration tools (portals, intranet, and extranets)	Provide resources to access the requirements.
Accompany Student	Inform the student of the certificate arrival	Best practices	Ensure adequate practices to meet the needs of the sector's demand.
		Practice Community	Ensure punctuality in the process.
	Reserve physical spaces for classes	Practice Community	Ensure punctuality in classroom reservations.
		Lessons Learned	Promote improvement in the process, providing the teacher with the necessary space to teach his classes.
Operate Classes	Dissemination of the teaching of classes	Practice Community	Ensure that the student has quick access to classroom reservations.

Source: Research Data.

The university student uses the benchmarking technique to look in other sectors for forms of analysis and verification of documents. In this sense, the transfer of knowledge from different areas can contribute to mitigating problems in the lato sensu graduate sector. Benchmarking refers to a systematic search for the best references for comparing the organization's processes, products, and services, and this can be within the organization itself, as occurred at Xerox, where benchmarking was born (DALKIR, 2017; MAHANTI; EVANS, 2012; WIIG, 1997).

Associated with benchmarking are best practices, a validated procedure for carrying out a task Batista and Quandt (2015); Davel and Snyman (2005), which are suitable for assisting in the management of activities and in the relationship between members of the sector, as well as in the identification of emerging demands (BATISTA; QUANDT, 2015). At the university, best practices can support the preparation of the registration of applications submitted to the secretariat and procedures that guide continuous improvement actions directed to the sector. In this case, they include both the presence of people qualified to teach and the use of technological resources and mechanisms appropriate to the transfer of knowledge (SUN; SCOTT, 2005; SZULANSKI; RINGOV; JENSEN, 2016). The efficiency of knowledge transfer is related to the participation of adequate means to facilitate this process, used in a university for activities such as: registering a student, sending the student his/her registration number and password, receiving and controlling requirements, inform the student of the certificate's arrival. All of these activities are also carried out by other sectors of the university, such as undergraduate, extension, strict sensu (i.e., masters and doctorates). Best practices can also be collected by benchmarking with these sectors.

Storytelling, referring to the use of stories to convey tacit knowledge that could be difficult to express Davel and Snyman (2005); APO (2020); Batista and Quandt (2015), can be used through illustrative and even digital notebooks to explain to the governing body, university staff and students, what the enrollment procedures are like, as well this checked. Thus, this technique presents individual experiences, considering that it is based on memories and experiences, where experience from a previous case is usually told (DAVEL; SNYMAN, 2005; DOROW, 2017). Likewise, storytelling can be recorded in comics to be shared within the organization. This performs a virtuous cycle of the KM process, with capture, storage (registration), sharing, and use of knowledge within the organization (DALKIR, 2017).

Collaboration tools are computerized systems that capture and disseminate knowledge and experience among workers/departments, such as portals, intranets and extranets (BATISTA; QUANDT, 2015). Thus, the use of these tools may include the availability of documents in electronic format, enabling digital access so that it can be viewed on different devices and resources that support navigation and interaction. In this way, collaboration tools create spaces that enable new ways of working, facilitating and improving social interaction in a modern and digital society. This is because the profile of the new student is that of a 'digital human being', since he uses social networks, has an email address, a nickname or an avatar in an online game (NICOLACI-DA-COSTA; PIMENTEL, 2011).

Communities of practice are informal and interdisciplinary groups of people, brought together in person and/or virtually, who share their knowledge about a common theme (APO 2020; BATISTA; QUANDT, 2015). Thus, in the postgraduate sector of the university, periodic meetings are held between its employees to align demands, among them

Telma Bertolazo; Rejane Sartori;
Nelson Tenório

those related to the academic secretariat, which despite not being characterized as a community of practice, there is an effort of the group, often meeting face-to-face, to share their knowledge in order to try to transfer knowledge so that the work is well executed. Besides, virtual workgroups were created using applications (e.g., WhatsApp) to meet the demands of the academic secretariat. However, it was observed that these groups are still nascent and need to be strengthened to become communities of practice then, as suggested by the seven principles of (WENGER; MCDERMOTT; SNYDER, 2002). In the group's regular meetings, the laws of a community of practice are the evolution of the process, which during the sessions were discussed and improved; a frank and open dialogue between meeting participants; the participation of people with different levels of knowledge and working time; and the focus on the value to be generated for organizations. In this context, three principles are missing for these meetings to effectively become a community of practice, namely: the development of public and private community spaces, where other people can contribute to the sector, such as the participation of students or other areas of society. University; familiarity and motivation so that the community has creative cycles and can improve its processes to provide an excellent service; and have a rhythm for the community because although there is an established frequency, meetings are often canceled, or not everyone can participate.

For WhatsApp groups there was a lack of the following principles of community of practice: the evolution of the process, since only emerging problems and temporary solutions to problems are discussed; the lack of frank and open dialogue between the group's participants, since the whole conversation is recorded and people are more careful in their placements, and in turn, many participants were not active in the group and just watched the messages; the lack of focus on the value to be generated for the organization, again occurring due to the urgency to control problems and not solve them effectively; lack of rhythm for the community, because WhatsApp brings an instantaneous question-answer, maintaining a frantic frequency of messages and without cadence, which often causes information to be lost in a large amount of notes and knowledge is not recognized, shared and created; and finally, WhatsApp groups are private and closed, which does not allow other people to participate freely, i.e., search for a particular group in an indexed source, in order to acquire or share knowledge.

Despite observations, many of the principles are worked on in these two forms of knowledge transfer. Thus, the lato sensu postgraduate sector object of study at the university is not so far from achieving the effective use of communities of practice. Therefore, these quasi-communities of practice observed in this sector can establish themselves even more to support the activities of enrolling and helping a student.

Finally, the lessons learned, which record reports of experiences Batista and Quandt (2015), can help employees consult previous experiences, identifying those that effectively enable the solution of recurring problems.

One of the limitations of this study is the lack of KM tools applications and techniques suggested in a real environment. Since efforts were directed to identify in which organizational processes in the lato sensu graduate sector knowledge fragmentation occurs and then suggest possible solutions, empirically, based on ethnography and scientific literature in the area. Besides, the research is also limited to only one sector of a university.

However, several processes in this sector are performed by other divisions within the university itself, and it can be deduced, by comparison, that such tools and techniques suggest its generalization in other sectors. Therefore, the suggestions presented in this research are intended to contribute to researchers on the possibilities that KM tools and techniques can support the processes of a university. However, this is not limited to just the sector studied here, i.e., lato sensu, but to other organizational sectors, and can even be extended to different types of educational institutions.

5 Conclusions

The central point of this research was the analysis of one of the KM processes that most contribute for organizations to use organizational knowledge more appropriately, the transfer of knowledge. The literature confirms that, at present, the experience is essential in the corporate environment, and for it to become a useful source of competitive advantage, it needs to be transferred within the organization to be then absorbed and used by everyone, becoming a competitive differential.

The transfer of knowledge is pointed out by several authors as one of the most critical processes of KM since it is one of the ones that most contribute to organizations to learn and innovate. Therefore, resorting to tools and techniques that favor this process becomes a relevant action for universities in the current context. KM tools and techniques allow improving the effectiveness and efficiency of organizational knowledge resources through a set of activities or resources employed by the organization, to improve its performance.

Thus, the objective of this research was achieved since different KM tools and techniques were identified that can be used by *the* lato sensu postgraduate sector of a university to support the transfer of knowledge in organizational processes, thus avoiding its fragmentation. The suggested tools and techniques were benchmarking, practical community, collaboration tools, lessons learned, best practices, and storytelling.

In this sense, as recommendations for future studies, it is recommended that the suggested KM tools and techniques be analyzed for use in other organizational processes, as each method has its particularities. It is possible to achieve corporate success by seeing the organization as a set of processes and identifying the fundamental processes that represent significant opportunities for improvement.

Also, it is suggested to carry out research that includes the analysis of other KM processes, such as the acquisition, storage, and application of knowledge, since these also contribute to the management of this valuable organizational asset.

Referências

ASIAN PRODUCTIVITY ORGANIZATION – APO. **Knowledge management tools and techniques manual**. Tokyo: APO, 2020. Disponível em: <www.apo-tokyo.org/publications/ebooks/knowledge-management-tools-and-techniques-manual>. Acesso em: 3 mar. 2020.

BATISTA, F. F.; QUANDT, C. O. **Gestão do conhecimento na administração pública:** Achados da Pesquisa Ipea 2014 – Práticas de Gestão do Conhecimento. Texto para Discussão.

Brasília: Rio de Janeiro: Ipea, 2015.

BEATE, J. The imperial origins of social and political thought. **International Origins of Social and Political Theory**, v. 32, n. 1, p. 9-35, 2017.

BOCK, G.; KANKANHALLI, A.; SHARMA, S. Are norms enough? The role of collaborative norms in promoting organizational knowledge seekin. **European Journal of Information Systems**, v. 15, n. 4, p. 357-367, 2006.

BUCHELE, G. T. et al. Contribuição das comunidades de prática para o processo de autoavaliação em uma instituição de educação superior do segmento privado. **Revista Gestão Universitária na América Latina-GUAL**, Florianópolis, v. 9, n. 1, p. 97-119, jan. 2016.

COMITÉ EUROPÉEN DE NORMALISATION – CEN. **European guide to good practice in knowledge management - Part 1**: Knowledge management framework. Bruxelas, CEN, 2004. Disponível em: <http://arielsheen.com/wp-content/uploads/2019/10/CEN-CWA14924-01-2004-Mar.pdf>. Acesso em: 8 nov. 2019.

DALKIR, K. **Knowledge management in theory and practice**. MIT Press, 2017.

DAVEL, R.; SNYMAN, M. M. M. Influence of corporate culture on the us e of knowledge management techniques and technologies. **South African Journal of Information Management,** v.7, n. 2, p. 1-1, 2005. Disponível em: <www.sajim.co.za/index.php/SAJIM/article/download/259/250>. Acesso em: 27 nov. 2019.

DAVENPORT, T. H.; PRUSAK, L. **Conhecimento empresarial**: Como as organizações gerenciam o seu capital intelectual. Rio de Janeiro: Elsevier, 2003.

DAWSON, L. et al. Impacts of the water framework directive on learning and knowledge practices in a Swedish catchment. **Journal of Environmental Management**, v. 223, n. 1, p.731-742, 2018.

DISTERER, G. Individual and social barriers to knowledge transfer. In: INTERNATIONAL CONFERENCE ON SYSTEM SCIENCES, 34[h]., 2001, Hawaii. **Proceedings…** Hawaii: IEEE, 2001.

DOROW, P. F. **Compreensão do compartilhamento do conhecimento em atividades intensivas em conhecimento em organizações de diagnóstico por imagem**. 2017. Dissertação (Mestrado em Engenharia e Gestão do Conhecimento) – Universidade Federal de Santa Catarina, Florianópolis, 2017.

DOROW, P. F.; CALLE, G. A. D.; RADOS, G. J. V. Ciclo de conhecimento como gerador de valor: Uma proposta integradora. **Revista Espacios**, v. 36, n. 12, p. 1-25, 2015.

GERHARDT, T. E.; SILVEIRA, D. T. **Métodos de pesquisa.** Porto Alegre: Editora da UFRGS, 2009.

GHANI, S. R. Knowledge management: tools and techniques. **DESIDOC Journal of Library & Information Technology**, India, v. 29, n. 6, p. 33-38, 2009.

JOSHI, K. D.; SARKER, S.; SARKER, S. Knowledge transfer within information systems development teams: Examining the role of knowledge source attributes. **Decision Support Systems**, v. 43, n. 2, p. 322-335, 2007.

LASTRES, H. M. M. Informação e conhecimento na nova ordem mundial. **Ciência da Informação**, Brasília, v. 28, n. 1, p. 72-78, jan. 1999.

LATILLA, V. M. et al. Knowledge management, knowledge transfer and organizational performance in the arts and crafts industry: a literature review. **Journal of Knowledge Management**, v. 22, n. 6, p. 1310-1331, 2018.

LENZI, G. K. S. **Framework para o compartilhamento do conhecimento na gestão de tutoria de cursos de educação a distância.** 2014. Tese (Doutorado em Engenharia e Gestão do Conhecimento) – Universidade Federal de Santa Catarina, Florianópolis, 2014.

LESLIE, A. Economics, civilisation, and knowledge. **International Journal of Social Economics**, v. 29, n. 8, p. 615-651, 2002.

____. Knowledge, values and ideas: rethinking the notion of a social science. **International Journal of Social Economics**, v. 30, n. 1/2, p. 34-72, 2003.

MAHANTI, R.; EVANS, J. R. Critical success factors for implementing statistical process control in the software industry. **Benchmarking: An International Journal**, v. 19, n. 3, p. 374-394, maio 2012.

NICOLACI-DA-COSTA, A. M.; PIMENTEL, M. Sistemas colaborativos para uma nova sociedade e um novo ser humano. PIMENTEL, M.; FUKS, H. (Org.). **Sistemas colaborativos**. Rio de Janeiro: Elsevier, 2011.

NONAKA, I.; TAKEUCHI, H. **Criação de conhecimento na empresa**. Como as empresas japonesas geram a dinâmica da inovação. Rio de Janeiro, Campus Editora, 1997.

____. **Gestão do conhecimento**. Porto Alegre: Bookman, 2008.

OROFINO, M. A. R. **Técnicas de criação do conhecimento no desenvolvimento de modelos de negócio.** 2011. Dissertação (Mestrado em Engenharia e Gestão do Conhecimento) – Universidade Federal de Santa Catarina, Florianópolis, 2011.

PORTA, M. et al. Omics research, monetization of intellectual property and fragmentation of knowledge: Can clinical epidemiology strengthen integrative research? **Journal of Clinical Epidemiology,** v. 60, n.12, p. 1220-1225, 2007.

RAO, M. **Knowledge management tools and techniques**: Practitioners and experts evaluate KM solutions. Oxford: Elsevier Butterworth – Heinemann, 2005.

REFINETTI, R. Information processing as a central issue in philosophy of science. **Information Processing & Management**, v. 25, n. 5, p. 583-584, 1989.

SCOTT, C.; SARKER, S. Examining the role of the communication channel interface and recipient characteristics on knowledge internalization: A pragmatist view. **IEEE Transactions on Professional Communication**, v. 53, n. 2, p. 116-131, 2010.

SERVIN, G.; De BRUN, C. **ABC of knowledge management**. NHS National Library for Health: Specialist Library, 2005.

SILVA, M. L. DA; JULIANI, J. P.; DIAS, J. da S. Modelo de gestão do conhecimento para apoiar a prática clínica em uma unidade hospitalar. **Revista Eletrônica de Comunicação, Informação e Inovação em Saúde**, v. 10, n. 4, p.1-14, 2016.

SUN, P. Y.; SCOTT, J. L. An investigation of barriers to knowledge transfer. **Journal of Knowledge Management**, v. 9, n. 2, p. 75-90, 2005.

SZULANSKI, G. The process of knowledge transfer: A diachronic analysis of stickiness. **Organizational Behavior and Human Decision Processes**, v. 82, n. 1, p. 9-27, 2000.

SZULANSKI, G., CAPPETTA, R.; JENSEN, R. J. When and how trustworthiness matters: knowledge transfer and the moderating effect of casual ambiguity. **Organization Science**, v. 15, n. 5, p. 600-613, 2004.

SZULANSKI, G.; RINGOV, D.; JENSEN, R. J. Overcoming stickiness: How the timing of knowledge transfer methods affects transfer difficulty. **Organization Science**, v. 27, n. 2, p. 304-322, 2016.

TENÓRIO, N. et al. Tool based on knowledge management process: An interview protocol to gather functional requirements from software industry experts. **MATTER: International Journal of Science and Technology**, v. 3, n. 1, p. 45-54, 2017.

WENGER, E.; MCDERMOTT, R. A.; SNYDER, W. **Cultivating communities of practice**: A guide to managing knowledge. Harvard Business Press, 2002.

WIIG, K. M. Knowledge management: An introduction and perspective. **Journal of Knowledge Management**, v. 1, n. 1, p. 6-14, 1997.